UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units, 90 Fed. Reg. 25,535 (Jun. 17, 2025)	Docket ID No. EPA-HQ-OAR–2018–0794 *Via regulations.gov* August 11, 2025

COMMENTS OF PUBLIC HEALTH AND ENVIRONMENTAL ORGANIZATIONS

The undersigned organizations[1] respectfully submit these comments on the Environmental Protection Agency's proposed rule: *National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units*, 90 Fed. Reg. 25,535 (Jun. 17, 2025) (Proposal). The Proposal is a baseless attack on reasonable, common-sense safeguards on toxic air pollution from coal-fired power plants that will save and improve lives. For all the reasons set forth below, it would be arbitrary, capricious, and otherwise unlawful for EPA to finalize the Proposal. EPA must withdraw the Proposal and leave the 2024 update of the Mercury and Air Toxics Standards intact.

[1] Air Alliance Houston, Alliance of Nurses for Healthy Environments, Chesapeake Climate Action Network, Citizens for Pennsylvania's Future, Clean Air Council, Clean Air Task Force, Clean Wisconsin, Dakota Resource Council, Downwinders at Risk, Earthjustice, Environmental Defense Fund, Environmental Law & Policy Center, Montana Environmental Information Center, Natural Resources Council of Maine, Natural Resources Defense Council, Sierra Club, and Southern Environmental Law Center.

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INTRODUCTION AND SUMMARY

The Clean Air Act requires EPA to periodically revise its air toxics standards "as necessary" "taking into account developments in practices, processes, and technological standards." 42 U.S.C. 7412(d)(6). In keeping with that mandate, EPA last year finalized revisions to its Mercury and Air Toxics Standards for Coal- and Oil-fired Electric Generating Units ("MATS" or "the Standards"). Specifically, the Agency adopted (1) a more stringent surrogate particulate matter (PM) standard for metallic hazardous air pollutants (HAP) (*e.g,* chromium, lead, and nickel); (2) a revised monitoring requirement for metallic HAP requiring continuous emissions monitoring systems (CEMS), and removing the special treatment of "low emitting units"; (3) a more stringent mercury standard for plants burning lignite coal; and (4) a more stringent set of requirements governing startup. 89 Fed. Reg. 38,508 (May 7, 2024) (the "2024 MATS Rule" or "2024 Rule").

The 2024 MATS Rule is based on an extensive legal and factual record that demonstrated that the specified tightening of HAP emissions standards in the rule required only the worst-performing, highest-polluting plants to reduce their emissions to the levels achieved by the vast majority of their peers. *See id.* at 38,530 ("[O]nly 33 EGUs are currently operating above" the revised PM limit); 38,555 ("The units requiring additional fPM and/or Hg removal" to comply with the standards "are projected to generate less than 2 percent of total generation in 2028"). By targeting that handful of especially dirty units, the 2024 MATS Rule achieved significant reductions in toxic pollution at very modest costs. *See id.* at 38,533 (cost of meeting revised PM standard amounts to "about .03 percent" of total power sector sales); 38,549 ("[I]n 2021, lignite-fired EGUs were responsible for almost 30 percent of all Hg emitted from coal-fired EGUs while generating about 7 percent of total megawatt-hours").

The Agency now nevertheless proposes to revisit and withdraw the 2024 MATS Rule (aside from its startup requirements). National Emissions Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electricity Utility Steam Generating Units, 90 Fed. Reg. 25,535 (June 17, 2025) (hereinafter "the proposal"); *id* at 25,539 n.6 (June 17, 2025). EPA proposes to return to the outdated standards finalized in 2012, thereby allowing the highest-polluting plants in the country to continue to operate without state-of-the-art controls and subjecting nearby communities to significant, and wholly unnecessary, harm. The proposal is part of a larger effort to favor the fossil-fuel industry at the expense of cleaner, cheaper, and more modern

competitors—an effort that has ranged from asserting an energy "emergency" to compel increased use of fossil fuel-fired electricity generation, Executive Order 14,262, *Strengthening the Reliability and Security of the United States Electric Grid* (April 8, 2025), to seeking regulatory means to hinder the growth of cheaper alternatives, Executive Order 14,261, *Reinvigorating America's Beautiful Clean Coal Industry and Amending Executive Order 14241* (April 8, 2025), to attempting to transgress state energy authority, Executive Order 14,260, *Protecting American Energy from State Overreach* (April 8, 2025). As part of that effort, this Administration has provided a series of exemptions from the 2024 MATS Standards that deem widely used control technologies (many of which have already been installed) not to "exist," so as to delay the exempted plants' compliance by two years. Proclamation 10914, *Regulatory Relief for Certain Stationary Sources to Promote American Energy* (April 8, 2025); Proclamation 10956, *Regulatory Relief for Certain Stationary Sources To Further Promote American Energy* (July 17, 2025).

The proposed withdrawal of the 2024 MATS Rule has no valid basis in law or fact. As these comments explain: (I) Paragraph 112(d)(6) of the Clean Air Act requires EPA to revise its "maximum achievable control technology" (MACT) standards when those standards no longer meet the technology-based requirements of paragraph 112(d)(2); (II) EPA's proposed withdrawal of the 2024 MATS Rule's metallic HAP standard incorrectly utilizes a cost-effectiveness metric, arbitrarily determines that that the costs of compliance permit EPA to refuse to update its standard and, inappropriately relies upon a single outlying plant with badly outdated controls to determine standards for the whole fleet; (III) EPA's proposed withdrawal of the CEMS compliance requirements violates the Agency's statutory duty to ensure consistent and continuous emission reductions, fails to acknowledge the benefits of CEMS as documented by the agency itself, and overstates the trivial costs of PM CEMS; (IV) EPA's proposed withdrawal of the 2024 MATS Rule's mercury standard arbitrarily deems that standard non-achievable—based on technical concerns that EPA has already comprehensively rejected—and fails to justify EPA's refusal to make *any* revision to its 2012 mercury standard for lignite plants; (V) EPA's regulatory impact analysis badly mischaracterizes the consequences of the proposal, understating the benefits of the pollution reductions that would be achieved by the 2024 MATS Rule, fails to acknowledge significant changes to the energy sector, and fails to address the harm of withdrawal to low-income and rural communities; (VI) EPA's proposal reopens its flawed 2019 residual risk review analysis; (VII) EPA's proposal is wrongly based on unfounded and unexplained claims about the reliability of the U.S. power grid; (VIII) the Agency disregards the public's reliance interests on the 2024 MATS Rule; (IX) in its rush to withdraw the 2024 MATS Rule, EPA has failed to give the public an adequate opportunity to participate, violating the Clean Air Act's procedural requirements; (X) the Proposal is irreconcilable with the basis provided by the President in issuing Clean Air Act Section 112(i)(4) exemptions from the 2024 MATS Rule; (XI) it is unlawful for EPA to base any part of this proposal on executive orders that the proposal cites as a basis for this action; (XII) the arbitrary and capricious reasoning that EPA uses to advance this proposal, together with outside statements by EPA, suggest that EPA's provided justification is unlawfully pretextual.

Thus for all the reasons explained in these comments, as well as in prior comments submitted by a coalition of public health and environmental organizations, including some of the undersigned, in 2023 as well as in briefing by EPA and a coalition of public health and

environmental organizations, including some of the undersigned, in defense of the 2024 MATS Rule, incorporated into these comments by reference, it would be arbitrary and capricious for EPA to finalize the Proposal and it must be withdrawn.[2]

I. THE PROPOSAL VIOLATES SECTION 112(D)(6) OF THE CLEAN AIR ACT, WHICH REQUIRES EPA TO REVISE STANDARDS WHEN, AS HERE, IT IS "NECESSARY."

A. Paragraph 112(d)(6) Requires EPA to Apply Section 112(d)(2) "Maximum Achievable Control Technology" Criteria to Determine When Revisions are "Necessary."

EPA cannot finalize the proposal because to do so would contravene § 112(d)(6) of the Clean Air Act's requirement that EPA update standards to reflect the maximum degree of reduction of hazardous air pollutant emissions.[3]

Paragraph 112(d)(6) demands that EPA "revise as necessary (taking into account developments in practices, processes, and control technologies), emission standards promulgated under this section." 42 U.S.C. § 7412(d)(6). Here, that text obligates EPA to revise the 2012 Mercury and Air Toxics Standards (MATS) as necessary to meet "the statutory demand of section [paragraph] 112(d)(2)." *La. Env't Action Network v. EPA ("LEAN")*, 955 F.3d 1088, 1097 (D.C. Cir. 2020). That requires EPA to ensure that the Standards continue to secure "the maximum degree of reduction" of hazardous air pollutants "including a prohibition" that is "achievable" for sources in the category "taking into consideration the cost of achieving such emission reduction, and any non-air quality health and environmental impacts and energy requirements." 42 U.S.C. § 7412(d)(2).

Those statutory requirements do not permit EPA to withdraw the revised standards it finalized in 2024. EPA has provided no reasonable basis to conclude that the 2012 MATS still provide the maximum degree of reduction achievable under paragraph 112(d)(2), for the reasons set forth below. Pursuant to 112(d)(6), revisions are "necessary" when its current standards fail to provide the statutorily specified maximum reductions. 90 Fed. Reg. at 25,544 ("proposing, as an additional and complementary basis for this action, to find that the 2024 changes were not 'necessary' under Clean Air Act (CAA) section 112(d)(6)"). The word "necessary" in paragraph 112(d)(6) requires EPA to ensure that the standards meet the statutory requirements—the criteria set out in paragraph 112(d)(2)—that serve as the centerpiece of the subsection in which paragraph 112(d)(6) operates. *See Cellular Telecomms. & Internet Ass'n v. FCC*, 330 F.3d 502, 510 (D.C. Cir. 2003) ("[I]t is crucial to understand the context in which the word is used in order to comprehend [the] meaning" of "necessary" in a statute).

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[2] Comments of Public Health and Environmental Organizations on EPA 2023 MATS RTR Proposal (June 23, 2023), Doc. ID No. EPA–HQ–OAR–2018–0794-5996, https://www.regulations.gov/comment/EPA-HQ-OAR-2018-0794-5996; Briefs from *North Dakota v. EPA*, D.C. Cir. 24-1119 are also attached to these comments.

[3] EPA claims authority "to consider, repeal, or revise past decisions," but acknowledges that it may do so only "to the extent permitted by law" – and here, paragraph 112(d)(6) provides the governing law. 90 Fed. Reg. at 25,540.

The text of paragraph 112(d)(2) confirms that its criteria govern what is "necessary" under paragraph 112(d)(6). Section 112 follows a "hierarchical scheme[]—section, subsection, paragraph and on down the line," *NLRB v. SW Gen. Inc.*, 580 U.S. 288, 300 (2017). That structure carefully distinguishes between numbered paragraphs, lettered subsections, and the section as a whole. *E.g.* 42 U.S.C. § 7412(d)(5). References to "this subsection" within subsection 112(d) consistently encompass the whole subsection. *E.g.* 42 U.S.C. § 7412(d)(4),(8),(10). Paragraph 112(d)(2) expressly applies to "[e]missions standards promulgated under this subsection"—including revised standards issued pursuant to paragraph 112(d)(6). Read together with paragraph 112(d)(2), paragraph 112(d)(6)'s "requirement that EPA must periodically review and revise" MACT standards "as necessary" is "a mandate to address the adequacy of each emission standard on the books against the statutory demand of [paragraph] 112(d)(2)," and to ensure that those standards provide the "requisite degree of control of all of the air toxics the source emits." *LEAN*, 955 F.3d at 1097 (revisions are necessary where standards fail to control all toxics emitted by source category). *See also Ass'n of Battery Recyclers v. EPA*, 716 F.3d 667, 673-74 (D.C. Cir. 2013) (looking to paragraph 112(d)(2) to interpret requirements of paragraph 112(d)(6)).

B. EPA Identifies No Statutory Authority for Weakening Section 112 Standards.

EPA proposes to weaken the current hazardous air pollutant emission standards for coal-fired power plants but fails to identify and discuss a valid source of statutory authority for weakening section 112 standards. The agency fails to explain why section 112(d)(6), which authorizes "revis[ions] as necessary (taking into account developments in practices, processes, and control technologies)", 42 U.S.C. § 7412(d)(6), should be interpreted to authorize revisions that weaken section 112 standards, or how those revisions could be "necessary" in light of developments in practices, processes, and control technologies. The proposal's brief discussion of dubious potential sources of authority does not satisfy the EPA's obligation to explain its claimed authority, and therefore the proposal must be withdrawn so that the agency can provide a sufficient explanation and provide adequate notice and an opportunity to comment on that authority.

EPA claims that the proposal is "based on its review of the 2024 Final Action pursuant to the EPA's statutory authority under CAA section 112 and the EPA's authority to reconsider previous decisions taken under that authority to the extent permitted by law and supported by a reasoned explanation," 90 Fed. Reg. at 25,540, and that the agency "has authority to reconsider, repeal, or revise past decisions to the extent permitted by law so long as the Agency provides a reasoned explanation," *id*. In other words, the agency appears to rely on what is sometimes referred to as "inherent" or "implicit" authority, *HTH Corp. v. N.L.R.B.*, 823 F.3d 668, 679 (D.C. Cir. 2016), in addition to statutory authority under section 112(d)(6). But even if EPA has "inherent" or "implicit" authority, which is doubtful as the D.C. Circuit has held such implicit authority can be displaced by statutory provisions, *see American Methyl Corp. v. EPA*, 749 F.2d 826 (D.C. Cir. 1984), at most both of these sources of authority are limited by the terms of section 112, *see NRDC v. Regan*, 67 F.4th 397, 401 (D.C. Cir. 2023) (looking to the statutory text to determine whether an agency's authority includes authority to revise or rescind a determination). This is obviously true for any authority directly attributed to section 112(d)(6),

but also (as EPA appears to recognize) any "inherent" authority, which the agency admits is limited to "the extent permitted by law," *id*. As the D.C. Circuit has made clear, agencies do not have "inherent" authority beyond what the statute provides, as "it is 'axiomatic' that administrative agencies may act only pursuant to authority delegated to them by Congress." *NRDC v. Regan*, 67 F.4th 397, 401 (D.C. Cir. 2023). Therefore, the authority claimed by the agency—in this case to weaken a section 112 standard—must be "statutorily implicit." *Id*. And, as the D.C. Circuit has held with regard to delisting under section 112(c)(9), Congress "undoubtedly can limit an agency's discretion to reverse itself." *New Jersey v. EPA*, 517 F.3d 574, 583 (D.C. Cir. 2008).

EPA fails to explain why section 112 explicitly or implicitly authorizes the agency to make revisions that would weaken an emissions standard for hazardous air pollutants. Interpreting section 112(d)(6) to provide the agency with broad discretion to weaken section 112 standards would undermine the intent of Congress in revising section 112, as discussed in section I.C.1, to limit EPA's discretion and force the agency to regulate emissions of hazardous air pollutants to achieve "the maximum degree of reduction." 42 U.S.C. § 7412(d)(2). Congress included detailed and specific criteria for setting initial MACT standards in section 112 that at least implicitly (if not explicitly) limit EPA's discretion to weaken those standards. 42 U.S.C. § 7412(d)(3). And where Congress intended EPA to have discretion to engage in deregulatory actions under section 112, it explicitly described and cabined that authority with specific factors to consider. *See, e.g.*, 42 U.S.C. § 7412(c)(9) (authorizing delisting of source categories that satisfy specific criteria); *see also* § 7412(b)(3)(C) (describing criteria for removal of a substance from the list of regulated hazardous air pollutants). EPA identifies no precedent that establishes that section 112 provides the agency with broad authority to weaken standards and fails to explain why section 112 should be read to imply EPA has this authority. Such authority should not be implied here, because provisions in section 112 provide reason to believe Congress intended to limit the agency's discretion to undermine the stringency of a section 112 hazardous air pollutant standard. And in addition to limiting EPA's authority to undermine its own hazardous air pollutant emissions standards under section 112, Congress went so far as to ensure that any standards promulgated under section 112 would not undermine the stringency of standards issued under section 111 "or other authority of this chapter or a standard issued under State authority." 42 U.S.C. § 7412(d)(7). These statutory indicia suggest that the best reading of section 112 is that it forecloses weakening of standards, and EPA must explain why that is not the case before it may proceed with the proposed action.

Even assuming section 112 implied some delegation of authority to reconsider and revise hazardous air pollutant standards to reduce their stringency, EPA's proposal is inconsistent with the statute. Section 112(d)(6) authorizes revisions as necessary taking into account developments in practices, processes, and control technologies. EPA provides no reason to believe Congress expected that developments in practices, processes, or control technologies would ever necessitate or justify revising a hazardous air pollutant standard to make it less stringent—the proposal fails to even identify specific developments to justify revisions since the standards were finalized in 2024—and particularly where, as with many MATS sources, sources are already meeting the standards.

C. Section 112(d)(6) Bars EPA From Refusing to Regulate Based on Its Conclusion That the Maximum Achievable Controls Secure No "Meaningful Risk Reduction." (Response to Question No. 8).

1. The Statute Does Not Permit EPA to Refuse to Update Its Standards When Otherwise "Necessary" Based on EPA's Own Appraisal of the Benefits of Reducing HAP Emissions.

Paragraph 112(d)(6) does not permit EPA to withdraw the revised standards based on its claim that otherwise achievable controls produce no "meaningful risk reduction." 90 Fed. Reg. at 25,544. Paragraph 112(d)(2)—whose criteria govern revisions pursuant to paragraph 112(d)(6)—establishes a technology-based—rather than risk-based—standard. *Sierra Club v. EPA,* 353 F.3d 976, 990 (D.C. Cir. 2004). Paragraph 112(d)(6) confirms that the necessary focus is on the technology-related standards set out in paragraph 112(d)(2), instructing EPA to "tak[e] into account developments in practices, processes, and control technologies." 42 U.S.C. § 7412(d)(6). "[N]othing" in that "text suggests that EPA must consider such factors" as "risk reduction." *Battery Recyclers*, 716 F.3d at 672 (cleaned up). And EPA may not decline to make otherwise "necessary" revisions based on its appraisal of risk reduction. Where the Act allows EPA to depart from enumerated criteria based on its view of a standard's efficacy, it does so explicitly. *E.g.,* 42 U.S.C. § 7411(b)(1)(B) ("Notwithstanding the requirements of the previous sentence, [EPA] need not review any such standard if [EPA] determines that such review is not appropriate in light of readily available information on the efficacy of such standard.").

Context underscores the text. Section 112 sets out "a two-phase approach to promulgating emission standards," in which subsection 112(d) prescribes a strictly "technology-based approach" and subsection 112(f) sets out a separate "risk-based approach." *Sierra Club v. EPA* 353 F.3d 976, 990 (D.C. Cir. 2004). Paragraph 112(d)(6) thus appears within a subsection describing technology-based standards; standards based on health risks are the subject of a separate subsection 112(f). *Sierra Club*, 353 F.3d at 990 (structural divide between subsection 112(d)'s technology-based standards and subsection 112(f)'s health-risk standards is the "distinction at the heart of the Act"). Moreover, Congress defined the limited circumstances under which EPA may consider health risk-related concerns under subsection 112(d): only where "a health threshold has been established" (and none has been established here). *See* 42 U.S.C. § 7412(d)(4) (governing all standards "under this subsection"). That "limited, specific authorization" to consider health risks, within a "comprehensive scheme" that "deliberately target[s] specific problems with specific solutions," precludes any effort to insert those same considerations into paragraph 112(d)(6)'s broader terms. *RadLAX Gateway Hotel, LLC v. Amal. Bank*, 566 U.S. 639, 645 (2012) (cleaned up).

The statutory history confirms that EPA may not alter the statutory standards based upon its own appraisal of the risks and benefits associated with reducing hazardous air pollution. In 1990, Congress amended section 112 to eliminate the stasis produced by the prior risk-balancing regime, by requiring standards "based not on an assessment of the risks posed by [air toxics], but instead on the maximum achievable control technology." *Sierra Club*, 353 F.3d at 980. Those amendments reflected "Congress' understanding that fully characterizing the risks posed by HAP emissions was exceedingly difficult." National Emission Standards for Hazardous Air Pollutants;

Coal- and Oil-Fired Electric Utility Steam Generating Units—Revocation of the 2020 Reconsideration and Affirmation of the Appropriate and Necessary Supplemental Finding, 88 Fed. Reg. 13,956, 13,963 (Mar. 6, 2023). Based on that understanding, "Congress purposefully replaced a regime" dependent upon EPA's "assessment of risk in the first instance, with one in which Congress determined risk existed and directed the EPA to make swift and substantial reductions based upon the most stringent standards technology could achieve." *Id.* at 13,963-64 (also noting that "[t]he statutory design and direction also repeatedly emphasize that the EPA should regulate with the most exposed and most sensitive members of the population in mind"). Importing risk-based considerations to those set out in paragraph 112(d)(2) when EPA conducts the periodic reviews of MACT standards required by paragraph 112(d)(6) "would collapse the technology-based/risk-based distinction at the heart of the Act, undermining the central purpose of the 1990 Amendments," thereby "reintroduc[ing] the very problem Congress sought to exorcize" through those Amendments. *Sierra Club,* 353 F.3d at 990 (cleaned up). EPA should not, and cannot, withdraw the revised Standards based on its view of the risks reduced by those Standards.

2. <u>EPA Has Not Provided, and Could Not Provide, Any Basis to Reject Its Prior Conclusion that the Revised Standards Provide Meaningful Benefits.</u>

The revised Standards would reduce HAP that cause significant health harms. *See* section V.D. below. When promulgating the revised Standards, EPA noted that "U.S. EGUs are a major source of HAP metals emissions including arsenic, beryllium, cadmium, chromium, cobalt, lead, nickel, manganese and selenium," and that some of those metals "are known to be persistent and bioaccumulative and others have the potential to cause cancer." 89 Fed. Reg. at 38,524. It further acknowledged that mercury "is a persistent, bioaccumulative toxic metal," which causes, *inter alia,* "significant developmental effects." 89 Fed. Reg. at 38,556. While EPA acknowledged the difficulties associated with quantifying those effects, given the "more uneven and more highly concentrated" exposures associated with HAP, *id.* at 38,515-16, it nevertheless found that its revised standards "reduce exposure to methylmercury for subsistence fisher sub-populations located in the vicinity" of lignite plants, and "reduce human exposure to non-Hg HAP metals." *Id.* at 38,556. *See id.* at 38,563 ("[E]ven though the 2020 residual risk assessment showed all modeled exposures to HAP to be below thresholds for public health concern, the rule should reduce HAP exposure by reducing emissions of Hg and non-Hg HAP with the potential to reduce HAP exposure to vulnerable populations, including children.").[4]

Those are precisely the benefits that Congress instructed EPA to achieve through its promulgation, and revision, of MACT standards under subsection 112(d). As EPA has recognized, "the statutory design and direction of CAA section 112 repeatedly emphasize that EPA actions developed under this provision should be designed with the most exposed and most sensitive members of the population in mind," including "those who are most exposed to EGU HAP, based on proximity" as well as "those who are most at risk from exposures to EGU HAP." *See* 88 Fed. Reg. at 13,1996. *See, e.g.,* 42 U.S.C. 7412(c)(9)(B)(i). EPA has provided no basis for

[4] EPA's Residual Risk Assessment provided a limited quantification of some of the cancer risks posed by EGU HAP emissions. Residual Risk Assessment (EPA-HQ-OAR-2018-0794-4553) at 6. But EPA recognized the uncertainty in that quantification, precluding any claim that it undermines or contradicts EPA's quantitative assessment of the revised Standards' benefits. *Id.*

any reversal of its conclusion that the revised Standards provide significant benefits warranting their promulgation.

II. EPA'S PROPOSAL TO WITHDRAW THE STRENGTHENED STANDARD FOR ARSENIC, NICKEL, AND OTHER TOXIC METALS IS UNLAWFUL (RESPONSE TO QUESTION #1).

A. EPA's Proposal to Withdraw the Strengthened fPM Standard on the Basis of "Cost Effectiveness" Instead of Section 112(d)(2)'s Criteria Violates the Clean Air Act.

EPA proposes to repeal the revision to the filterable particulate matter ("fPM") emission standard for coal-fired electric utility steam generating units ("EGUs") that was included in the 2024 MATS Rule. In the 2024 MATS Rule, the fPM standard was lowered from 0.030 lb/MMBtu to 0.010 lb/MMBtu for all existing coal-fired EGUs. EPA now proposes to repeal the lowered fPM standard, returning the standard to 0.030 lb/MMBtu. EPA's basis for doing so is the purportedly "high costs of the revised standard," including "in terms of cost effectiveness, a common metric the EPA considers in CAA section 112(d)(6) technology reviews." 90 Fed. Reg. 25,541 (June 17, 2025). EPA goes on to say that the cost effectiveness of the revised fPM standard for coal-fired EGUs was "significantly higher" than other cost-effectiveness ratios that EPA has rejected in the past during section 112(d)(6) reviews. *Id*. (citing the Petroleum Refinery Sector technology review in 2015, the Integrated Iron and Steel Manufacturing Facilities technology review in 2020, and the Taconite Iron Ore technology review in 2020). EPA refers specifically to the cost-effectiveness estimate for EGUs that are not already meeting the revised fPM standard, after acknowledging that EPA in the 2024 MATS Rule found that "most" EGUs were already meeting the revised standard. *Id.*; *see also* 89 Fed. Reg. 38,530 (May 7, 2024) (noting that "93 percent are demonstrating the ability to meet 0.010 lb/MMBtu with existing controls"). In other words, cost effectiveness—which itself is the wrong metric—is skewed to a fraction of laggard EGUs for a rule that will apply to an entire industry.

EPA has invited comments on the cost-effectiveness rationale. As a preliminary matter, in relying on cost effectiveness, EPA misreads the Clean Air Act and allows its interpretation of "cost effectiveness" for "cost" to swallow the Act's mandate for the maximum "achievable" emissions reductions. The Clean Air Act requires the "maximum degree of reduction in emissions" that is "achievable" considering "cost" and other enumerated factors. 42 U.S.C. § 7412(d)(2). It does not require the degree of reduction that EPA regards as "cost-effective" or even suggest that EPA may substitute its (subjective) views about the degree of reduction that is "cost-effective" for the maximum degree of reduction that is "achievable" considering cost.

Nor is the maximum degree of reduction that is achievable considering cost and the degree of reduction EPA regards as cost effective the same thing. EPA's view about what is cost effective is subjective and has nothing to do with what can be achieved – considering cost or otherwise.

EPA's focus on what it regards as "cost-effective" for limits on hazardous air pollutants is also inherently nonsensical. Section 112 of the Act lists 187 pollutants as hazardous. 42 U.S.C.

§ 7412(b). Facilities emit these pollutants in vastly different quantities ranging from micrograms to metric tons, and hazardous air pollutants are toxic in vastly different quantities. Even if the statute allowed EPA to focus on what it thinks is cost-effective, which it does not, EPA measures cost-effectiveness solely in dollars per ton (or pound) of pollutant reduced. That metric is just as irrelevant to what is "cost-effective" in terms of reducing pollutants of differing toxicities as it is to what is "achievable" under § 112(d)(2).

The problems with EPA's use of cost effectiveness are especially stark here, where EPA has recognized that "most existing coal-fired EGUs" already have been achieving emissions rates below the standard it proposes. 90 Fed. Reg. 25,540. Because the standard set in the 2024 MATS Rule is achievable, the weakened standard in EPA's proposed repeal is unlawful.

Cost effectiveness is not the right metric nor an appropriate consideration under the best reading of the statute. The relevant question under Clean Air Act section 112(d)(2) is not whether, in EPA's subjective view, a standard is "cost effective" but whether it is "achievable." 42 U.S.C. § 7412(d)(2). Withdrawing the fPM standard based on what the agency perceives as cost-effectiveness values that are too high contravenes the text of section 112(d), which requires emissions standards that "require the *maximum* degree of reduction in emissions" that is "*achievable*," with "consideration of the cost of achieving such emission reduction." 42 U.S.C. § 7412(d)(2) (adding emphasis). Because the fPM standard in the 2024 Final Action is "achievable," the weaker standards in the proposed rule violate sections 112(d)(2) and (d)(6).

While EPA has been using cost effectiveness as a metric for the past decade, that does not make it the best reading of the statute. The D.C. Circuit did not overturn EPA's use of cost effectiveness in *Natural Resources Defense Council v. E.P.A.*, 749 F.3d 1055, 1061 (D.C. Cir. 2014), with the determination that cost effectiveness was "at least a reasonable reading [of the statute] given the various potential meanings of 'cost' in this context." There, *Chevron* required deference to any "reasonable interpretation" of a statute where there were multiple, and possibly even better, readings of the statute. *Id.* at 1060, 1061. No more. *Loper Bright Enters. v. Raimondo*, 603 U.S. 369, 412 (2024) ("*Chevron* is overruled.").

A plain reading of the statute begins with the text. Statutory terms must be presumed to have their "ordinary meaning," unless otherwise defined in the statute. *See Hamilton v. Lanning,* 560 U.S. 505, 513 (2010). The ordinary meaning of "achievable" is capable of being achieved, done, or accomplished. *See, e.g.*, Merriam-Webster, https://www.merriam-webster.com/thesaurus/achievable. Accordingly, section 112(d)(2) requires the maximum degree of reduction that, considering cost and the other listed factors, is capable of being achieved.

By directing EPA to consider cost and the other statutory factors in determining the "maximum" degree of reduction that is capable of being achieved, Congress made clear *how* it wanted EPA to consider these factors. Cost and other factors are to limit a standard only to the extent they would prevent an industry from achieving it—in other words, making the standard *un*achievable. Cost might make a standard unachievable if the standard is too expensive for industry to achieve. The D.C. Circuit has held that an agency may find a regulation "economic[ally] feasible" if it "will not threaten the existence or competitive structure of an industry," even if it is costly "for some marginal" entities in the industry. *United Steelworkers of*

Am., AFL-CIO-CLC v. Marshall, 647 F.2d 1189, 1272 (D.C. Cir. 1980). EPA cannot rely on cost effectiveness in a way that obliterates the statutory mandate for maximum achievable emissions reductions. *See Whitman v. Am. Trucking Ass'ns,* 531 U.S. 457, 485 (2001) ("The EPA may not construe the statute in a way that completely nullifies textually applicable provisions meant to limit its discretion."). Courts have similarly not allowed agencies to conduct analyses that erase a statutory "feasibility" requirement in rulemaking. *See, e.g.*, *Am. Textile Mfrs. Inst. v. Donovan,* 452 U.S. 490, 513 (1981) (stating that, where the statute required the most stringent health-based standard, "to the extent feasible," interpreting the statute to include "an additional and overriding requirement of cost-benefit analysis on [the standard] would eviscerate the 'to the extent feasible' requirement").

"Cost effectiveness" does not appear in the text of section 112(d) of the Act. Nor does it have anything to do with whether a standard is too expensive to achieve. It is simply an inappropriate measure EPA uses to decide whether a standard is too expensive, in EPA's subjective view. Further, EPA's assessment of cost-effectiveness is also arbitrary, as described in section II.B.

Had Congress wanted EPA to consider cost effectiveness, it would have said so. *See Kucana v. Holder*, 558 U.S. 233, 248-49 (2010). "Cost effectiveness" does appear in an entirely separate part of the Act, which concerns emissions standards for new motor vehicles. 42 U.S.C. §7521(i)(2)(A)(ii) (directing EPA to study cost-effectiveness before regulating, and setting cost effectiveness as something separate from feasibility); *see also Kucana*, 558 U.S. at 249 ("[W]here 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 and purposely in the disparate inclusion or exclusion.") (quoting *Nken v. Holder*, 556 U.S. 418, 430 (2009)); *United States v. Papagno,* 639 F.3d 1093, 1099 & n.3 (D.C. Cir. 2011) (same, and noting that the dissimilar language need not have been enacted at the same time for this presumption to hold true).

If EPA were to base its decision on the emission standard that is "achievable" considering cost, rather than on the basis of what it considers cost effective, EPA would not repeal the 2024 Final Action.

B. EPA's proposal to repeal the fPM standard based on supposedly high costs is arbitrary and capricious.

In addition to applying the wrong legal standard by substituting "cost-effective" for "achievable" in the statute, even on its own terms EPA's proposal fails to provide "good reasons" for the changes consistent with section 112(d)(6). *FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 513 (2009). EPA's proposal also fails to consider aspects of the problem that it had previously considered important, articulating little or no explanation for its action and no "rational connection between the facts found and the choice made." *Motor Vehicle Mfrs. Ass'n v. State Farm*, 463 U.S. 29, 43 (1983). Because EPA relies on the *same* facts as the 2024 MATS Rule but proposes to make a completely different choice regarding the fPM standard, it is not surprising the agency fails to articulate a rational connection between the two.

In Question #1 EPA "solicits comment on the rationale that the cost effectiveness of the revised fPM standard is inconsistent with the Agency's prior CAA section 112(d)(6) technology review determinations." 90 Fed. Reg. at 25,541. EPA's reliance on cost-effectiveness as the sole measure of cost is inconsistent with its past practice. 90 Fed. Reg. at 25,540-41. In addition, EPA's rejection of the alternative measures of cost that it used only last year consists of a single sentence, providing no explanation for this dramatic reversal. Indeed, it cannot, because the record shows that the costs of the fPM standard in the 2024 MATS Rule were reasonable and not excessive for the power sector.

EPA also uses cost-effectiveness in a different way than it has in the past. Previously, the agency "routinely consider[ed] the cost effectiveness of potential standards where it can consider costs under CAA section 112, *e.g.*, in conducting beyond-the-floor analyses and technology reviews, *to determine the achievability of a potential control option*." 89 Fed. Reg. at 38,533 (emphasis added). In other words, cost-effectiveness was not the end-point of the analysis, but instead merely one consideration to use in arriving at the eventual determination of "achievability." But in this proposal, the achievability of the fPM standard does not appear to be in question, which is understandable in light of the abundant evidence showing the vast majority of coal plants regulated by the rule have in fact achieved emissions rates that comply with the fPM standard.

1. <u>The proposal's reliance on cost effectiveness as the only or primary consideration justifying repeal under section 112(d)(6) is inconsistent with past practice, and EPA has failed to explain how it weighed or discarded the other cost considerations underlying the 2024 Rule, rendering the proposal arbitrary and capricious.</u>

EPA's conclusion that the fPM standard was achievable in the 2024 MATS Rule was not based solely on cost-effectiveness but on a range of factors including multiple measures of cost and considerations specific to the power sector. In earlier rulemakings, EPA has recognized other factors it considers when setting standards under section 112(d)(6), which "include, but are not limited to, the following: which of the HAP metals are being reduced and by how much; total capital costs; annual costs; and costs compared to total revenues (e.g., costs to revenue ratios)." *National Emissions Standards for Hazardous Air Pollutants: Ferroalloys Production*, 80 Fed. Reg. 37,366, 37,381 (June 30, 2015). The agency apparently no longer believes that various factors "must" be considered but provides no explanation as to why its position or approach has changed. In finalizing the 2024 Rule, EPA even pointed out that commenters who cited prior rulemakings as support in advocating against the 2024 Rule had "omitted any discussion of other relevant factors from those rulemakings that, in addition to cost effectiveness, counseled the EPA against adopting more stringent standards." 89 Fed. Reg. at 38,524. It is now the agency that makes the same mistake in this proposal.

Regarding cost measurements in particular, as EPA admits in this proposal, in the 2024 Rule, "as in previous CAA section 112 rulemakings, the EPA considered costs in many ways." 90 Fed. Reg. at 25,540. In particular, the 2024 Rule considered "cost effectiveness, the total capital costs of proposed measures, annual costs, and costs compared to total revenues." *Id.* In addition, it provided an extensive list of prior technology review rules and explained the ways

those rules had considered costs, including that many of them considered total annual costs and capital costs in addition to cost-effectiveness. 89 Fed. Reg. at 38,532-33 n. 52.

In addition, in the 2024 Rule, EPA explained that "the size and unique nature of the coal-fired power sector, and the emission reductions that will be achieved by the new standard, in addition to the costs, make promulgation of the new standard appropriate under CAA section 112(d)(6)." 89 Fed. Reg. at 38,534. Based on all of these considerations, it determined "the revised fPM standard appropriately balances the EPA's obligation under CAA section 112 to achieve the maximum degree of emissions reductions considering statutory factors, including costs." *Id.* at 38,533.

EPA now proposes to repeal the revised fPM standard in the 2024 Rule "because the cost effectiveness of the revised standard is inconsistent with the EPA's prior technology review determinations." 90 Fed. Reg. at 25,541. But even if that were true, consistency with cost-effectiveness estimates in prior technology reviews for other materially different industrial sectors with different economic profiles is not a requirement under section 112(d)(6). Though EPA may have "consider[ed] what estimates it has deemed cost-effective in prior rulemakings," 89 Fed. Reg. at 38,524, that should not and has not been the only factor the agency considers under section 112(d)(6), and as discussed in section II.A, such factor certainly cannot negate the agency's obligation to achieve the maximum degree of emissions reduction that is achievable.

It makes good sense to consider other cost-related factors alongside cost-effectiveness, as a relatively high cost-effectiveness value may be less of a concern depending on other factors. Here, though the cost-effectiveness value may be relatively high: the power sector had annual revenue of $427.8 billion in 2022, 89 Fed. Reg. at 38,533, and annual capital expenditures of over $100 billion in 2019, 87 Fed. Reg. at 7,657.[5] This information suggests that the costs are not actually high for the power sector and that it is more than capable of absorbing such costs. Further, the power sector "is publicly regulated, with long-term decision-making and reliability considerations made available to the public," 89 Fed. Reg. at 38,534, allowing the agency to better predict potential closures, and therefore the impact of imposing costs. Moreover, cost per ton of reducing air toxics emissions may increase over time due to various factors including inflation, which makes comparing values to prior rules inappropriate and challenging.

Moreover, the proposal does not discuss why or how, specifically, it considered the cost-effectiveness of prior rules relative to this proposal. EPA states: "The cost effectiveness of the revised fPM standard was also an order of magnitude higher than cost-effectiveness ratios that the EPA has accepted for fPM emissions in other industries in other CAA section 112(d)(6) reviews. The EPA now proposes to find that the costs for the power sector to achieve the revised standard are too high, such that the revised standard is not necessary under CAA section 112(d)(6)." 90 Fed Reg. at 25,541. EPA cites two prior rulemakings to support its decision. *Id*. It is unclear whether EPA is now adopting a position that the costs-per-ton of non-Hg HAP that

[5] EPA explains that even considering the "significantly overestimated figure of $4.2 billion" that the agency projected in its 2011 regulatory impact analysis as incremental capital expenditures to comply with the original MATS standards, "the $4.2 billion estimate represents about 3.6 or 3.7 percent of 2019… power sector level capital expenditures based on the S&P Global and U.S. Census information, respectively." 87 Fed. Reg. at 7,657. This means capital expenditures in 2019 were near $113 billion.

EPA considered and rejected in those rulemakings ($10 million per ton and $7 million per ton) are the new de facto thresholds or range that it will consider for cost-effectiveness across sectors and industries. Here, to do so without any explicit acknowledgement or consideration of whether doing so is a wise policy choice is arbitrary and capricious.

It would also be inconsistent with the agency's prior approach, in which EPA rejected the adoption of a cost-effectiveness threshold. EPA stated in the 2024 Rule that it does not believe "there is any particular threshold that renders a rule cost-effective or not." 89 Fed. Reg. 38,523-24. This was not a new position for EPA: it previously indicated that "it is important to note that there is no bright line for determining acceptable cost effectiveness for HAP metals." 80 Fed. Reg. 37,366, 37,381 (June 30, 2015). To the extent that EPA is adopting a cost-effectiveness threshold here, this unexplained change in position renders the proposed repeal unlawful. *See Fox TV*, 556 U.S. at 515.

The proposal also elides the distinction between cost-effectiveness and total cost. EPA claims to be proposing to repeal the fPM standard "because of the high costs of the revised standard, both in terms of cost effectiveness, a common metric the EPA considers in CAA section 112(d)(6) technology reviews, and total costs." 90 Fed. Reg. at 25,541. While this language suggests the agency is basing repeal on both cost-effectiveness and total costs, the agency fails to discuss total compliance costs for the fPM standard standing alone, and costs for distinct aspects of the 2024 Rule obviously cannot justify repeal of the fPM standard. This passing reference to total costs is insufficient to provide a reasoned basis for the repeal, and therefore, as the proposal itself indicates, EPA's sole basis for proposing to repeal the fPM standard is "because the cost effectiveness of the revised standard is inconsistent with the EPA's prior technology review determinations." *Id.*

Moreover, the concepts of total cost and cost-effectiveness are not the same, and may not even be correlated, as total cost can be high when cost per ton of reducing emissions is low and vice versa. If the cost to reduce each ton of pollution is high but there are relatively few tons to reduce to achieve compliance across the sector the total costs may be quite low. In the 2024 Rule, EPA noted that "[s]ince only a small handful of units emit significantly more than peer facilities, the Agency finds these upgrades appropriate." 89 Fed. Reg. at 38,534. The proposal fails to explain why this is no longer the case, and this fact helps to explain why total costs of the 2024 Rule are actually quite low, particularly compared to the 2012 MATS rule.

EPA also recognized in the 2024 Rule that "the size and unique nature of the coal-fired power sector, and the emissions reductions that will be achieved by the [revised fPM] standard, in addition to the costs, make promulgation of the new standard appropriate under CAA section 112(d)(6)." *Id*. In other words, there are significant air toxics emissions that could be reduced at relatively small cost compared to the size of the coal-fired power sector. EPA explained that "[b]ecause of the relative size of the power sector, while cost effectiveness of the final standard is relatively high as compared to prior CAA section 112 rulemakings involving other industries, costs represent a much smaller fraction of industry revenue." *Id*. Also, if the power sector continues to transition to lower-emitting sources because of factors independent of EPA regulation, the total costs and emission reductions attributed to the standard would be an

overestimate. EPA fails to explain why these factors no longer matter to the agency, rendering the proposal arbitrary.

2. The fPM standard in the 2024 Rule was cost reasonable, the cost per ton of fPM emissions was not excessive for the power sector, and EPA fails to explain why previously acceptable costs justify repeal.

In addition to being inconsistent with its general approach to weighing costs in the context of 112(d)(6) rules, EPA's proposal to repeal the fPM standard is arbitrary and capricious because it fails to explain why the fPM standard is too costly *for the power sector*. When EPA finalized the 2024 Rule, it determined its cost estimates were acceptable and reasonable for the power sector, taking into account its unique characteristics. If the agency intends to repeal the fPM standard based on cost-effectiveness, it must provide estimates of those values and explain why they are no longer acceptable and reasonable for the power sector—contrary to its prior finding—and not merely state they are too high without any support for that conclusion.

EPA found last year that the cost per ton for EGUs reporting average fPM rates above the strengthened standard was $10.5 million per ton of non-Hg HAP metals and $34,500 per ton of fPM. 89 Fed. Reg. at 38,532; 90 Fed. Reg. at 25,541. And as EPA admits, the agency "recognized differences between the power sector and the other industries regulated in the above-mentioned technology reviews in the 2024 Final Action and determined that despite the high cost-effectiveness ratio, the revised standards were still cost reasonable for the industry." 90 Fed. Reg. at 25,541. EPA considered a range of factors/considerations, including cost effectiveness, to reach this reasonable conclusion, and as discussed in section II.B.6 any repeal must similarly account for those factors. EPA's silence on important aspects of the problem is arbitrary and unlawful.

It is also worth noting that EPA's cost-effectiveness ratios for non-Hg HAP metals and fPM were likely overestimated, as EPA's estimates of compliance costs do not account for technical innovation and use of less widely used options for reducing pollution, which in the past have led to lower compliance costs than the agency anticipated.[6] EPA also calculated an "allowable emissions" cost effectiveness value for the proposed rule considering the emissions reductions that would be achieved if all plants were emitting at the highest level allowed and found that the cost per ton is as low as $197,000 per ton of non-Hg HAP metals. 88 Fed. Reg. at 24,870. A cost-effectiveness value that better reflects actual emissions reductions would likely be somewhere between $197,000 and $10.5 million per ton of non-Hg HAP metals. Also, in 2024, EPA recognized that "[c]osts of PM upgrades are much lower than the EPA estimated in 2012, and the agency revised its cost assumptions." 89 Fed. Reg. at 38,531. As EPA recognized, "[a]s much of the fleet is already reporting fPM emission rates below 0.010 lb/MMBtu, both the total costs and non-Hg HAP metal reductions of the revised limit are modest in context of total PM upgrade control costs and emissions of the coal fleet." 89 Fed Reg. at 38,532-3. Therefore, if anything, EPA likely overestimated the total costs and cost-effectiveness values in 2024, providing even further support for the fPM standard, and creating an issue the agency must address.

[6] Andover Technology Partners, Consulting Regarding Proposed Repeal of the 2024 MATS Rule at 5-6 (Aug. 7, 2025) (Hereinafter "ATP 2025 Report").

3. EPA Fails to Explain Why It Should No Longer Consider Cost In Relation to the Specific Industry Being Regulated.

EPA's approach is arbitrary, capricious, and unlawful because consistency in cost effectiveness values when compared to prior technology review rules for other source categories is not a statutory factor included in section 112(d)(6) and should not be considered (much less be decisive) when determining whether costs of a standard are reasonable or acceptable. EPA is not responsible for equally allocating the costs of emissions reductions across sources; rather, the focus of section 112 is on reducing emissions to the maximum achievable extent, even to the point of a total prohibition on air toxics emissions where feasible under section 112(d)(2). It is not unreasonable to expect that if control technologies enable a particular source category to significantly reduce its emissions of carcinogenic metals, or if that source category is capable of absorbing significant costs with minimal impact due to its size, section 112(d)(6) would compel sources in that category to reduce their air toxics emissions at a higher cost per ton than a different industrial source category with fewer tons of emissions to reduce or for which relatively small costs might be disruptive or even result in closures.

In the 2024 Rule, EPA explained that "[t]he power sector also operates differently than other industries regulated under CAA section 112." 89 Fed. Reg. at 38,534. More specifically, the agency pointed out this sector is "publicly regulated, with long-term decision-making and reliability considerations made available to the public; it is a data-rich sector, which generally allows the EPA access to better information to inform its regulation; and the sector is in the midst of an energy transition leading to plant retirements." *Id*. The power sector is also different from other sectors in that grid operators can compensate power plants for their availability and costs can be spread across utility customers. And unlike some other industrial source categories, domestic power production cannot be outsourced to other countries. In fact, EPA projected that no coal plants would retire as a result of this rule, suggesting limited economic impact. EPA has failed to adequately explain why the differences in industries it recognized in 2024 no longer justify the revised fPM standard, and why it now believes that cost-effectiveness ratios from other industries should be used to decide whether to reconsider the fPM standard for the power sector under section 112(d)(6).

4. EPA Arbitrarily Fails to Consider the Differences Between the Power Sector and Other Industries When Assessing Cost-Effectiveness.

When finalizing the 2024 Rule, EPA was clear that the agency's "prior findings about cost effectiveness in other rules *were specific to those rulemakings and the industries at issue in those rules*." 89 Fed. Reg. at 38,524 (emphasis added). And when engaging in review of an agency action, the D.C. Circuit has similarly taken an "every tub on its own bottom" approach, recognizing that "adequacy of the underlying justification offered by the Agency is what matters in an arbitrary-and-capricious review—not what the Agency did on a different record concerning a different industry." *U.S. Sugar Corp. v. EPA*, 830 F.3d 579, 623 (D.C. Cir. 2016) (citing *Sierra Club v. EPA.*, 353 F.3d 976, 986 (D.C. Cir. 2004)). This directly contradicts the proposal's emphasis on inconsistencies in cost-effectiveness across rules addressing different industries. Moreover, when comments raised the allegedly higher cost-effectiveness value as a reason not to

finalize the 2024 Rule, EPA pointed out that these comments "mischaracterized cost effectiveness as the sole criterion in [prior] decisions." 89 Fed. Reg. at 38,524. In other words, even in supposedly relevant prior examples, EPA had not been acting solely on the basis of cost-effectiveness because no universal cost-effectiveness threshold exists for all section 112(d)(6) regulations. In the absence of some supportive reasoning or explanation addressing the regulated sector, such a threshold on its own would inevitably be arbitrary. This makes sense under section 112, where each source category is regulated individually, and the statute does not require EPA to "equitably distribut[e] the costs of emission reductions through a uniform compliance strategy, as the EPA has done in its transport rules." 89 Fed. Reg. at 38,523.

The particular circumstances of the various industrial source categories in prior section 112 rulemakings were key factors in EPA's regulatory decisions—what EPA referred to as "distinct aspects of those rulemakings and industries that distinguish those prior actions from this rulemaking." 89 Fed. Reg. at 38,524. As EPA noted, "in the 2014 Ferroalloys rulemaking that commenters cited to, the EPA rejected a potential control option due to questions about technical feasibility and significant economic impacts the option would create for the industry, including potential facility closures that would impact significant portions of industry production." 89 Fed. Reg. at 38,524. And in the Petroleum Refineries rule, "EPA considered the cost effectiveness of developments at only two facilities to decide whether to deploy a standard across the much wider industry." *Id*. EPA explained that the 2024 Rule's fPM standard, in contrast, was based on "developments across the majority of the industry and the performance of the fleet as a whole, which has demonstrated the achievability of a more stringent standard." *Id*.

EPA also pointed to "inherent differences between the power sector and other industries that similarly distinguish prior actions from this rulemaking." *Id.* Specifically, the agency mentioned the size of the sector, which EPA estimated to be 314 coal units at 157 facilities in 2028, and the fact that, because of its size and the magnitude of its emissions, "the estimated HAP reductions in this final rule (8.3 tpy) are higher than those in the prior rulemakings cited by the commenters." *Id.* By comparison, the Iron and Steel Manufacturing rulemaking would only have removed 3 tpy of HAP from 11 facilities. *Id*. EPA noted that for the 2024 Rule it "estimate[d] significantly greater HAP emission reductions, and fPM emission reductions that are orders of magnitude greater than [the Iron and Steel and Portland Cement] rulemakings." *Id*.

And in 2024, EPA contrasted the circumstances in the 2014 Ferroalloys rulemaking with the 2024 Rule, noting that "the controls at issue are technically feasible (they are used at facilities throughout the country) and will not have significant effects on the industry. Indeed, the EPA does not project that the final revisions to MATS will result in incremental changes in operational coal-fired capacity." *Id*. This administration claims to be concerned about grid reliability and coal plant retirements, yet EPA ignores the fact that the 2024 Rule and specifically the fPM standard would reduce air toxics emissions without a single expected retirement, a factor that should weigh in favor of the standard and against repeal but appears to get no weight at all in EPA's proposal.

EPA also noted two factors that affected the cost-effectiveness number for the fPM standard. First, a small fraction of the total number of coal-fired EGUs (11 percent) were projected to be impacted by the fPM limit. Second, "many regulated facilities are electing to

retire due to factors independent of the EPA's regulation, and the EPA typically has more information on plant retirements for this sector than other sectors regulated under CAA section 112." 89 Fed. Reg. at 38,524-25. These factors "contribute to relatively higher cost-effectiveness estimates in this rulemaking as compared to other sectors where the EPA is not able to account for facility retirements and factor in shorter amortization periods for the price of controls." 89 Fed. Reg. at 38,525. This provides yet another reason why comparing cost-effectiveness across industries is not advisable, as having more and better information about the power sector may lead to higher cost-effectiveness estimates than other categories, which should not weigh against revising the standards.

Even considering EPA's unreasonable comparisons to different rulemakings concerning different industries, the proposal does not explain why the cost-effectiveness values for the fPM standard are unacceptable. EPA claims that it previously found that revising the fPM standard for fluid catalytic cracking units in the Petroleum Refineries Sector technology review was not cost effective because the cost would have been *over* $10 million per ton of non-Hg HAP metals, 80 Fed. Reg. at 75,201, and revising the standard for integrated iron and steel manufacturing facilities was not cost effective because upgrades to reduce non-Hg metals from blast furnaces would have cost $7 million per ton of metal HAP and $160,000 per ton of PM, 85 Fed. Reg. at 42,088. Yet EPA has previously found that a control measure was cost effective for the ferroalloys production source category at an inflation-adjusted cost of $185,000 per ton of $PM_{2.5}$, *National Emissions Standards for Hazardous Air Pollutants: Ferroalloys Production*, 80 Fed. Reg. 37,366,37,381 (Jun. 30, 2015)[7], and proposed a limit for secondary lead smelting sources that had a cost effectiveness of $114,000 per ton of fPM, *National Emissions Standards for Hazardous Air Pollutants: Secondary Lead Smelting*,76 Fed. Reg. 29,032, 29,060 (May 19, 2011).[8] These values are significantly higher than the $34,000 per ton of fPM EPA estimated for the 2024 Rule, and when finalizing the rule the agency mentioned these values and acknowledged arguments from commenters that cost-effectiveness estimates for fPM "were substantially lower than estimates that the EPA has considered to be cost-effective in other technology reviews" and that therefore "EPA should strengthen the limit to at least 0.010 lb/MMBtu." 89 Fed. Reg. at 38,523. The proposal fails to explain how the significantly lower cost per ton ratio for fPM in the 2024 Rule is "inconsistent" with these higher values and how that justifies repeal of the standard.

Moreover, if the cost per ton of the 2024 Rule is reduced by 10% to account for differences in the Chemical Engineering Plant Cost Index between 2015 and 2019,[9] the fPM standard's adjusted cost effectiveness value would be about $9.5 million per ton of non-Hg HAP metals, which is below the 2015 Petroleum Refinery Sector rule's value of over $10 million per ton. Also, the $34,500 per ton of fPM for the fPM standard is less than the $160,000 per ton of PM discussed above for the blast furnaces in the integrated iron and steel manufacturing facilities

[7] The figure of $165,000 dollars per ton of PM2.5 referenced in that notice is adjusted from 2012 dollars to 2019 dollars using the Gross Domestic Product: Implicit Price Deflator. *See* Federal Reserve Bank of St. Louis, Gross Domestic Product: Implicit Price Deflator, https://fred.stlouisfed.org/series/GDPDEF#.
[8] Costs were converted to about $114,000 ($2019) using the Gross Domestic Product: Implicit Price Deflator. *See* Federal Reserve Bank of St. Louis, Gross Domestic Product: Implicit Price Deflator, https://fred.stlouisfed.org/series/GDPDEF#.
[9] ATP 2025 Report at 2.

category, so it is unclear why these values for the fPM standard would be too high if they are below values for these other source categories.

5. The total costs of compliance with the fPM standard were reasonable and do not justify EPA's arbitrary repeal of the standard.

In addition to the cost effectiveness numbers, EPA briefly mentions total costs of the revised fPM standard as justifying repeal, but that assertion is unsupported and unexplained and therefore arbitrary and capricious.[10] The proposal claims "total cost savings of $1 billion at a 3 percent discount rate and $770 million at a 7 percent discount rate over the 2028 to 2037 timeframe, with total annualized cost savings of $120 and $110 million per year." 90 Fed. Reg. at 25,538. However, these cost savings are not specific to the fPM standard, and include the cost of controlling mercury from lignite plants at a cost of about $7.46 million per year[11] and of installing and using PM CEMS on units that do not have it at the cost of $2.8 million per year.[12] In the Technology Review Memo for the 2024 Rule, EPA estimated that the annualized costs of the 0.01 lb/MMBtu fPM standard would be $87.2 million, also showing total costs associated with the fPM standard over a 10-year period starting from implementation would be less than $900 million.

Because EPA determined that the standards were independent and severable, 89 Fed. Reg. at 38,518-19, the fPM repeal must be justified independently of the other standards. EPA does not refute this, and if anything reinforces it by providing distinct bases for repeal of each of the three aspects of the standards at issue in its proposal. Therefore, the agency cannot rely on total costs of all three aspects to justify repeal of the fPM standard, and failing to consider retaining any of the aspects EPA proposes to repeal with or without the other two aspects would be arbitrary and capricious.

The proposal fails to even discuss its previous estimate of $87.2 million as the annual cost for compliance with the fPM standard, much less compare it to other section 112(d)(6) rules or power sector revenues, or explain why those costs are too high. As EPA explained when promulgating the 2024 Rule, the total costs associated with the fPM standard amount to "a small fraction of typical capital and total expenditures for the power sector," and "a very small share of total power sector sales (about 0.03 percent of the lowest year over the 2000 to 2019 period)." 89 Fed. Reg. at 38,533. Any reasonable consideration of EPA's 2024 estimate of $87.2 million in projected annual compliance costs shows that the costs associated with the fPM standard are not excessive or unreasonable and therefore cannot justify repeal.

EPA also noted that due to the size of the power sector, "while cost effectiveness of the final standard is relatively high as compared to prior CAA section 112 rulemakings involving

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[10] EPA's cost estimates likely overestimate the costs of complying with the fPM standard, as discussed in the ATP 2025 Report.

[11] EPA, 2024 Update to the 2023 Proposed Technology Review for the Coal- and Oil-Fired EGU Source Category Memorandum, Docket ID No. EPA-HQ-OAR-2018-0794-6919 at 41 (May 7, 2024), https://www.regulations.gov/document/EPA-HQ-OAR-2018-0794-6919 (hereinafter "2024 Technical Memo").

[12] *See* Env't Prot. Agency, EPA-452/R-25-001, Regulatory Impact Analysis for the Proposed Repeal of Amendments to National Emission Standards For Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units at 2-5 (2025), Doc. ID No. EPA-HQ-OAR-2018-0794-6996, https://www.regulations.gov/document/EPA-HQ-OAR-2018-0794-6996 [hereinafter 2025 RIA].

other industries, costs represent a much smaller fraction of industry revenue" even though those costs may be overestimated. 89 Fed. Reg. at 38,534. EPA cannot rely on total costs to justify repeal of the fPM standard without addressing these important aspects of the problem.

6. EPA's Failure to Consider Emission Reductions Achieved and the Other Statutory Factors of Section 112(d)(6) is Arbitrary and Capricious.

To the extent EPA is allowed to consider cost-effectiveness under section 112(d)(6), EPA is required to balance it with other statutory factors in setting or repealing the fPM standard. When finalizing the 2024 Rule, EPA determined "that costs of the final fPM standard are reasonable, and that the revised fPM standard appropriately balances the EPA's obligation under CAA section 112 to achieve the maximum degree of emissions reductions considering statutory factors, including costs." 89 Fed. Reg. at 38,533. In particular, EPA stated that it "contemplated and carefully considered both the advantages and disadvantages of the revisions . . . including qualitative and quantitative benefits of the regulation and the costs of compliance." *Id.* This balancing approach to section 112(d)(6) has been upheld in the D.C. Circuit. *See, e.g.*, *Nat'l Ass'n for Surface Finishing, v. EPA*, 795 F.3d 1, 11 (D.C. Cir. 2015). Yet EPA now says nothing about how it balances cost against other factors. EPA cannot merely imply that costs outweigh those factors, otherwise the agency's action will be arbitrary and capricious due to a failure to explain its change in approach and consider important aspects of the problem.

EPA also previously pointed to "unique attributes of the power sector" that supported the standards. 89 Fed. Reg. at 38,524. The agency noted the hundreds of regulated EGUs with well-performing controls already achieving emissions rates below the revised standards, and "only a handful of facilities with largely outdated or underperforming controls are emitting significantly more than their peers." *Id.* This is both relevant to section 112(d)(6)'s command to consider developments in control technologies and compelling evidence of achievability, the relevant factor under section 112(d)(2), which the agency avoids reviewing for the fPM standard, instead focusing on whether it is "necessary." 90 Fed. Reg. at 25,537. Another important factor in the 2024 Rule is that EPA sought to remedy potential disparities in air toxics exposure by revising the fPM standard, recognizing that "communities located near these handful of facilities may experience exposure to higher levels of toxic metal emissions than communities located near similarly sized well-controlled plants." 89 Fed. Reg. at 38,524. EPA recognized that "emissions reductions projected under [the 2024 Rule] from the use of PM controls are expected to reduce exposure of individuals residing near these facilities to non-Hg HAP metals, including carcinogenic HAP." *Id*. The kind of pollution reduced and potential exposure were clearly considerations supporting the fPM standard and must be addressed.

The fPM standard is expected to affect only a small number of plants but reduce significantly more hazardous air pollutant emissions than prior examples of technology review rules under section 112(d)(6). The prior air toxics regulations that EPA mentions as examples in the proposal involve source categories that emit less total hazardous air pollution than the power sector. 89 Fed. Reg. at 38,524. When finalizing the 2024 Rule, EPA recognized that the power sector "is one of the largest stationary source emitters of Hg, arsenic, and HCl and is one of the largest regulated stationary source emitters of total HAP," and that despite only affecting a fraction of the sector, "the estimated HAP reductions in this final rule (8.3 tpy) are higher than

those in the prior rulemakings cited by the commenters (as are the estimated PM reductions (2,537 tpy) used as a surrogate for non-Hg HAP metals)." *Id.* The Iron and Steel Manufacturing rulemaking would only have removed 3 tpy of HAP from 11 facilities. EPA noted that it "estimate[d] significantly greater HAP emission reductions, and fPM emission reductions that are orders of magnitude greater than [the Iron and Steel and Portland Cement] rulemakings." *Id*. The significant difference in the amount of air toxics pollution potentially reduced compared to other rules was also an important factor to consider in determining whether to revise the fPM standard in 2024, and the agency fails to explain why the amount of pollution reduced by the regulation is no longer relevant and an important consideration in this proposal, particularly where, as discussed in section II.A, section 112 emphasizes reducing air toxics emissions to the maximum extent, including prohibiting those emissions where feasible.

Furthermore, EPA estimated that only 33 EGUs were operating above the revised fPM rate, and that most of those 33 units have operated at a higher level of utilization than the coal fleet average. 89 Fed. Reg. at 38,530. In other words, it is particularly worth trying to improve performance at these units because many of them tend to be utilized more than their peers, which suggests greater potential to reduce emissions. EPA's proposal does not appear to dispute or even address the significant emissions expected to be reduced beyond including estimates from the 2024 Rule.

7. <u>EPA Arbitrarily Fails to Consider the Ability of the Power Sector as a Whole to Absorb Costs.</u>

As discussed above, the power sector as a whole is capable of absorbing costs to a greater degree than other sectors because of its size and unique nature as a publicly regulated sector. EPA should consider the sector's ability to absorb costs to comply with the standard as a whole rather than focusing on an outlier. Indeed, this is an approach the agency took in 2016 when evaluating cost reasonableness in determining regulation of EGUs was appropriate under section 112(n)(1)(A). 81 Fed. Reg. at 24,430-31. And though the agency took a slightly different preferred approach to the 112(n)(1)(A) finding in 2023, the agency similarly looked at "several metrics relevant to the impacts those costs have on the power sector and on electricity consumers (e.g., historical annual revenues, annual capital and production expenditures, impacts on retail electricity prices, and impacts on resource adequacy and reliability)" which showed that "the industry would be able to comply with MATS and continue to provide a reliable source of electricity without price increases that were outside the range of historical variability" as part of its preferred "totality-of-the-circumstances methodology." 88 Fed. Reg. at 13,967.

In the 2024 Rule, EPA found "that costs for facilities to meet the revised fPM emission limit represent a small fraction of typical capital and total expenditures for the power sector." 89 Fed. Reg. at 38,533. The agency also "updated the analysis presented in the 2022 Proposal" for the 2023 action, which "evaluated the compliance costs that were projected in the 2012 Rule relative to the typical annual revenues, capital expenditures, and total (capital and production) expenditures." *Id*. This was a rational approach to accounting for the power sector's scale and ability to absorb costs. EPA's proposal fails to consider these important aspects of the power sector.

C. EPA's continued reliance on outdated analysis and lack of updated analysis supporting repeal of the fPM standard to account for changes in circumstances since the 2024 Rule is arbitrary and capricious.

EPA cannot finalize the proposal, which relies on outdated analysis. Relying on analysis that the agency knows is outdated and not accounting for new information and changes in circumstances would be arbitrary and capricious. Failing to do so would be a failure to "examine the relevant data and articulate a satisfactory explanation for its action including a rational connection between the facts found and the choice made." *State Farm*, 463 U.S. 29, 43 (1983) (internal quotation marks and citation omitted).

Even between the 2023 proposal and the final 2024 Rule, EPA updated its analysis in light of new information, after the Agency received comments on the cost assumptions for upgrading PM controls. Specifically, EPA found that the costs estimated at proposal were not only too high, but that the cost effectiveness of PM upgrades was also underestimated (i.e., the standard is more cost-effective than EPA believed at proposal), which "slightly lower[ed] the dollar per ton estimates from what was presented in the 2023 Proposal." 89 Fed. Reg. at 38,532. Just as EPA updated its analysis between the 2023 proposal and 2024 final rule, it should also update its analysis here, in an entirely new rulemaking.

D. EPA's Assertion that to Be "Achievable" a Standard Must be Attainable By Each Source at Low Cost is Wrong.

EPA's concern that a single lagging coal plant may incur greater costs to achieve compliance than other sources—which are expected to comply at relatively low cost—does not justify repeal of the fPM standard. Standards for hazardous air pollutants under section 112 do not need to be achievable at low cost for every source, and as EPA found in the 2024 Rule, "it is consistent with its CAA section 112(d)(6) authority to consider the performance of the industry at large." 89 Fed. Reg. at 38,534. Though it would be unreasonable to base repeal of a standard for an entire source category on costs at a single facility, if the agency intends to change its approach and repeal the fPM standard on this basis is must at least provide an explanation as to why and how costs at a single facility justify this decision.

That a single high-emitting plant may incur significant costs to achieve compliance with the standards does not undermine the conclusion that developments in practices, processes, and control technologies justify revision of the standards to further reduce emissions from the source category under section 112(d)(6). Section 112(d)(6) does not require that every source in a source category be capable of achieving the standard at low cost. Where a unit has fallen behind its peers it is reasonable to require it to reduce its emissions and catch up. Indeed, the D.C. Circuit has upheld a PM standard under section 111 that would require the same technology that would be required at Colstrip, as not "unreasonably costly" and "achievable by baghouse control," despite concern about higher than projected costs at a couple of plants. *Sierra Club v. Costle*, 657 F.2d 298, 383-84. As EPA recognized in the final rule "the higher costs for one facility to install demonstrated improvements to its control technology should not prevent the EPA from establishing achievable standards for the sector under the EPA's CAA section 112(d)(6) authority." 89 Fed. Reg. at 38,534. That the Colstrip plant, unlike every other plant

affected by the rule, might be required to install new fabric filter controls to comply with the standard, cannot justify repeal of the revised standard for all units.

The 2024 Rule included an extensive discussion of the Colstrip plant's issues and circumstances. Colstrip is "the only facility where the EPA estimates the current controls would be unable to meet a lower fPM limit" as it "utilizes venturi wet scrubbers as its primary PM control technology and has struggled to meet the original 0.030 lb/MMBtu fPM limit." 89 Fed. Reg. at 38,531. Therefore, EPA anticipated that Colstrip "will be required to install the most-costly upgrade to meet the revised standards, which significantly drives up the cost of this final rule." 89 Fed. Reg. at 38,534. The proposal notes that Colstrip's units "accounted for almost half of the 2024 Final Action's total compliance costs" with "a cost-effectiveness ratio exceeding $16 million." 90 Fed. Reg. at 25,541. But the fact that Colstrip has particularly high emissions and that compliance is expected to be more costly than for other units does not necessitate repeal of the fPM standard. Nor does EPA's attempt to compare the cost-effectiveness ratio of a single coal plant to the cost-effectiveness ratio for the Taconite Iron Ore Processing source category technology review. EPA provides no reason to conclude that higher costs at a single plant would require repeal of the rule, which would clearly be an unexplained departure from its prior position, and the statutory language provides no reason to interpret the statute to require that result.

Furthermore, EPA has failed to consider that by installing a baghouse to comply with the fPM standard, the Colstrip plant would likely reduce its costs of controlling Hg due to the improved efficacy of the baghouse at controlling Hg leading to less use of activated carbon. This upgrade could save about $15 million per year in Hg control costs, or about 41% of EPA's estimated annual cost of the baghouse retrofit. In other words, the baghouse would offset the cost of controlling Hg, which could result in savings of about $15 million per year, which is about 41% of EPA's estimated annual cost for Colstrip's baghouse retrofit. Offsetting the control cost for the baghouse with the $15 million cost savings would reduce the annual cost from $37 million per year to about $22 million per year.[13]

E. EPA Failed to Consider Vital Benefits of the Strengthened fPM Standard To Rural, Low-income, and Tribal communities.

As EPA recognized in 2024 and fails to address in this proposal, the fPM standard is particularly likely to benefit low-income and tribal communities. When EPA finalized the fPM standard, it recognized that "the potential reduction in non-Hg HAP metal emissions would likely reduce exposures to people living nearby coal plants potentially impacted by the amended fPM standards." 89 Fed. Reg. at 38,560. In analysis for the 2024 Rule, EPA noted that "on average the populations living within 10 kilometers of coal plants potentially impacted by the amended fPM standards have a higher percentage of people living below two times the poverty level than the national average." *Id*. EPA ignores these important potential benefits of the fPM standard for particular communities, which warrant significant weight and consideration.

This is particularly true for the Colstrip plant, which has potential impacts that are particularly concerning for Tribal communities. As EPA noted for the 2024 Rule, "[t]he

[13] ATP 2025 Report at 4-5.

Northern Cheyenne Reservation is 20 miles from the Colstrip facility and the Tribe exercised its authority in 1977 to require additional air pollution controls on the new Colstrip units (Colstrip 3 and 4, the same EGUs still operating today).” 89 Fed. Reg. at 38,531. Also, “[a]ccording to comments submitted by the Northern Cheyenne Tribe, their tribal members—both those living on the Reservation and those living in the nearby community of Colstrip—have been disproportionally impacted by exposure to HAP emissions from the Colstrip facility.” *Id*. EPA recognized this issue when it finalized the fPM standard and cannot ignore it when changing its position on the standard.

F. EPA has not explained why no standards between the 2012 fPM standard and the 2024 fPM standard are appropriate (Response to Question #2).

The proposed repeal does not consider any alternative standards in between the level of stringency of the 2024 Rule, 0.010 lb/MMBTu and the 2012 Rule 0.030 lb/MMBtu. This failure renders EPA’s proposal arbitrary and capricious since it violates foundational administrative principles by failing to “consider an important aspect of the problem”[14] by neglecting to “consider the alternatives that are within the ambit of the existing policy” in rescinding its prior policy.[15]

EPA arbitrarily and capriciously failed to consider regulatory alternatives to a complete withdrawal of the 2024 Rule. Given that EPA’s sole justification for the withdrawal of the fPM standard is its cost-effectiveness, it is thus arbitrary that EPA did not consider or calculate the cost-effectiveness of intermediate emission standards. Analysis from the Andover Technology Partners (ATP) 2025 Report indicates an fPM rate of 0.015 lb/MMBtu is achievable at a cost of $31,000 per ton.[16] An additional alternative fPM standard of 0.020 lb/MMBtu “would also prevent emissions backsliding” as “companies who are able to control to much lower levels grow comfortable with letting emissions rise.”[17]

III. EPA MUST MAINTAIN THE REQUIREMENT TO DEMONSTRATE COMPLIANCE WITH THE FPM STANDARD THROUGH THE USE OF CONTINUOUS EMISSION MONITORING SYSTEMS (“PM CEMS”) (RESPONSE TO QUESTION #3).

Under EPA’s 2012 MATS Final Rule, power plant owners and operators could demonstrate compliance with the fPM standard using three different methods: quarterly stack testing, continuous parametric monitoring systems (“CPMS”), or continuous emission monitoring systems (“PM CEMS”). Recognizing the “significant” and “manifold” benefits of continuous emissions monitoring with PM CEMS, 89 Fed. Reg. at 38,510, 38,529, and the agency’s statutory duty to ensure “the maximum degree of reduction” in dangerous HAP emissions, *id.* at 38,509 (quoting 42 U.S.C. § 7412(d)(2)), along with developments including the wider deployment and decreased costs of PM CEMS over the last decade, *id.* at 38,528, 38,535, EPA finalized the 2024 Rule requirement that coal- and oil-fired EGUs must demonstrate compliance with the fPM standard through the use of PM CEMS. *Id.* at 38,510. While PM

[14] *Motor Vehicle Mfrs. Ass’n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).
[15] *Dep’t of Homeland Sec. v. Regents of the Univ. of Cal.*, 591 U.S. 1, 30 (2020) (cleaned up).
[16] ATP 2025 Analysis at 5.
[17] *Id.*

CEMS was considered "new" or "emerging" technology when EPA promulgated the 2012 Final Rule, the technology is common today.[18] Since the 2012 MATS Final Rule was promulgated, PM CEMS has become cheaper and more widely used and is now "readily available and in widespread use by the electric utility industry." 89 Fed. Reg. at 38,536. More than 100 EGUs—about one-third of all EGUs—already utilize PM CEMS for compliance demonstration. 89 Fed. Reg. at 38,536; 90 Fed. Reg. at 25,541; 88 Fed. Reg. at 24,872.

Now, however, EPA proposes to withdraw the PM CEMS compliance demonstration requirement, reverting to standards that allow for compliance demonstration through any of the three methods allowed under the 2012 Rule, 90 Fed. Reg. at 25,542, including quarterly stack testing, which provides significantly less assurance that total emissions are accurately measured over time, *see, e.g.*, 89 Fed. Reg. at 38,536. Because EPA also proposes reinstating the low emitting EGU program, some facilities will have to demonstrate compliance even less frequently, testing only every three years. 90 Fed. Reg. at 25,542. EPA argues that the agency has discretion to allow the use of multiple compliance methods, *id.*, despite the previous findings that PM CEMS provides "greater assurance of continuous compliance," 89 Fed. Reg at 38,529, is not cost-prohibitive, *id.* at 38,529, 38,535, and best carries out Congress's mandate to the agency to achieve the maximum degree of emission reductions, *id.* at 38,529. EPA now summarily concludes, without disclosing any new analysis or data, that the agency "no longer believes" the costs of PM CEMS justify the benefits. 90 Fed. Reg. at 25,542.

Regardless of the level at which EPA sets the final fPM standard, the agency should continue to require compliance demonstration through PM CEMS. EPA intended for the PM CEMS compliance demonstration requirement to be a standalone requirement. *See* 89 Fed. Reg. at 38,518-19 (EPA "independently considered and adopted each portion of this final rule," and "intends each portion of this rule to be severable," "includ[ing] the fPM compliance demonstration requirement to utilize PM CEMS."); *see also id.* at 38,519 ("[T]he supporting bases for each element of the final rule reflect the Agency's judgment that the element is independently justified and appropriate, and that each element can function independently even if one or more other parts of the rule has been set aside.").

As explained below, Congress intended for Clean Air Act section 112 to achieve significant and continuous reductions in dangerous HAP emissions, and tasked EPA with ensuring that mandate is carried out. When continuous emission monitoring is available, feasible, and not cost-prohibitive—as is the case here—requiring EGUs to utilize such monitoring (e.g., PM CEMS) is the only way that EPA can comply with Congress's directive to ensure continuous maximum reduction in emissions. *See* 42 U.S.C. § 7412(d)(2) (requiring the "maximum degree of reduction…achievable"); *id.* § 7602(k) (directing that EPA's emission standards, including those directed at dangerous HAP emissions, should ensure "continuous" emission reduction). At a minimum, it is unreasonable for EPA not to require PM CEMS given the factual record here, and arbitrary and capricious to depart from EPA's prior conclusion that PM CEMS is the best method for ensuring Congress's goal of continuous reduction of dangerous HAP emissions is achieved.

[18] *See* Andover Technology Partners, Analysis of PM and Hg Emissions and Controls from Coal-Fired Power Plants, at 6 (Aug. 2021), https://www.andovertechnology.com/wp-content/uploads/2021/08/PM-and-Hg-Controls_CAELP_20210819.pdf, Docket ID No. EPA-HQ-OAR-2018-0794-4583.

EPA's proposal fails to properly assess the benefits of PM CEMS, summarily dismissing the valuable benefits discussed in the record supporting the 2024 Rule. EPA's conclusions in the 2024 Rule regarding PM CEMS' comparatively trivial costs in the context of a coal plant's total operating costs, *see, e.g.*, 89 Fed. Reg. at 38,529, and "significant" benefits, *id.* at 38,510, continue to apply regardless of the fPM standard EPA finalizes. For the 2024 Rule, EPA conducted and/or reviewed a number of technical analyses,[19] ultimately concluding that "PM CEMS [is] the best choice for…compliance monitoring." 89 Fed. Reg. at 38,529. There is no new information that would reasonably support a departure from the agency's prior conclusions or the facts and data on which they were based. Finally, the agency should not reinstate the low emitting EGU ("LEE") program because the record shows EGUs that have previously qualified for the LEE program exhibited notable variability in emissions over time and therefore monitoring these emissions is likely to result in additional benefits.

A. EPA's PM CEMS Requirement Is Necessary to Fulfill the Agency's Statutory Duties.

Recognizing the dangers posed by HAPs, Congress directed EPA, in Clean Air Act section 112(d)(6), to require the "maximum degree of reduction" of hazardous emissions "achievable" at reasonable cost, considering the full range of technological developments. 42 U.S.C. § 7412(d)(2). The 2024 Rule explained that "Congress intended for CAA section 112 to achieve significant reductions of HAP, which it recognized as particularly harmful pollutants," 89 Fed. Reg. at 38,535, and that utilizing PM CEMS for emission monitoring—which provides "transparency and [the] ability to quickly detect and correct potential control or operational problems," 89 Fed. Reg. at 38,528— "further[s] Congress's goal to ensure that emission reductions are *consistently* maintained," 89 Fed. Reg. at 38,535 (emphasis added). PM CEMS best ensures that EGUs achieve maximum HAP emission reductions, as determined achievable by EPA, and maintain such reductions on a continuous basis.

Requiring EGUs to utilize PM CEMS best comports with Congress's directive, which prioritizes *continuous* emission reduction. Specifically, Congress defined "emission standard"—which EPA is tasked with setting for HAPs here—to require "continuous" emission reduction:

> The terms "emission limitation" and "emission standard" mean a requirement established by the State or the Administrator which limits the quantity, rate, or concentration of emissions of air pollutants *on a continuous basis*, including any

[19] *See, e.g.*, Andover Technology Partners, Analysis of PM and Hg Emissions and Controls from Coal-Fired Power Plants (Aug. 2021), https://www.andovertechnology.com/wp-content/uploads/2021/08/PM-and-Hg-Controls_CAELP_20210819.pdf, Docket ID No. EPA-HQ-OAR-2018-0794-4583; 2024 Technical Memo; EPA Memorandum, Ratio of Revised Estimated Non-Beta Gauge PM CEMS EUAC to 2022 Average Coal-Fired EGU Gross Profit (Mar. 29, 2024), Doc. No. EPA-HQ-OAR-2018-0794-6912, https://www.regulations.gov/document/EPA-HQ-OAR-2018-0794-6912 ("2024 Ratio Memo"); EPA Memorandum, Revised Estimated Non-Beta Gauge PM CEMS and Filterable PM Testing Costs (Dec. 21, 2023), Doc. No. EPA-HQ-OAR-2018-0794-6913, https://www.regulations.gov/document/EPA-HQ-OAR-2018-0794-6913 ("2023 Cost Memo"); Comments of the Southern Environmental Law Center on Revocation of the 2020 Reconsideration, and Affirmation of the Appropriate and Necessary Supplemental Finding (Apr. 11, 2022),at Exhibit C, Dr. Ranajit Sahu, Technical Analysis in Support of SELC's Comments on EPA's Proposed Reaffirmation of the MATS Appropriate and Necessary Finding (Apr. 11, 2022), Doc. ID No. EPA-HQ-OAR-2018-0794-4943, https://www.regulations.gov/comment/EPA-HQ-OAR-2018-0794-4943 ("Sahu Technical Analysis").

> requirement relating to the operation or maintenance of a source to *assure continuous emission reduction*, and any design, equipment, work practice or operational standard promulgated under this chapter.

42 U.S.C. § 7602(k) (emphasis added). Because the Clean Air Act requires the "maximum degree of [emission] reduction" set through standards assuring "continuous" reductions, when there is an available and feasible compliance demonstration technology that continuously monitors emissions and ensures consistently maintained reductions over the relevant timeframe, utilizing that technology—here, PM CEMS—is what the statute requires (or at least is the only reasonable way to comply with Congress's directive).

At minimum, because Congress intended for emission standards—like those set here—to "assure continuous…reduction," it would be unreasonable and arbitrary and capricious for EPA to depart from the agency's prior decision to require a cost-reasonable compliance demonstration method that provides for information regarding the continuity of emission reductions, such as PM CEMS, when such a method is available and feasible. As EPA explained in the 2024 Rule, "[w]hen establishing emission standards under CAA section 112, the EPA must select an approach to compliance demonstration that best assures compliance is being achieved." 89 Fed. Reg. at 38,536. EPA's conclusion in the 2024 Rule that PM CEMS "best provides assurance that emission limits are met," 89 Fed. Reg. at 38,529, is true regardless of the level at which fPM standards are set, especially because Congress clearly intended for such emission limitations to be "continuous" (i.e., consistently maintained over time). PM CEMS allows facilities to continuously monitor emissions, which they can then average over a 30-day period to show compliance with the standards, and to ensure that emission reductions are happening at more than just one moment in time. Quarterly stack testing, unlike PM CEMS, does not ensure that sources are meeting a continuous requirement of emission reduction averaged over 30 days.

Finally, Clean Air Act section 114(a)(1)(C) does not support the rescission of the PM CEMS requirement, *compare* 90 Fed. Reg. at 25,542 (citing section 114(a)(1)(C) as support for allowing use of all three methods of compliance demonstration). Section 114(a)(1)(C) provides additional authorization for EPA to require emission monitoring of various types, including "one-time, periodic or continuous" monitoring; it does not require EPA to permit all those monitoring options in every case. Section 114(a)(1)(C) supports EPA's 2024 Rule conclusion that the Administrator has authority to require continuous monitoring, as it clearly authorizes the Administrator to require operators "on a…continuous basis…to install, use, and maintain such monitoring equipment, and use such audit procedures, or methods…as the Administrator may reasonably require." 42 U.S.C. § 7412(b)(5). Read in conjunction with 42 U.S.C. §§ 7602(k) and 7412(d)(2), the only reasonable requirement here is to utilize PM CEMS.

B. EPA's Proposal Fails to Acknowledge or Properly Assess the Benefits of PM CEMS.

The 2024 Rule detailed benefits of requiring EGUs to utilize PM CEMS that were "significant," 89 Fed. Reg. at 38,510, and "manifold." 89 Fed. Reg. at 38,529. Benefits of PM CEMS include "real-time identification of when control technologies are not performing as expected, allowing for quicker repairs," 89 Fed. Reg. at 38,510, and providing "greater assurance

of continuous compliance," *id.* at 38,529, as the Clean Air Act directs. PM CEMS also provides valuable "increased transparency regarding emissions performance for sources, regulators, and the surrounding communities." *Id*. at 38,520; *see also id*. at 38,535 (noting benefits "including increased transparency and accelerated identification of anomalous emissions"). PM CEMS provides vastly more information regarding emissions than intermittent stack testing. EPA found that "the 35,040 15-minute values provided by a PM CEMS used at an EGU operating during a 1-year period is over 243 times as much information as is provided by quarterly testing with three 3-hour run durations." *Id*. at 38,536. Infrequent stack tests tell regulators, source operators, and the public little about emissions in the many days and hours between stack tests, when emissions could be much higher than during a pre-planned test. EPA considered the benefits from this substantial amount of additional "continuous feedback" provided by PM CEMS, *id*. at 38,535, along with the costs, and concluded that these real benefits made PM CEMS the "best choice" for compliance monitoring. *Id.* at 38,529. It remains so regardless of the level at which fPM limits are set.

Requiring PM CEMS for compliance monitoring and demonstration ensures that the fPM standard is being met continuously over time—as the Clean Air Act directs—and not just during a few highly infrequent moments of testing. This is an important benefit because studies conducted by EPA and outside analysts show that EGU emissions vary substantially over time. Specifically, research shows that actual emissions are more variable—and often higher—than emissions measured through periodic stack tests (which also show significant errors and reliability issues even for their limited amount of data).[20] In setting the standards in the 2024 Rule, EPA investigated "the potentially substantial differences in fPM emissions between intermittent and continuous monitoring," by "analyz[ing] emissions at several EGUs for which both intermittent and continuous monitoring data are available." 89 Fed. Reg. at 38,536. EPA found significant variability. EPA's 2024 Technical Memo discussed a case study and explained that "the data [regarding emissions] are highly variable within a quarter, rapidly ramping up and down," and that the lowest achieved fPM rate "is not representative of [the EGU's] 'normal' average operating conditions." 2024 Technical Memo at 6. Moreover, one technical analysis of stack tests versus PM CEMS submitted by commenters showed that stack tests "are not representative of normal everyday operation" of EGUs or their PM control devices because "[p]reventative maintenance is paramount to ensure proper operation of these control devices" and this "maintenance is often conducted just prior to a [stack] compliance test" rather than on an ongoing basis.[21] This "adversely and dramatically affects the efficiencies of these controls."[22]

EPA analyzed emissions from two 585-MW bituminous-fired EGUs that were required to demonstrate compliance using intermittent stack testing only every three years, finding that detected emissions "increased substantially" when monitoring through PM CEMS, with PM

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[20] *See, e.g.*, Office of Inspector General, U.S. EPA, Report No. 19-P-0251, *More Effective EPA Oversight is Needed for Particulate Matter Emissions Compliance Testing* 11 (July 30, 2019), https://www.epaoig.gov/reports/audit/report-more-effective-epa-oversight-needed-particulate-matter-emissions-compliance (finding errors in over half of particulate matter stack test reports reviewed in one state); *id*. at 15 (finding that 25 of 30 stack test reports reviewed were missing at least one element of calibration information); *id.* at 12 (noting that similar problems occur across the country). *See also* C. Giles, *Next Generation Compliance: Environmental Regulation for the Modern Era* 72 (Oxford Univ. Press 2022), https://www.nextgencompliance.org/.

[21] Sahu Technical Analysis at 9.

[22] Sahu Technical Analysis at 9.

CEMS values up to nine times higher than those measured with intermittent stack testing. 89 Fed. Reg. at 38,536; 2024 Technical Memo at 45 (noting that "the continuously monitored 30-boiler operating day average fPM emissions rate for Unit 1A was about nine times higher than the 2021 intermittent stack test average"). In fact, hourly data showed emissions at the two EGUs ranging from near-zero up to 1.33 lb/MMBtu between 2019 and mid-2023. 2024 Technical Memo at 43. This 1.33 lb/MMBtu value greatly exceeds even the 2012 limit, and occurred even at an EGU qualified for EPA's LEE program. Without PM CEMS, there is no way to know how often such exceedances occur.[23]

The magnitude of emissions missed by periodic stack tests can be significant. EPA compared differences in 2022 annual fPM emissions for the two EGUs estimated using rates measured during stack tests with 2022 annual emissions based on hourly fPM rates recorded by PM CEMS and found that "use of the fPM rate measured during the stack test to determine annual emissions significantly underestimates the actual annual fPM emissions," with annual emissions rates 2.5 to 4 times higher than stack test values when measured using PM CEMS. 2024 Technical Memo at 46.[24] EPA explained:

> [I]nfrequent stack testing, unlike PM CEMS, cannot reflect EGU operational variability. Infrequent stack testing occurs over normal operating conditions, generally between 90 and 110 percent of the EGU's load. However, as shown in the data, actual operating load—and accompanying emissions—vary from around 60 to 110 percent load.

Id. at 48. Another recent analysis showed significant variability in PM emissions at one facility over 20 operating quarters, with significant peaks outside of the two EPA reference quarters used in rule development—two of the lowest quarters for emissions.[25]

Having this additional, continuous information provides substantial benefits. "By measuring emissions across all operations, power plant operators and regulators can use the data to ensure controls are operating properly and to assess compliance with relevant standards." 89 Fed. Reg. at 38,536. For EGU owners and operators, this means "accelerated identification of anomalous emissions," *id*. at 38,512, and "the ability to quickly detect, identify, and correct potential control device or operational problems before those problems become compliance issues," *id*. at 38,536. Because stack tests occur so infrequently, "a mistake means that unlawful pollution can go unnoticed for years."[26] EPA's 2023 Proposal explained that utilizing PM CEMS

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[23] While stack testing has shown that many EGUs have emissions lower than what the rolled back limits would require, these data are subject to the same limitations because of the variability described above. Additional data is needed—especially when cost reasonable and available, as is the case here to shed light on whether compliance is actually occurring on a continuous basis, as Congress directed.

[24] EPA's analysis explains that there are also "periods when PM CEMS data is lower than the stack test averages, which further illustrate real-life scenarios in which fPM emissions for compliance methods may be substantially different." 89 Fed. Reg. at 38,536-37; 2024 Technical Memo at 50 (showing higher emissions for two units calculated from PM CEMS than from stack testing in 2018.

[25] ATP 2025 Report at 10.

[26] C. Giles, *Next Generation Compliance: Environmental Regulation for the Modern Era* 72 (Oxford Univ. Press 2022), https://www.nextgencompliance.org/; *see also* Office of Inspector General, U.S. EPA, Report No. 19-P-0251, *More Effective EPA Oversight is Needed for Particulate Matter Emissions Compliance Testing*, at 11 (July 30,

supplies data "that can lead to improved control device and power plant operation, which, in turn, can lead to fPM emission reductions." 88 Fed. Reg. at 24,872. The 2024 Rule explained that "[t]he potential reduction in fPM and non-Hg HAP metals emission resulting from the information provided by continuous monitoring coupled with corrective actions by plant operators could be *sizeable* over the total capacity that the EPA estimates would install PM CEMS under this rule (nearly 82 GW)." 89 Fed. Reg. at 38,537 (emphasis added). And the 2024 Technical Memo explained:

> [EPA's examples] illustrate[] the potential benefit of having continuous, quality-assured PM CEMS data that inform owners and operators that their fPM rates are rising, prompting corrective action. In the absence of this continuous information, EGUs have the potential to emit above their applicable emission standards for periods of months or years between intermittent stack tests.

2024 Technical Memo at 45.

The Proposal dismisses PM CEMS as "unnecessary" without addressing any of these facts and the resulting benefits of continuous monitoring. EPA seems to suggest that these benefits will exist absent a PM CEMS requirement—that owners will take action to detect and remedy problems with their equipment absent any requirement that they do so—stating that "there are other ways that owners and operators can become aware of air pollution control malfunctions without employing PM CEMS." 90 Fed. Reg. 25,542. EPA then lists a series of possible technologies that the agency states are "reliable indicators" of equipment problems such as "track[ing] opacity, secondary corona power, secondary voltage…and secondary current…to ensure proper functionality" or using bag leak detection systems and parameters like pressure differential, inlet temperature, temperature differential, exhaust gas flow rate, cleaning mechanism operation, and fan current. *Id.* But EPA's Proposal does nothing to explain any of these technologies, provides no quantitative data to support a claim that they will be equivalent to PM CEMS in quickly identifying anomalous events and ensuring continuous compliance, does not include or analyze their costs, and fails even to assert that the majority of EGUs are or will employ these technologies in a manner that ensures rapid identification of emissions exceeding the fPM limits. In fact, "EPA did not perform or provide any analysis to support its opinion regarding non-CEMS methods of malfunction detection and has no requirement to even monitor or characterize these parameters." ATP 2025 Report at 7 (also noting that "EPA merely speculates that these methods can be relied upon without offering any evidence of the same."). And there is no evidence that any of these parameters, even if they would eventually identify a malfunction, would do so as quickly and effectively as PM CEMS. ATP 2025 Report at 7 ("It is unclear if any of these methods offer the same sensitivity and reliability as information from a PM CEMS, or offer the timeliness of the impact on fPM emissions.").

> [W]hile abnormal conditions for any of these parameters ***might theoretically*** be used to indicate a malfunction, to do that in practice it would be necessary to somehow account for other variations that impact the parameters, understand any deviations from normal indications, and identify the impact on PM emissions.

2019), https://www.epaoig.gov/reports/audit/report-more-effective-epa-oversight-needed-particulate-matter-emissions-compliance.

> For example, *all of these parameters are impacted by normal load changes, normal furnace cleaning operation, changes in coal properties, excess air level, and other normal operations*. For each unit, it would *first* be necessary to perform comprehensive testing under a large variety of conditions to establish the normal range for these parameters under the full range of conditions and therefore determine which parameters, or combination of parameters, indicate a PM device malfunction and the impact on fPM emissions. This is a completely impractical thing to do, and even after all that testing was done, one would still be uncertain if every combination of conditions is addressed. Moreover, in this proposal, EPA has not established this level of parameter testing as a requirement or even a recommendation, nor presented any evidence about how this would be done or its effectiveness (both sensitivity and timeliness in finding a problem that impacts fPM emissions), and it is therefore not a substitute for a PM CEMS.

Id. at 8. It would be unreasonable and arbitrary and capricious to simply assume these parameters are as effective as PM CEMS at identifying problems with air pollution control devices, that they will succeed in ensuring continuous reductions, or that owners and operators will utilize these measures without a legal incentive to do so. Indeed, even had the Proposal provided more information about the cost and efficacy of these technologies, there is no requirement in MATS that EGUs actually use any of these technologies to ensure the continuous performance of their fPM controls.

PM CEMS will also provide additional benefits to federal and state regulators. PM CEMS will result in greater certainty of compliance with fPM standards, along with "[m]ore accurate emission inventories [that] are beneficial when determining permit classifications and fees, performing air quality modeling for criteria pollutant attainment and maintenance plans, and monitoring progress and trends of emissions." 2024 Technical Memo at 47. It is irrational for EPA to claim that PM CEMS is not needed because "a large majority of sources have reported measured compliance data showing fPM emissions that are well below the previous fPM standard of 0.030lb/MMBtu, which further illustrates that the various options for demonstrating compliance with the fPM standards have been appropriate and effective" when that conclusion relies on the very compliance demonstration that we explain here is less reliable than what PM CEMS would offer.[27] PM CEMS would better allow EPA to determine if compliance is actually being achieved consistently or if further action is needed.

The public will also experience important benefits from the increased transparency that PM CEMS provides, as the 2024 Rule recognized. The 2024 Rule explained that "[i]n addition to significant value of further pollution abatement, the CEMS data are transparent and accessible to…the public, fostering greater accountability. Transparency of EGU emissions as provided by PM CEMS, along with real-time assurance of compliance, has intrinsic value to the public and communities as well as instrumental value in holding sources accountable." 89 Fed. Reg. at 38,537. The Proposal asserts that transparency benefits still exist because EPA's online system will continue to provide publicly available data, 90 Fed. Reg. at 25,542, but fails to acknowledge that it is the transparency of frequent data, not just irregular data, that gives this accessibility its increased value to the surrounding community. Communities in areas surrounding EGUs face

[27] 90 Fed. Reg. at 25,542.

dangerous risks to their health and welfare including from temporary exceedances of the standards due to intermittent and anomalous events.[28]

PM CEMS will provide these communities with assurance that compliance with the fPM standard is actually being achieved, and potentially also with overall decreases in the dangerous emissions that put their health at risk. *See, e.g.*, 89 Fed. Reg. at 38,555 ("Because CEMS enable power plant operators to quickly identify and correct problems with pollution control devices, it is possible that fPM emissions could be lower than they otherwise would have been for up to 3 months—or up to 3 years if testing less frequently under the LEE program—at a time"); 89 Fed. Reg. at 38,536 ("[I]t is possible that continuous monitoring could lead to lower fPM emissions for periods of time between otherwise required intermittent testing"). Because even short-term exceedances can cause health harms,[29] and because the variability in emissions rates described above makes it impossible to know the true degree of emissions outside of infrequent testing periods, this increase in transparency around emissions will provide the public with important information. This information gives members of the public the ability to change behavior in response to spikes in emissions and equips them with information necessary to make decisions about where to live, work, and recreate, as well as when to advocate in their communities for further emission controls. Moreover, because risk is the product of hazard (toxicity) times exposure, the public and regulators cannot understand the actual health risks without understanding the true exposure to toxic chemicals—something they do not have with data only from intermittent stack testing.

No matter at what level the fPM standard is set, then, without continuous monitoring via PM CEMS, regulators, EGU owners and operators, and community members cannot know for sure what is happening to emission rates in between stack tests—and there is good reason to believe emission rates are highly variable and even substantially higher than those measured by intermittent stack tests, especially at certain times. "In the absence of this continuous information, EGUs have the potential to emit above their applicable emission standards for periods of months or years between intermittent stack tests." 2024 Technical Memo at 45. The Proposal provides no additional research or data to refute these conclusions. It remains an important benefit—and one Congress recognized in the Clean Air Act, 42 U.S.C. § 7602(k)—to know whether HAP emissions are being reduced on a continuous basis.

C. The Overall Costs of PM CEMS Are Trivial.

The Proposal calls PM CEMS an "unnecessary expense," without actually grappling with the extensive analysis of costs and benefits, including unquantified benefits, included in the 2024 Rule. The Proposal cites no new research or analyses—relying on the same total cost estimation as in the 2024 Rule—but merely theorizes that the benefits of the rule no longer justify the

[28] *See, e.g.*, U.S. CDC, Agency for Toxic Substances and Disease Registry, Minimal Risk Levels (MRLs) for Hazardous Substances, https://wwwn.cdc.gov/TSP/MRLS/mrlslisting.aspx (setting risk exposure levels for acute exposures to various non-mercury metals in particulate matter, including for exposures as short as one day); State of California, Office of Environmental Health Hazard Assessment, OEHHA Acute, 8-Hour and Chronic Reference Exposure Level (REL) Summary, https://oehha.ca.gov/air/general-info/oehha-acute-8-hour-and-chronic-reference-exposure-level-rel-summary (setting risk exposure levels for various non-mercury metals in particulate matter, including for exposures shorter than one hour and up to eight hours).

[29] Sahu Analysis at 9.

costs.[30] By contrast, the 2024 Rule reviewed and analyzed cost information on PM CEMS from at least 22 commenters, and annual costs for quarterly testing from at least 17 commenters, and prepared separate memoranda regarding and analyzing costs. *See* 2023 Cost Memo at 1-3; 2024 Ratio Memo.

EPA's 2024 Rule found significant developments in the costs of installing and utilizing PM CEMS since the 2012 Rule. The 2024 Rule estimated the Equivalent Uniform Annual Cost ("EUAC") of non-beta gauge PM CEMS to be about 17 percent less than what was estimated for the 2012 MATS Final Rule, 89 Fed. Reg. at 38,535, and found that these costs were trivial in the context of industry finances. Such trivial costs could not reasonably outweigh the significant benefits described above, no matter where the fPM limits are set.

Importantly, EPA "considers many factors" when regulating HAP emissions, 89 Fed. Reg. at 38,535-36, and Congress did not require EPA to choose the lowest cost approach to emissions control. As the 2024 Rule explained, EPA "selects the approach that best provides assurance that emission limits are met," and the Agency "is not obligated to choose the most inexpensive approach for compliance demonstrations, particularly when all benefits are not monetized, even though costs can be an important consideration." 89 Fed. Reg. at 38,529.

The costs of installing and utilizing PM CEMS are trivial, estimated to be between $2.3M and $2.8M per year.[31] The Proposal fails to assess these costs against various measures EPA has historically held as important to the industry, such as relationship to historical annual revenues, annual capital expenditures, and impacts on retail electricity prices, e.g., 88 Fed. Reg. at 13,962, 13,967, 13,976, 13,985. Here, the costs of installing and utilizing PM CEMS—while higher than the costs of stack testing—are exceedingly insignificant in the context of the electric power industry. The 2024 Rule analyzed costs compared to industry finances and found that "PM CEMS annual costs represent a very small fraction of a typical coal-fired EGU's operating costs and revenues." 89 Fed. Reg. at 38,529. In fact, if all coal-fired EGUs purchased and installed new PM CEMS, the cost would be less than four hundredths of a percent of the average annual operating expenses for coal-fired EGUs. 89 Fed. Reg. at 38,529; 2024 Ratio Memo at 1. For example, in 2022, coal-fired revenue was about $103 billion; operating expenses were about $36 billion; and coal-fired gross profit totaled about $66 billion. 2024 Ratio Memo at 1. For the 314 coal-fired EGUs in the United States, this means an average revenue of $327 million; average operating expense of $116 million; and gross profit of $211 million. *Id*. This profit is "on a daily basis, [] over 578 thousand dollars." *Id.* The annual per unit estimated cost of $72,325 for PM CEMS, 89 Fed. Reg. at 38,535, then, is just a fraction of even the profits generated by a single EGU on a single day.

Although the Proposal asserts that if the fPM limit is rolled back, the 2024 Rule's cost analysis, which compared the costs of PM CEMS and stack testing, "would no longer apply" and that the costs of stack testing would decrease "because longer duration runs that increase stack

[30] 2025 RIA at 2-5.

[31] *See* 90 Fed. Reg. at 25,542; Env't Prot. Agency, EPA-452/R-24-005, Regulatory Impact Analysis for the Final National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units Review of the Residual Risk and Technology Review 3-13 (2024), Doc. ID No. EPA-HQ-OAR-2018-0794-6966, https://www.regulations.gov/document/EPA-HQ-OAR-2018-0794-6966 [hereinafter 2024 RIA].

testing costs would no longer be necessary," 90 Fed. Reg. at 25,542, the Proposal provides no quantitative analysis of any revised costs for stack testing. Furthermore, EPA's assertion regarding longer duration runs would only apply to the small number of units with particularly high emissions. The vast majority of coal units have very low emissions rates that already comply with the fPM standard of 0.01 lb/MMBtu, and those with low emissions rates that use stack testing must already do the longer duration runs regardless of the level of the standard. Also, a significant fraction of the cost of the stack testing is fixed, and therefore only part of the cost is affected by the duration of the runs. Therefore, it appears any increased stack testing costs would have only affected a portion of the cost for a small number of units, suggesting the difference in cost between PM CEMS and stack testing would still be minimal with the 0.03 lb/MMBtu fPM standard, and EPA provides no data or information to the contrary. The Proposal does not explain how any revised costs change EPA's 2024 conclusion that the cost differential remains "minor," particularly in the context of the size of the industry's costs and profits. *See* 89 Fed. Reg. at 38,537 (discussing "minor annual cost differential").[32]

And while EPA theorizes that stack-testing costs might be less under a less stringent standard, the agency does not consider or acknowledge that PM CEMS costs might also be lower if the fPM standard is rolled back. Commenters on the 2023 Proposal argued that setting a more stringent fPM limit would require re-correlation of PM CEMS, which could have additional costs. *See, e.g.*, 89 Fed. Reg. at 38,520 ("The Agency received comments that some PM CEMS that are currently correlated for the 0.030 lb/MMBtu fPM emission limit may experience some difficulties should re-correlation be necessary at a lower fPM standard"); *id.* at 38,528; 88 Fed. Reg. 24,854, 24,874 (Apr. 24, 2023) (discussing practicality and potentially higher costs of using PM CEMS to monitor lower emission levels).[33] Regardless, as explained above, Congress did not direct EPA to choose the cheapest way to reduce emissions, but rather the method that assures maximum reduction of continuous emissions, and EPA's assertion that stack testing costs might not increase under a rule rollback is not enough to support a decision to eliminate the PM CEMS requirement.[34]

D. EPA Has Not Justified Any Reversal of Course from the 2024 Rule with Respect to PM CEMS

An agency proposing to reconsider, repeal, or revise past decisions must provide a reasoned explanation for doing so. *FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 517 (2009) (requiring agencies to provide rational reasons for changing their approach); *Motor Vehicle Mfrs. Ass'n*, 463 U.S. 29, 42 (1983) ("[A]n agency changing its course by rescinding a rule is obligated to supply a reasoned analysis for the change beyond that which may be required

[32] As we demonstrate elsewhere in these comments, the agency's proposal to weaken the fPM limit is itself flawed and should not be adopted. That proposal does not justify dispensing with PM CEMS.

[33] *See also* ATP 2025 Report at 12 ("if EPA goes back to the 2012 MATS fPM standard, the cost of using PM CEMS will be reduced from what they have estimated").

[34] While the annual cost of PM CEMS is marginally more than the annual cost of quarterly stack testing, the 2024 Rule record contains evidence that costs could be less than EPA's final estimate. For example, "EGU owners and operators who will be required to purchase, install, and operate PM CEMS will not be obligated to purchase instrument combinations with higher cost EUACs; at least three instrument combinations identified by commenters have EUACs lower than the average, and two of these instrument combinations identified by commenters have EUACs lower than the average estimated annual cost of quarterly testing." 2023 Cost Memo at 1.

when an agency does not act in the first instance"). EPA's proposal to reverse its recent, well-supported decision in the 2024 Final Rule does not begin to meet these basic requirements. As explained above, EPA provided only the most cursory grounds—no new studies or analysis were provided, and no serious effort is made to address the benefits or to explain why the truly minimal costs associated with this substantially more comprehensive and accurate means of monitoring toxic emissions are not justified. EPA does not grapple with, let alone refute its own reasoning and underlying factual analysis in the 2024 rule demonstrating PM CEMS' benefits. EPA's summary conclusions are not enough to support the proposed change in the rule. When an agency's "new policy rests upon factual findings that contradict those which underlay its prior policy," it must provide a detailed explanation for its change. *FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 515-16 (2009). An agency's action is arbitrary and capricious when the agency fails to explain its decision to "disregard[] facts…that underlay…the prior policy." *Id.* at 516.

E. EPA Should Not Reinstate the LEE Program (Response to Question #4).

EPA's 2012 Rule included a low emitting EGU ("LEE") program, "which reduces the stack testing frequency for sources that have demonstrated that their emissions are less than 50 percent of the corresponding emission limit for 3 consecutive years," 90 Fed. Reg. at 25,542, and EPA now proposes to reinstate this program. Reinstating the LEE program, however, would be unreasonable because EPA's research supporting the 2024 Rule shows that even EGUs that have qualified for the program experience high variability in their emissions—with one LEE-program facility measuring an hourly fPM emission rate as high as 1.33 lb/MMBtu. 2024 Technical Memo at 43.

F. EPA Arbitrarily Fails to Consider How a Less Stringent fPM Standard May Lead to Emission Spikes During Testing (Response to Question #5).

If EPA does not retain the 2024 fPM standard, much of the coal-fired fleet will continue to have a large gulf in achievable emissions (the lower emission rates they are actually capable of achieving) and permissible emission rates. This creates leeway for plants to increase their emissions significantly (up to the permissible level), which they may do, for example, during testing to more quickly reach increased minimum mass per run requirements and reduce testing costs. While EPA should retain the updated minimum volume per run requirement to improve accuracy of test data, it is arbitrary for EPA not to consider that withdrawing the 2024 fPM standard and allowing either minimum volume per run or minimum mass per run creates a danger that plants will see emission spikes for hours at a time during testing.[35] Adopting a lower emission standard—or maintaining the 2024 fPM standard that is eminently achievable—would require plants to maintain the low emissions rates they have demonstrated at all times and better protect surrounding communities.

[35] *See* ATP 2025 Report at 12 ("There is the possibility that maintaining the minimum sample mass requirement in combination with EPA's proposal to set a higher emission limit than in the 2024 MATS update might have the perverse effect of encouraging facilities that are currently controlling to well below 0.030 lb/MMBtu to increase their emission levels in order to reduce sample time.").

IV. EPA'S RESCISSION OF THE MORE STRINGENT MERCURY STANDARD FOR LIGNITE PLANTS IS ARBITRARY AND UNLAWFUL (RESPONSE TO QUESTION #6).

A. EPA's technical basis for finding the mercury standard not achievable is not supported by the record.

1. The record supports EPA's 2024 finding that the revised mercury standard is achievable for all lignite-fired units, despite variable mercury content in lignite coal (Q6).

EPA now claims that the agency did not demonstrate that 95% Hg control "is achievable for all lignite-fired units while taking into account the wide-ranging and highly variable Hg content of the various lignite fuels" (Question #6).[36] However, the record for the 2024 Rule provides ample support for EPA's determination that the revised mercury standard is achievable for all lignite-fired units.

Contrary to the rationale in the 2025 proposed repeal, not every plant needs to accomplish 95% mercury reduction to comply with the revised standard. EPA found that only three plants would need to control their mercury emissions by 95% to comply with the revised standard: Oak Grove, San Miguel, and Major Oak.[37] EPA estimated that at most 89.3% mercury control would be required for the six lignite-fired plants in North Dakota.[38] EPA also found that the two units of the Major Oak plant were already controlling their emissions by an amount exceeding the 95% required to meet the revised standard: 96.5% mercury control for Major Oak unit 1 and 97.5% for unit 2.[39] Even so, the agency based its mercury control estimates on the more challenging type of coal for mercury control – Gulf Coast lignite due to its higher mercury content than North Dakota lignite – to ensure that the agency's analysis comprehensively captured the challenges of controlling mercury emissions.[40]

EPA assumed the average mercury content of Texas lignite to be 25.0 lb/TBtu and Mississippi lignite to be 34.4 lb/TBtu, versus the average for North Dakota of 9.7 lb/TBtu.[41] Despite the higher average mercury content, EPA found that lignite-permitted plants in the Gulf

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[36] 90 Fed. Reg. at 25,543-44 ("The EPA solicits comment on the proposed repeal of the more stringent Hg standard for lignite-fired EGUs because of insufficient data demonstrating the standard can be met by lignite-fired EGUs with a range of boiler types and variable fuel composition (Question #6).").

[37] *See* 89 Fed. Reg. at 38548, tbl. 7 (estimating 95.2% mercury control required for Major Oak Power units 1 and 2 and Oak Grove units 1 and 2, and 95.9% mercury reduction required for San Miguel unit 1 to meet the revised 1.2 lb/TBtu standard in 2022); id. at 38547 ("[A]ll units (in 2022) would have needed to control their Hg emissions to 95 percent or less to meet an emission standard of 1.2 lb/TBtu").

[38] *Id.*

[39] *Id.*

[40] EPA, *National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units, Review of the Residual Risk and Technology Review, Summary of Public Comments and Responses on Proposed Rule* at 84 (April 2024), Doc. ID No. EPA-HQ-OAR-2018-0794-6922, https://www.regulations.gov/document/EPA-HQ-OAR-2018-0794-6922 [Hereinafter "2024 RTC"]("The EPA assumed use of Gulf Coast lignite in the model plant calculation because the mean Hg content is higher than that of [North Dakota] Fort Union lignite and thus should be more challenging to control.").

[41] 2024 Technical Memo at 38-39.

region had lower average mercury emissions in 2021 than those in North Dakota (2.0 lb/TBtu versus 3.0 lb/TBtu), demonstrating their capacity for controlling mercury.[42]

The EPA's determination that all lignite-fired plants would be able to meet the revised standard with only minimal operations changes primarily by injecting a greater volume of sorbent with existing control equipment and at most minimal potential capital investments[43] is bolstered by the agency's findings on the large mercury reductions already occurring at the plants in the Gulf region utilizing coal with the highest mercury content. EPA determined that in 2022 Texas lignite-permitted EGUs, excluding those burning non-lignite coal, were emitting mercury at an average rate of 1.86 lb/TBtu with an average mercury capture rate of 92.9%.[44] Similarly, the agency found that the average mercury emissions rate for lignite-fired coal plants in Mississippi was 1.74 lb/TBtu with an average of 92.4% control.[45]

These findings are reinforced by the 2025 ATP Report, discussing how no lignite plants are equipped with the most challenging control configuration for mercury – an ESP as the sole flue gas pollution control device – but that even some non-lignite units with this most-challenging configuration are able to achieve over 95% mercury capture efficiency.[46] Rather, lignite-fired facilities are equipped with "very effective" mercury control configurations, including baghouses (4 units), a baghouse or ESP with a wet scrubber (14 units), and a baghouse with a dry scrubber (4 units).[47]

EPA discussed the issue of variability in coal mercury content at length in the 2024 Rule,[48] and explained how 30-day averaging "dampens" the effect of mercury variability such that units with temporary emissions exceedances due to variable mercury emissions can still comply with emissions requirements. For example, EPA depicted the 2022 mercury emissions of the Dave Johnston Unit BW41 which included several temporary exceedances by as much as 3.0 lb/TBtu but maintained a 30-day rolling average well below the 1.2 lb/TBtu standard throughout the year.[49] Similarly, the Leland Olds lignite-fired plant in North Dakota had several spikes above its limit of 4.0 lb/TBtu in 2022, including temporary exceedances of as much as 7.0 lb/TBtu, and yet was still able to stay well below its limit with a 30-day rolling average.[50]

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[42] *See* 2024 Technical Memo at 39 (noting that this was due in part to certain Texas EGUs that were permitted as lignite units burning large amounts non-lignite coal).

[43] 2024 Technical Memo at 40 (determining that plants "could meet the proposed, more stringent, emission standard of 1.2 lb/TBtu by utilizing brominated activated carbon at the injection rates suggested in the beyond-the-floor memorandum from the final MATS rule"); 2024 RTC at 102-103 ("The cost of the installation of the equipment needed to inject halogenated sorbents (i.e., storage silo, injection system/lances, etc.) is small relative to the installation costs of other controls (e.g., baghouse/FF, wet or dry FGD scrubber, SCR, etc.)"); 89 Fed. Reg. at 38549 ("The EPA expects that sources will be able to meet the revised emission standard using existing controls (e.g., using existing sorbent injection equipment), and that significant additional capital investment is unlikely. If site-specific conditions necessitate minor capital improvements to the ACI control technology, it is important to note that any incremental capital would be small relative to ongoing sorbent costs.").

[44] 2024 Technical Memo at 36.

[45] *Id.*

[46] ATP 2025 Report at 17-19.

[47] ATP 2025 Report at 14.

[48] *See, e.g.,* 89 Fed. Reg. at 38542-45; Technical Support Document "1998 ICR Coal Data Analysis Summary of Findings," EPA-HQ-OAR-2018-0794 (Mercury Content of Coal Technical Support Document).

[49] *See* 89 Fed. Reg. at 38544, fig. 1.

[50] 89 Fed. Reg. at 38545, fig. 2.

In explaining its justification for the more stringent mercury standard, EPA found as "the most convincing evidence to support the more stringent standard… that there are EGUs that are permitted to fire lignite – and are only firing lignite – that have demonstrated an ability to meet the more stringent standard of 1.2 lb/TBtu." 89 Fed. Reg. at 38538. The fact that some lignite units have demonstrated the ability to meet the standard—combined with the knowledge of how the control technology operates—is a persuasive justification that all lignite units can similarly meet the revised standard.

The 2025 proposed repeal misstates what is "achievable" by mistakenly claiming that *all of the sources* in the lignite subcategory need to *already* comply with the stronger standard, as opposed to be able to reasonably achieve the standard through changes to operations or control technologies.[51] Just as the D.C. Circuit found that EPA should consider even unusually high performing units when conducting its MACT floor analysis under section 112(d)(3), *U.S. Sugar Corp. v. EPA*, 830 F.3d 579, 631-32 (D.C. Cir. 2016), EPA found it "appropriate to consider emissions from all units that are permitted to burn lignite…and are part of the lignite-EGU subcategory" in the section 112(d)(6) technology review context as an indication that a more stringent standard is achievable. 89 Fed. Reg. at 38538. Since the two Twin Oaks units operated by Major Oak Power had already demonstrated the ability to emit near and even meet EPA's revised mercury standard, EPA was justified in finding that EGUs "have demonstrated an ability to meet the 1.2 lb/TBtu Hg emission limit while firing lignite coal," despite other lignite plants not having *already* operated at this level.[52]

EPA's approach in the 2025 proposed repeal is misguided because plants that are not required to reduce emissions beyond the applicable standard have no incentive to do so, especially since "injecting more sorbent" to "over control" emissions would increase operating costs. 89 Fed. Reg. at 38540. The Twin Oaks units are a good example of this, because they did have an incentive to reduce emissions by benefiting from reduced compliance requirements through participating in the LEE program, which requires a potential to emit of less than 10 percent of the applicable mercury emissions limit. Performance testing for Twin Oaks in 2023 indicated a 30-day average mercury emissions rate of 1.1 lb/TBtu for unit 1 and 0.91/lb/TBtu for unit 2, which is well under the revised mercury standard.[53]

When the original 2012 MATS rule was proposed, some commentors argued that the 4.0 lb/TBtu standard was unachievable due to "too little data" and because it was "technically and economically unattainable," which was shown to be false once the standard went into effect and plants came into compliance.[54] In the 2024 Rule, EPA noted that despite similar comments on the 2023 proposal, the Twin Oaks example demonstrates achievability that can be extrapolated to other lignite units because those units fire Gulf Coast lignite with higher mercury content than North Dakota lignite, and yet "routinely demonstrated the ability to meet an emission limit of 1.2 lb/TBtu."[55] ATP also discusses how greater information on coal mercury emissions is available

[51] 90 Fed. Reg. at 25,543 (finding that the emissions performance of "only two units (at the Twin Oaks facility in Texas) that have achieved the revised standard" "did not demonstrate that this high level of Hg removal is achievable for all lignite-fired units.").
[52] 2024 RTC at 99.
[53] 89 Fed. Reg. at 38540.
[54] 2024 RTC at 83-84.
[55] 2024 RTC at 83-84.

now than in the past, with Hg CEMS data and greater data on coal mercury content providing a fuller picture establishing "that the revised limit is achievable for all lignite units."[56]

The results from EPA's 2022 section 114 information request indicated that some lignite coal plant sorbent injection rates, which can be "'dialed' up or down to achieve a desired Hg emissions rate," "were set to maintain an emission rate below the required 4.0 lb/TBtu" limit, as opposed to a more protective level.[57] The ATP 2025 Report discusses how plants like San Miguel can "dial up" the amount of activated carbon sorbent they inject to achieve necessary capture efficiencies to meet the revised standard.[58] Even if EPA's assertion is correct that San Miguel needs to meet a 96.3% capture efficiency to comply with the revised standard, 90 Fed. Reg. at 25,544, San Miguel shares the same ESP with wet scrubber configuration as Conemaugh, which has demonstrated well over 96.3% mercury control from 2017 to 2021. Similarly, Staudt's 2021 analysis shows the top 30% of all non-lignite units achieved 96% or higher capture, with the top decile averaging 98.7% mercury capture.[59] Furthermore, because most units require far lower capture rates than 96% – "[m]ost of the ND lignite units only require about 90% capture" – "[a]ll lignite units are capable of complying with the 1.2 lb/TBtu standard."[60]

a. The mercury capture success of Twin Oaks shows that other lignite plants can meet the revised standard.

EPA dismisses the data showing Twin Oaks met the revised mercury standard, claiming that short test times of about a month and a month and a half in duration are not representative of the overall emissions rate.[61] But, these test times far exceed the quarterly stack testing requirements that EPA claims are a sufficient substitute for continuous emissions monitoring for filterable particulate matter. EPA proposes to require only quarterly stack tests of lesser duration for compliance with that standard, which occur only four times a year but are used to supposedly represent actual emissions 365 days a year – testing times of over 30 days are far more representative of actual and achievable emissions. EPA's logic is also faulty in that supposedly units operating under the LEE program and subject to only one 30-boiler operating day performance test per year cannot provide useful data to inform its standards, yet these same tests provide data sufficient to ensure plants are meeting the significantly more stringent emissions standards required under the LEE program and to benefit from the reduced monitoring and compliance demonstration requirements of that program.

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[56] ATP 2025 Report at 22-23; *id.* ("When the 2024 Technical Memo was prepared, EPA was working with significantly more technical data than was available to it at the time that the 2012 MATS rule was developed, and more information on mercury emissions than available to EPA from the 2021 information request.").
[57] 89 Fed. Reg. at 38540.
[58] ATP 2025 Report at 17, 21.
[59] Staudt 2021 at 54-55.
[60] ATP 2025 Report at 21.
[61] 90 Fed. Reg. at 25,543 ("Between August 1 and September 19, 2023, a series of Hg emissions performance tests were conducted on Twin Oaks units 1 and 2. The average Hg emissions rate for the 30-boiler operating day performance tests was 1.1 lb/TBtu for unit 1 and 0.9 lb/TBtu for unit 2 (89 FR 38540, May 7, 2024). Further, in performance testing for the previous year (2022), the average Hg emissions rate for the 30-boiler operating day performance test was 0.9 lb/TBtu for unit 1 and 0.6 lb/TBtu for unit 2. However, these tests were conducted over a limited operating period and are not sufficient to establish that meeting a 1.2 lb/TBtu standard continuously is possible for all lignite-fired EGUs.").

EPA also dismisses the mercury performance at the Twin Oaks and Red Hills plants because these units are equipped with circulating fluidized bed (CFB) boilers, which EPA says are not representative of emissions at non-CFB boiler-equipped facilities.[62] While it is true that "these facilities have good configurations for Hg capture," as ATP discusses, these units also excel at mercury capture because they have baghouses, which may capture mercury "perhaps even without the addition of activated carbon" by virtue of carbon in the fly ash.[63] Several other lignite plants also have baghouses: Antelope Valley, Coyote, Spiritwood, Major Oak, Oak Grove, and Red Hills. Some plants—Antelope Valley, Coyote, and Spiritwood—have both a baghouse and an upstream dry scrubber, an "extremely effective capture" configuration "because any SO3 that might interfere with the Hg capture from activated carbon is removed."[64] Even the lignite units that are not equipped with a baghouse but instead have an ESP and wet FGD still have a "highly effective" configuration for mercury control.[65] Since every lignite unit either has an ESP and wet FGD or a baghouse, all lignite units are capable of high mercury capture efficiencies.[66]

Although the non-CFB boiler-equipped facilities "may not produce as much *intrinsic* capture" as CFB configurations, operators can "dial up" ACI and chemical additives to achieve the revised mercury standard.[67] The Conemaugh plant "demonstrates that high capture efficiency is possible for plants with pulverized coal boilers."[68] Because of the "extremely wide range of Hg content" in coal burned at Conemaugh over several years, operators faced greater difficulty in "tuning" the control system to control the variable mercury content.[69] Yet, even burning Western Pennsylvania coal with high mercury and sulfur content, the Conemaugh plant "consistently maintained its emissions well under 1.2 lb/MMBtu," with a capture efficiency that has exceeded 95% in every year from 2017 to 2022.[70] Because non-lignite plants like Conemaugh receive coal from several different mines, mercury content variability at Conemaugh is much greater than that at lignite plants, illustrating "how lignite plants are fully capable of mitigating variability issues that other types of plants with greater variability have successfully addressed, as evidenced by the Conemaugh plant consistently achieving mercury capture rates exceeding 95%."[71]

[62] 90 Fed. Reg. at 25,543.
[63] ATP 2025 Report at 16.
[64] ATP 2025 Report at 16.
[65] ATP 2025 Report at 17 (including Coal Creek, Leland Olds, Milton R. Young, Limestone, Martin Lake, and San Miguel).
[66] ATP 2025Report at 14.
[67]ATP 2025 Report at 17.
[68]ATP 2025 Report at 17.
[69]ATP 2025 Report at 17-18.
[70]ATP 2025 Report at 18-19,fig. 5.
[71]ATP 2025 Report at 19.

2. EPA says it did not consider costs of possible modifications to mercury control systems but provides no evidence and does not appear to conclude that these render the mercury standard either not "achievable" or not cost-effective.

Although EPA now claims that the agency did not consider the cost of possible modifications to control systems to meet the revised mercury standard, 90 Fed. Reg. at 25,543, EPA in fact considered these costs in the 2024 Rule and found the costs to be reasonable.

In the 2024 Rule, EPA considered the costs of potential control system modifications, finding that the need for "significant additional capital investment is unlikely." 89 Fed. Reg. at 38549. This is because EPA expected sources to "be able to meet the revised emission standard using existing controls (e.g., using existing sorbent injection equipment)," and further concluded that "[i]f site-specific conditions necessitate minor capital improvements to the ACI control technology, … any incremental capital cost would be small relative to ongoing sorbent costs accounted for in this analysis." *Id.*

EPA considered and found reasonable the cost-effectiveness values for lignite plants to control mercury emissions to the revised 1.2 lb/TBtu standard. 2024 RTC at 99. Discussing a model plant cost calculation based on an 800 MW EGU firing Texas lignite coal, EPA calculated cost effectiveness values using an injection rate of 5.0 lb/MMacf for brominated carbon sorbent, finding cost-effectiveness to be $5,083 per pound of mercury removed with an incremental cost-effectiveness of $28,176 per incremental pound of mercury removed at a sorbent cost of $1.15/lb. 2024 Technical Memo at 40-41. EPA found these costs to be "below or reasonably consistent with the cost effectiveness that the EPA has found to be acceptable in previous rulemakings for Hg controls."[72] EPA found that injection of sorbent at this high of a rate was unlikely to be necessary for plants to control mercury to the revised standard of 1.2 lb/TBtu, noting that Oak Grove reported an injection rate of less than 0.5 lb/MMacf to control its mercury emissions. 2024 Technical Memo at 42. EPA also calculated the cost-effectiveness at an injection rate of 3.0 lb/MMacf as $3,050 per pound of mercury removed while the incremental cost-effectiveness was $10,895 per incremental pound of mercury removed. 2024 RTC at 96.

EPA also determined that halogenated sorbents could be added to reduce the risk of equipment corrosion at a cost that is "small relative to the installation costs of other controls," such as a baghouse, FGD scrubber, or SCR.[73]

And as a coalition of public health and environmental NGOs discussed in comments on the 2023 proposed rule, the costs associated with revising the mercury standard "are reasonable considering the industry's annual revenues, capital expenditures, and total expenditures,"

[72] *See* 2024 RTC at 96; 2024 Technical Memo at 42; 89 Fed. Reg. at 38549, n.82 (providing examples for mercury control at comparable cost effectiveness values, including $27,500 per pound of mercury removed in the Primary Copper RTR, 87 Fed. Reg. 1,616, and $27,000 per pound of mercury removed in the beyond-the-floor analysis as part of the 2012 MATS Rule).

[73] 2024 RTC at 102-103 ("Pre-brominated (or pre-halogenated) sorbents can be added without release of the bromine (or other halogen) that contributes to the corrosion. The cost of the installation of the equipment needed to inject halogenated sorbents (i.e., storage silo, injection system/lances, etc.) is small relative to the installation costs of other controls (e.g., baghouse/FF, wet or dry FGD scrubber, SCR, etc.) and, the use of sorbents instead of chemical additives has the added potential to reduce corrosion and on-going component repair and replacement.").

especially in the context of what the "power sector can easily absorb while continuing to serve its function of providing power."[74]

EPA's 2024 determination that the cost of the strengthened lignite standard is reasonable is also consistent with 2023 and 2025 analyses by ATP, determining that only "extremely modest" capital cost for modifications of "at most about $5/kW" would be necessary for increasing carbon injection rates at a facility with an ACI system that does not have a baghouse.[75] In addition, ATP determined that EPA's estimated costs for the increased volume of activated carbon was "a worst-case scenario, and overestimates the cost for most facilities" due to an assumed mercury content of 25 lb/TBtu that is far greater than that for North Dakota lignite coal and because ACI injection rates "will be significantly lower, perhaps half" for units with a baghouse, and lower for facilities with ESP and wet scrubbers as well.[76]

ATP's 2025 analysis also discusses how EPA's estimate of overall costs for units to comply with the 2024 Rule may be significantly overstated because of offsetting cost reductions for units' mercury compliance from upgrades of the fPM control technologies.[77] There is no evidence that costs for potential mercury control modifications render the standard to be unachievable or not cost-effective, nor does EPA appear to conclude as much.

3. <u>The Low Halogen and High Sulfur Content of Some Lignites Provide No Reason to Withdraw the Revised Mercury Standard.</u>

The proposed withdrawal is based, in part, upon the claim that "EPA failed to address the impact of lower halogen content coupled with higher sulfur on Hg control for lignite-fired power plants." 90 Fed. Reg. at 25,543-44. EPA did, however, address both concerns. EPA addressed, first, assertions that "the lack of naturally occurring halogen" in lignite would make mercury control difficult for lignite-burning plants. 88 Fed. Reg. at 24,881. It noted that units using coals with similar chemical characteristics—including "Hg content, halogen content, and alkalinity"—had consistently met the revised standard. *Id.* EPA noted the availability of chemical (halogenated) additives, and found that the required sorbent-injection rates to meet the revised standards at units burning low-halogen-content fuels were cost-effective. 89 Fed. Reg. at 38,545-46 ("[A]ctivated carbon and other sorbent providers and control technology vendors have developed methods to introduce halogen into the flue gas … primarily through the injection of pre-halogenated (often pre-brominated) activated carbon sorbents or through the injections of

[74] Comments of Public Health and Environmental Organizations on EPA 2023 MATS RTR Proposal at 56 (June 23, 2023), Doc. ID No. EPA–HQ–OAR–2018–0794-5996, https://www.regulations.gov/comment/EPA-HQ-OAR-2018-0794-5996.

[75] ATP 2025 Report at 20-21 (Aug. 2025); Andover Technology Partners (Jan. 2023), https://www.andovertechnology.com/wp-content/uploads/2023/01/C_22_CAELP_4_20230105-2.pdf ("If an increase in carbon usage is determined to be necessary for any facility that does not have a baghouse, is not assumed to install a baghouse, and currently has ACI, it is assumed that an increase in capital cost of $5/kW is needed to account for any changes to the ACI system."). *See also* Andover Technology Partners, Assessment of Potential Revisions to the Mercury and Air Toxics Standards, at 36 (June 15, 2023), https://www.andovertechnology.com/wp-content/uploads/2023/06/C_23_CAELP_Final.pdf ("If an ACI system is installed and either VOM increases greater than 50% or a new BH is installed as a result of a new fPM standard, then a capital cost of $5/kW is assumed to address any modifications to the ACI system.").

[76] ATP 2025 Report at 21.

[77] ATP 2025 Report at 4-5.

halogen-containing chemical additives along with conventional sorbents"). *See* 2024 Technical Memo at 39-41. The proposal offers no reason to doubt that conclusion, nor does any exist; halogen can, and is, easily and inexpensively added to low-halogen coals.[78]

EPA similarly addressed the high sulfur content of some lignite. It noted, first, that while sulfur produced higher "natural alkalinity" of the fly ash in lignite plants, plants burning fuels with similarly alkaline fly ash had demonstrated the ability to meet the revised standard at reasonable cost. 88 Fed. Reg. at 24,880-81; 89 Fed. Reg. at 38,549. EPA acknowledged that lignite's higher sulfur content could, in some circumstances, produce increased sulfur trioxide (SO_3) in flue gases that might "negatively impact the effectiveness of sorbent injection for Hg control." *Id.* at 38,546. It found that only two units subject to the revised standard utilize selective catalytic reduction devices, which are most likely to produce elevated SO_3 levels, and that "the natural alkalinity" of lignite fuels "helps to minimize the impact of SO_3." *Id.* And it found several developments in control technology that would address any impacts from SO_3, including: "sodium-based" solutions that can be "co-injected" with halogen salt solutions to provide "effective SO_3 control and Hg oxidation/control"; "sulfur-tolerant" sorbents "specially formulated to enhance Hg capture" despite "elevated levels of SO_3"; and "dry sorbent injection systems that remove SO_3 before the point of activated carbon sorbent injection." 89 Fed. Reg. at 38,546-47. EPA offers no basis to question any of those conclusions. Nor could it, especially since the plants subject to the standard generally utilize control configurations—with a baghouse, a scrubber, or both—that minimize the effect of SO3 formation.[79]

EPA thus expressly and fully addressed the achievability of its revised mercury standards for coals that feature both low halogen content and high sulfur content, identifying commercially available and cost-effective methods of addressing those chemical characteristics. EPA's current assertion that it previously failed to address their "coupled" impact cannot justify withdrawing its revised mercury standard. 90 Fed. Reg. at 25,544. EPA offers nothing to suggest that the technologies cannot be combined, or that they conflict in any way such that the "impact of [the] combination" of high sulfur and low halogen could meaningfully alter its conclusion that neither prevents achievement of the revised standard. EPA has already found that halogen additives and SO3-removing solutions can be co-injected. 89 Fed. Reg. at 38,546. *See* ATP 2025 Report at 22 (noting that "halogen addition does not interfere with, and in fact enhances, the performance of sulfur-tolerant sorbents"). Plants burning other coals with similar sulfur and halogen content as lignite are currently achieving the revised mercury standard. *Id.* And ample additional evidence demonstrates that the revised standards are entirely and cost-effectively achievable, the chemical characteristics of lignite notwithstanding— especially through the use of baghouses (which enhance the effectiveness of activated carbon injection).[80] The chemical characteristics of lignite provide no sound basis to withdraw the revised standards.

[78] ATP 2025 Report at 15.
[79] ATP 2025 Report at 16.
[80] *Id.*

4. Variability in Lignite's Mercury Content Does Not Justify EPA's Proposed Withdrawal of the Revised Mercury Standard.

EPA notes that "stakeholders provided data challenging the assumed inlet value of 25.0 lb/Tbtu" used in modeling supporting the 2024 Rule, and states that "monthly fluctuations in Hg content could require even higher control levels at least half the time." 90 Fed. Reg. at 25,544. But EPA incorporated that data into its analysis when promulgating the 2024 Rule, "modif[ying] the Hg inlet concentrations for each unit to reflect measured Hg concentrations in lignite using information provided by commenters and other sources." 89 Fed. Reg. at 38,539. That revised analysis "did not change the EPA's overall conclusion that there are available controls and improved methods of operation that will allow lignite-fired EGUs to meet" the revised mercury standard. *Id.* EPA further noted that some plants subject to the revised standard are "[f]iring high levels of non-lignite coal (in some cases greater than 99 percent non-lignite coal," such that even "higher Hg content" did not prevent plants from achieving low mercury emissions with relatively low carbon-injection levels. 2024 Technical Memo at 39. Even when burning lignite containing higher quantities of mercury, plants have demonstrated the capacity to achieve sufficiently high removal rates to meet the standard.[81] The standards are measured, furthermore, on a 30-day rolling average, rendering "monthly fluctuations," 90 Fed. Reg. at 25, 544, largely irrelevant. *See* 77 Fed. Reg. 9,304, 9381 (Feb. 16, 2012) (noting that 30-day averaging period appropriately accommodates variability in emissions).

B. EPA Cannot Justify Retaining the Weaker 2012 Mercury Standard, Given the Achievability of Substantially Lower Emissions at Lignite Plants (Response to Question #7)

Even if EPA could permissibly withdraw the revised mercury standard, it has not offered any basis on which it could retain the 2012 mercury standards without *any* improvement. EPA estimates that every lignite plant in the subcategory can meet the 2012 mercury standard at control efficiencies between 30 and 85%, with most operating below 65% removal efficiency. 89 Fed. Reg. at 38,548. That falls well short of the "maximum achievable" emissions reductions required by paragraph 112(d)(2), 42 U.S.C. 7412(d)(2). EPA concluded in 2012 that 90% removal efficiencies represent the maximum achievable reduction. 88 Fed. Reg. at 24,876. Developments since then enable substantially greater removals; at least one plant has consistently achieved 95% removal efficiencies.[82] There is consequently no reasonable basis for EPA to conclude that it may retain the 2012 mercury standards under paragraph 112(d)(6) entirely.

V. THE PROPOSAL IS UNLAWFUL BECAUSE IT RELIES ON A FLAWED REGULATORY IMPACT ANALYSIS.

EPA's 2024 RIA is a 267-page document detailing the financial, public health, emissions, environmental justice, and energy sector impacts of the proposed amendments to the 2024 MATS Rule. In contrast, EPA's 2025 RIA does not adequately consider the public health and

[81] ATP 2025 Report at 18-19.
[82] *See* ATP 2025 Report at 14, 16 (finding that some lignite plants with an ESP "are achieving over 95% Hg capture efficiency").

environmental impacts of the proposed repeal. The 2024 RIA accounts for health benefits from reduced $PM_{2.5}$ emissions and ozone concentrations and climate benefits from reduced CO_2 emissions. It then compares these total benefits to compliance costs. 2024 RIA at ES-21, tbl. ES-5. Though the net monetized benefits were expected to be negative, the 2024 RIA points to the additional non-monetized benefits that must be considered as well. 2024 RIA at ES-21 to ES-22. In contrast, in the 2025 RIA, EPA treats emission increases as "non-monetized disbenefits," effectively excluding them from the cost-benefit analysis. 2025 RIA at 3-4.

The 2025 RIA narrowly focuses on compliance cost savings, does not monetize the health and environmental harms from increasing mercury and non-mercury HAPs under the rule, and does not conduct an updated environmental justice analysis. The 2025 RIA is analytically incomplete and biased towards demonstrating the Proposal will deliver cost savings by excluding known significant health effects of targeted pollutants, ignoring environmental justice and climate impacts, failing to update the baseline to reflect the current regulatory landscape, and treating non-monetized health and environmental benefits from emissions reductions as nonexistent.

A. EPA's Failure to Update the MATS RIA Baseline Renders Its Entire Analysis and Proposal Arbitrary.

1. EPA Arbitrarily Failed to Update the MATS RIA Baseline.

EPA does not do any new modeling in the 2025 RIA. To estimate the counts of premature deaths and illnesses attributable to modeled changes in annual PM2.5 and average summer ozone concentrations, the 2025 RIA simply flips the positive sign to a negative sign on the 2024 RIA's results. In the less than three pages of analysis on criteria pollutant impacts, EPA points to Tables 4-2 and 4-3 in the 2024 RIA, and adds a table (Table 3-1), that "reports the estimates of avoided premature mortalities due to this proposed repeal – assuming the quantified PM2.5 and ozone-related human health benefits reported in the 2024 MATS RTR RIA will no longer occur."[83] This is an incorrect analysis of the effects of the repeal of the 2024 Final Rule.

The 2025 RIA ignores significant policy and factual developments that have occurred since the 2024 Final Rule and that would materially alter the baseline. As stated in the 2025 RIA, "The baseline for the 2024 MATS RTR RIA included numerous rules that had been finalized at the time of that analysis. The version of IPM used for the 2024 MATS RTR RIA also included state and federal legislation affecting the power sector, including the Inflation Reduction Act of 2022 (IRA)." 2025 RIA at 1-3. However, the 2025 RIA uses the same IPM model run that the 2024 RIA used, despite significant changes to the regulatory landscape of the energy sector, including changes to IRA provisions, the addition of presidential exemptions for fossil fuel power plants, postponing coal-fired power plant retirement dates, and the 2024 carbon pollution standards. Specifically, the EPA says:

> Additionally, the EPA acknowledges that significant market and regulatory changes that [sic] have occurred since the promulgation of the 2024 MATS RTR, including changes that affect both the baseline and policy case and are not

[83] 2025 RIA at 3-3.

> reflected in this analysis. We have not modeled an updated baseline for this proposed repeal and rely on the 2024 MATS RTR RIA policy case analysis as the baseline for this action. Further, this RIA does not reflect the exemptions granted under Presidential Proclamation 10914 titled Regulatory Relief for Certain Stationary Sources to Promote American Energy.

2025 RIA at 2-1.

The President has also issued exemptions to coal-fired power plants that undermine clean air standards. On April 8, 2025, the President invoked Clean Air Act §112(i)(4) to grant 68 coal-fired power plants compliance exemptions to the 2024 Rule, delaying their compliance deadlines from 2027 to 2029.[84] On July 17, the President granted three more coal-fired power plants similar exemptions.[85] Coal-fired power plants emit more NOx, SO2, PM, and heavy metals per unit of energy than any other fuel type.[86] In 2017, PM emissions from coal-fired power plants alone were estimated to cause 52,000 premature deaths in the U.S. each year.[87] President Trump's presidential exemptions have the potential to – and indeed, are explicitly intended to[88] – reverse the U.S.'s decline in coal use and alter the emissions trajectory assumed in the 2025 RIA baseline.

Using the 2024 RIA policy case as a baseline for the 2025 RIA is unacceptable. It fails to reflect the current regulatory and market landscape, rendering its baseline assumptions outdated and misleading. Since the 2024 RIA, a series of significant federal actions have reshaped the energy sector—particularly in ways that affect emissions from coal and gas-fired power plants. These developments should have prompted a revised baseline to accurately assess the health impacts due to changes in PM2.5 and ozone from the repeal of this rule. As it is currently modeled, the human health impacts of the proposed repeal are likely being underestimated.

EPA cannot finalize the proposal, which relies on outdated analysis. Relying on analysis that the agency knows is outdated and not accounting for new information and changes in circumstances would be arbitrary and capricious. Failing to do so would be a failure to "examine the relevant data and articulate a satisfactory explanation for its action including a rational connection between the facts found and the choice made." *State Farm*, 463 U.S. 29, 43 (1983) (internal quotation marks and citation omitted).

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[84] Regulatory Relief for Certain Stationary Sources to Promote American Energy, White House (Apr. 15, 2025), https://www.whitehouse.gov/presidential-actions/2025/04/rregulatory-relief-for-certain-stationary-sources-to-promote-american-energy/.
[85] Tim Shaw, *Trump Orders Treasury to Axe Clean Energy Credit* Guidance, Thomson Reuters (Jul. 11, 2025), https://tax.thomsonreuters.com/news/trump-orders-treasury-to-axe-clean-energy-credit-guidance.
[86] Michael Hendryx et al., *Impacts of Coal Use on Health*, 41 Annu. Rev. Public Health 397 (2020).
[87] *Id.* at 403.
[88] Reinvigorating America's Beautiful Clean Coal Industry and Amending Executive Order 14,241, White House (Apr. 8, 2025), https://www.whitehouse.gov/presidential-actions/2025/04/reinvigorating-americas-beautiful-clean-coal-industry-and-amending-executive-order-14241/.

2. EPA's Failure to Update the Baseline Is Arbitrary In Light of Trump Administration Policies that Have Dramatically Changed the Energy Sector.

The Trump Administration's efforts to expand fossil fuel production, weaken environmental regulations, and preserve coal-fired power generation are expected to increase greenhouse gas emissions from the power sector, calling into question the appropriateness of using a 2024 baseline that reflects recent progress in emissions reductions. The Trump Administration is actively implementing a suite of federal policies aimed at reversing the clean energy transition and bolstering domestic fossil fuel generation, making the need for climate and clean air protections more urgent than under prior baselines.[89] From 2022 to 2023, coal generation dropped 18%, contributing to an overall reduction in mercury emissions of 17% from power plants.[90] As of 2023, roughly 186 GW of coal-fired power plants are operational in the U.S., with 103 GW slated to retire or convert to natural gas by 2039.[91] However, the downward trend toward lower power sector emissions appears to have already stalled, and the Trump Administration's push for expanded fossil fuel production and use and its efforts to protect coal-fired power generation are expected to fundamentally change the baseline scenario in the future.

Specifically, DOE orders have mandated the continued operation of coal-fired power plants slated for retirement, such as the Campbell plant in Michigan[92] and the Eddystone units in Pennsylvania.[93] Additionally, the One Big Beautiful Bill Act (OBBBA) rolls back energy tax credits for solar and wind that were expanded by the IRA in 2022.[94] At the same time, the OBBBA created a 2.5% tax credit through 2029 for metallurgical coal producers.[95] President Trump has also specifically directed the Treasury to accelerate the phase-out of clean energy tax credits.[96] Taken together, these federal actions highlight the administration's explicit and intentional interference in the energy landscape to artificially boost coal production. This interference will undoubtedly alter the public health and environmental impacts of the 2025 Proposed Rule.

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[89] *See* announcement of repeal of the Endangerment Finding: U.S. Environmental Protection Agency, *EPA Releases Proposal to Rescind Obama-Era Endangerment Finding, Regulations that Paved the Way for Electric Vehicle Mandates* (Jul. 29, 2025), https://www.epa.gov/newsreleases/epa-releases-proposal-rescind-obama-era-endangerment-finding-regulations-paved-way.

[90] U.S. Environmental Protection Agency, *EPA Releases 2023 Power Plant Emissions Data*, (Feb. 15, 2024), https://www.epa.gov/newsreleases/epa-releases-2023-power-plant-emissions-data.

[91] U.S. Environmental Protection Agency, *Final Carbon Pollution Standards to Reduce Greenhouse Gas Emissions from Power Plants*, (Apr. 25, 2024), https://www.epa.gov/system/files/documents/2024-04/cps-presentation-final-rule-4-24-2024.pdf.

[92] U.S. Department of Energy, *Federal Power Act Section 202(c): Midcontinent Independent System Operator (MISO)* (May 23, 2025) https://www.energy.gov/ceser/federal-power-act-section-202c-midcontinent-independent-system-operator-miso.

[93] U.S. Department of Energy, *Federal Power Act Section 202(c) PJM Interconnection* (May 30, 2025) https://www.energy.gov/ceser/federal-power-act-section-202c-pjm-interconnection.

[94] Peter Lawrence & Julia Dinkel, *House Reconciliation Bill Would Drastically Reduce ITCs, PTCs, Other Clean Energy Tax Incentives,* Novogradac (Jun. 9, 2025 at 10:58AM ET), https://www.novoco.com/notes-from-novogradac/house-reconciliation-bill-would-drastically-reduce-itcs-ptcs-other-clean-energy-tax-incentives.

[95] Hannah Northey & Amelia Davidson, *How a new coal credit snuck into the GOP megabill,* E&E News by Politico (Jul. 11, 2025 at 06:42 AM EDT), https://www.eenews.net/articles/how-a-new-coal-credit-snuck-into-the-gop-megabill/.

[96] Tim Shaw, *Trump Orders Treasury to Axe Clean Energy Credit Guidance,* Tom Reuters (Jul. 11, 2025), https://tax.thomsonreuters.com/news/trump-orders-treasury-to-axe-clean-energy-credit-guidance/.

This Administration has also sought to derail the U.S. transition to clean energy through a series of executive orders. On January 20, 2025, President Trump issued Executive Order (EO) 14,156, *Declaring a National Energy Emergency*, which invoked emergency powers to justify sweeping actions aimed at boosting fossil generation under the guise of national security.[97] On the same day, EO 14,154, *Unleashing American Energy*, directed federal agencies to identify and rescind regulations that were deemed to burden domestic fossil fuel production.[98] This was followed by EO 14,261, *Reinvigorating America's Beautiful Coal Industry*, in April, which launched a coordinated, government-wide initiative to promote coal production, utilization, and exportation.[99] This EO also opened federal lands to new coal leases.[100] On the same day, EO 14,260, *Protecting American Energy From State Overreach*, instructed the DOJ to challenge state-level climate policies that are deemed to impede fossil fuel development.[101] These EOs were issued months before EPA's proposed MATS repeal and have significantly altered the regulatory environment and market expectations, yet EPA's 2025 RIA fails to account for their cumulative impact.

Finally, fossil-fueled power plant emissions are likely to increase as new data centers, driven by the rapid growth of artificial intelligence, are expected to rely on gas-powered electricity.[102] The surge in demand for natural gas has also strained domestic manufacturing and construction resources, causing widespread delays in building new gas turbines.[103] These bottlenecks have been exacerbated by Trump's import tariffs, which have raised the cost of key construction materials such as steel, aluminum, and copper.[104]

In light of the federal policies, presidential exemptions, and executive orders, EPA cannot reasonably claim that the 2024 RIA is the best available baseline scenario for use in analyzing the proposed rollback of regulatory requirements. The baseline assumes a regulatory and market trajectory that is no longer certain. A revised baseline would reflect higher projected emissions, less clean energy investment, and increased reliance on coal. By not incorporating these developments, EPA's cost-benefit analysis is fraught: the 2025 RIA overstates the rule's costs and understates its benefits.

B. EPA Arbitrarily Uses an Outdated 3% Discount Rate In Computing the Costs and Benefits of the Proposal.

EPA's use of a 3% discount rate to project the costs of the proposal is contrary to the best, most current economic data and methods. The best current economic data and scholarship

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[97] *See* Executive Order 14,156, Declaring a National Energy Emergency, 90 Fed. Reg. 8433 (Jan. 20, 2025).
[98] *See* Executive Order 14,154, Unleashing American Energy, 90 Fed. Reg. 8,353 (Jan. 20, 2025), https://www.whitehouse.gov/presidential-actions/2025/01/unleashing-american-energy/.
[99] *See* Executive Order 14,261, Reinvigorating America's Clean Coal Industry and Amending Executive Order 14,241, 90 Fed. Reg. 15,517 (Apr. 8, 2025), https://www.whitehouse.gov/presidential-actions/2025/04/reinvigorating-americas-beautiful-clean-coal-industry-and-amending-executive-order-14241/.
[100] *Id.*
[101] *See* Executive Order 14,260, Protecting American Energy From State Overreach, 90 Fed. Reg. 15,513 (Apr. 8, 2025).
[102] *Id.*
[103] Mark Shenk, *Rush for US gas plants drives up costs, lead times*, Reuters (July 21, 2025 at 9:18 AM PDT), https://www.reuters.com/business/energy/rush-us-gas-plants-drives-up-costs-lead-times-2025-07-21/.
[104] *Id.*

support using an annual discount rate of 2%, reflected in OMB's 2023 update to Circular A-4, not the outdated 3% rate used in the 2003 version of Circular A-4.[105]

Since 2003, experts have repeatedly observed that economics and current financial data no longer support the use of a 3% discount rate. In 2017, the Council of Economic Advisers explained that "real interest rates around the world have come down since" the 2003 Circular, and that recent evidence supports lowering the consumption-based discount rate to at most 2%.[106] Independent experts have also noted that recent evidence and scholarship supports lower discount rates of about 2%. *See, e.g.*, Peter H. Howard et al., U.S. Benefit-Cost Analysis Requires Revision, 380 SCIENCE 803 (2023), https://pubmed.ncbi.nlm.nih.gov/37228186.

The 2023 revised Circular A-4 incorporated economic scholarship and data from the past 20 years to derive a default annual discount rate of 2%. The revision underwent expert peer review, with reviewers expressing support for key revisions in the updated Circular and recognizing that an update was long overdue. Expert peer reviewers widely supported lowering both the 3% consumption-based rate and the 7% capital-based rate to around 2%.[107]

If EPA reverted, as proposed, to discount rates of 3% and 7% from the 2003 version of Circular A-4, it would be applying outdated economic data and scholarship. It would also be systematically underestimating the costs of revoking the updated MATS. For example, in the RIA for the 2024 Rule, EPA found that the updated MATS would yield $300 million in air-quality-related health benefits when calculated with a 2% discount rate, but only $260 million when calculated using a 3% discount rate. 2024 RIA at ES-15.

EPA's use of the outdated discount rates from the 2003 version of Circular A-4 is contrary to the best available economic scholarship and data and is arbitrary and capricious.

C. EPA Arbitrarily Failed to Monetize and Consider the Rule's Reductions of CO_2

EPA's failure in its proposal to monetize or otherwise value the lost CO_2-reduction benefits of the 2024 Rule is irrational and contrary to the best available science on monetizing climate impacts. There are reliable, rigorous, peer-reviewed economic tools for monetizing the greenhouse gas impacts—in fact, EPA did so in the 2024 Rule, which projected that the updated MATS standards EPA now proposes to revoke would yield $130 million in monetized climate benefits. 89 Fed. Reg. at 38,559. Refusing to monetize or otherwise evaluate the loss of CO_2-

[105] OMB, Circular A-4 (Nov. 9, 2023), https://www.whitehouse.gov/wp-content/uploads/2023/11/CircularA-4.pdf.
[106] COUNCIL OF ECON. ADVISERS, DISCOUNTING FOR PUBLIC POLICY: THEORY AND RECENT EVIDENCE ON MERITS OF UPDATING THE DISCOUNT RATE 1 (2017), https://perma.cc/46UQ-LYAQ.
[107] *See* ICF Int'l, Individual Peer Reviewer Comments on Proposed OMB Circular No. A-4, "Regulatory Analysis," note 17, at 71 (Aug. 3, 2023), https://bidenwhitehouse.archives.gov/wp-content/uploads/2023/08/A4-Peer-Reviewer-Comments_508c-Final.pdf (Dr. Gillingham: "In the proposed guidance, the 7% rate is discarded and deemed generally inappropriate for a social rate of discount . . . I agree with this assessment and I believe it is supported by the literature."); *see also id*. at 81-94 (Resources for the Future president William A. Pizer endorsing the use of a 2 percent discount rate); *id*. at 97 (Dr. Romer recommending the use of discount rates "in the range of 2 to 3 percent"); *id*. at 105 (Vanderbilt University professor W. Kip Viscusi recommending rates of 2 and 3 percent).

related climate benefits under the proposed action demonstrates that the agency has arbitrarily failed to consider an important aspect of the decision before it.

EPA's explanation for refusing to monetize CO_2 benefits in the Regulatory Impact Assessment that accompanies the proposal does not justify the agency's approach. EPA primarily asserts that there are "significant uncertainties related to the monetization of greenhouse gases," which the agency concludes could lead to "flawed decision-making due to overreliance on highly uncertain values." 2025 RIA at 5-6. That bury-our-heads-in-the-sand approach is the opposite of rational decisionmaking and conflicts with agency and inter-agency guidance, which emphasize the need to rigorously consider uncertainty using the best available methods, not disregard the best available evidence simply because uncertainty exists.

EPA's Guidelines for Preparing Economic Analyses recognize that "[u]ncertainty is inherent in" regulatory analysis, and thus "[t]reatment of uncertainty is an essential component of analysis" to "present useful conclusions to inform policy decisions." Env't Prot. Agency, Guidelines for Preparing Economic Analyses, 5-29 (3d ed. 2024). The Guidelines specifically instruct agency analysts to "[p]resent outcomes or conclusions based on expected or most plausible values," along with "descriptions of all known key assumptions, biases, and omissions," and describe models and probabilistic methods for quantifying and assessing uncertainties. *Id.*

Circular A-4, the Office of Management and Budget's (OMB) guidance on best practices for regulatory analysis likewise directs that "[w]henever it is feasible to characterize quantitatively the probability distributions, some estimates of expected value (e.g. mean and median) *must be* provided in addition to ranges, variances, specified low-end and high-end percentile estimates, and other characteristics of the distribution." OFF. OF MGMT. & BUDGET, CIRCULAR A-4: REGULATORY ANALYSIS, 67–75 (2023). The guidance further states that "[a]n effect of a regulation should not be excluded from a regulatory analysis simply because its estimation is highly uncertain," because "even for highly uncertain effects, it is often possible to use available evidence to produce estimates of those effects for inclusion in a regulatory analysis that are more accurate than assuming uncertain effects do not occur or have no benefits or costs." *Id*. at 67.

EPA's refusal to monetize CO_2 benefits here ignores this guidance and constitutes irrational, arbitrary and capricious decisionmaking. Federal courts have repeatedly recognized that rational agency analysis requires making predictive judgments under uncertain conditions, because "[r]egulators by nature work under conditions of serious uncertainty" and "are often called upon to confront difficult administrative problems armed with imperfect data." *See Public Citizen v. Fed. Motor Carrier Safety Admin.,* 374 F.3d 1209, 1221 (D.C. Cir. 2004); *Mont. Wilderness Ass'n v. McAllister*, 666 F.3d 549, 559 (9th Cir. 2011). The "proper response" to uncertainty is "for the [agency] to do the best it can with the data it has," not to willfully ignore available information. *Id*. The U.S. Court of Appeals for the D.C. Circuit has further explained that, even when armed with imperfect and imprecise information that enables the agency to "determine only the range" of impacts, agencies must still assess regulatory costs when feasible. *Chamber of Com. of U.S. v. Sec. & Exch. Comm'n*, 412 F.3d 133, 143 (D.C. Cir. 2005) (citing *Pub. Citizen*, 374 F.3d at 1221).

Based on these bedrock regulatory principles, in 2008, the U.S. Court of Appeals for the Ninth Circuit held that uncertainty is not a sufficient reason to not monetize climate effects in regulatory decisionmaking. *Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1198–1203 (9th Cir. 2008). Even where there was some uncertainty in the proper valuation of climate damages, the court explained that "the value of carbon emissions reduction is certainly not zero." *Id*. at 1200. The Court held both that "it is possible to monetize" greenhouse gas emissions and that the agency's failure to do so was arbitrary and capricious. *Id*.

And it *is* possible to monetize the benefits of avoiding CO_2 emissions. The benefits arising from CO_2 reduction are both capable of quantification and are essential to consider in EPA's proposed rollback of the 2024 Rule. Experts first developed estimates of the social cost of carbon in the 1990s, and federal agencies began developing estimates of the social cost of greenhouse gases based on the growing scientific literature. EPA published its first technical support document recommending social cost of greenhouse gasses (SC-GHG) estimates capturing the total marginal damages from a ton of greenhouse gas emission in 2008.[108] The White House subsequently convened an Interagency Working Group on the Social Cost of Carbon, which has released and frequently updated climate-damage estimates based on three independent and widely used climate-economic models, known as integrated assessment models.

These models and methods have now been used by federal agencies for more than a decade to monetize CO_2 benefits of regulatory action. Indeed, EPA has monetized CO_2 benefits in countless rulemakings over the fifteen years, including in the 2024 Rule itself, where it estimated that the updated MATS would yield $130 million in climate benefits. 89 Fed. Reg. at 38,558. The agency explained that that estimate, using the agency's SC-CO2 from the 2023 EPA Report on the Social Cost of Greenhouse Gases, "reflects the society value of reducing emissions of CO2 by one metric ton and is the theoretically appropriate value to use in conducting benefit-cost analyses of policies that affect CO2 emissions." *Id.* at 38,557. The agency recognized the existence of uncertainty, but explained that the estimated CO2 benefits "likely underestimate the marginal benefits of abatement." *Id*.

Besides uncertainties, EPA points to a memorandum, "Guidance Implementing Section 6 of Executive Order 15,154, Entitled 'Unleashing American Energy,'" to justify its refusal to monetize the greenhouse gas impacts of its proposal. But Executive Order 14,154's direction to abandon use of the guidance and methodologies for estimating the social cost of carbon issued by the Interagency Working Group on the Social Cost of Greenhouse Gases does not absolve EPA of its statutory responsibility to engage in reasoned decisionmaking. *See, e.g.*, *Ctr. for Biological Diversity*, 538 F.3d at 1198–1203. EPA cannot hide behind an Executive Order to avoid its obligation to consider all relevant aspects of a problem. If following that Order requires EPA to analyze a problem arbitrarily and capriciously, then the agency action is arbitrary and capricious and must be set side.

In short, rigorous methods for estimating and monetizing the benefits of CO2 reduction exist, and EPA and OMB guidance, as well as federal caselaw, require EPA to use available tools to estimate those benefits to fully and rationally assess the proposed action. Rejecting those

[108] ENV'T PROT. AGENCY, TECHNICAL SUPPORT DOCUMENT ON BENEFITS OF REDUCING GHG EMISSIONS 13 (2008).

methods and ignoring that guidance leads EPA to arbitrarily underestimate the costs of the proposal and is an irrational and unreasonable approach.

D. EPA's Consideration of Health Benefits of the 2024 Rule is Fatally Flawed.

1. Throughout the Proposal and Its Regulatory Impact Analysis, EPA Arbitrarily Minimizes the Health Benefits of Pollution Reduction.

The 2024 RIA discusses the qualitative potential health and ecological benefits of the 2024 MATS Rule's predicted reductions in mercury. EPA lists known human and animal health effects associated with exposure to methylmercury (MeHg), such as IQ loss, ischemic heart disease, nephrotoxicity, immunotoxicity, impaired fertility, and developmental effects. 2024 RIA at 4-4. EPA said that the 2024 Rule would reduce exposure to HAPs, though it did not undertake a quantitative analysis. 2024 RIA at 4-5. Additionally, EPA predicted that the 2024 Rule would reduce the MeHg concentrations in fish living in waterbodies near EGUs. 2024 RIA at 4-5. Importantly, even low-level MeHg exposures can pose health risks, particularly for populations with high fish consumption who are therefore most likely to benefit from any reductions in MeHg. 2024 RIA at 4-5.

The 2024 RIA also discusses the projected benefits from reductions in emissions of non-Hg HAP metals (antimony, arsenic, chromium, cobalt, nickel, beryllium, cadmium, lead, manganese, and selenium). The 2024 Rule was predicted to reduce between four to seven tons of non-Hg HAP metal emissions per year. 2024 RIA at 4-7. As done with mercury, EPA lists known human health effects associated with exposure to these HAPs, including decreased pulmonary function, pneumonia, central nervous system damage, kidney damage, nausea, and vomiting. 2024 RIA 4-8 to 4-11. EPA cites its 2020 risk assessment[109] in which it modeled the chronic inhalation exposure to multiple pollutants by aggregating the health risks associated with pollutants that affect the same target organ. 2024 RIA at 4-7. It concludes that the reductions from the 2024 Rule were not expected to exceed health thresholds, and as such, did not quantify the impacts.

For both Hg and non-Hg HAP metals, the 2024 RIA also discusses the annual reduction in emissions: 900-1,000 lbs of Hg and 4-7 tons of non-Hg HAP metals. 2024 RIA ES-15, tbl. ES-4. Though EPA did not monetize the impacts of this reduction, these significant reductions in hazardous pollutants are meaningfully recognized throughout the 2024 RIA. 2024 RIA 4-1, 4-12.

In contrast, the analysis of the benefits of HAP reductions in the 2025 RIA is only two paragraphs. EPA states that 9,500 pounds of reduction in emissions of Hg and 49 tons of non-Hg HAP metals reduction would no longer be expected due to the repeal of the 2024 Rule. 2025 RIA at 3-1, 3-2. EPA does not model the anticipated health or environmental effects of this increase in emissions, despite listing the potential for neurodevelopmental, cardiovascular, and genotoxic effects to humans exposed. 2025 RIA at 3-2. Specifically, EPA claims, "The EPA is unable to monetize the benefits of Hg and non-Hg metals emission changes due to data limitations." 2025

[109] EPA OAQPS, *Residual Risk Assessment for the Coal- and Oil-Fired EGU Source Category in Support of the 2020 Risk and Technology Review Final Rule, September 2019* (Sept. 2019), https://www.regulations.gov/document/EPA-HQ-OAR-2018-0794-4553.

RIA at ES-4. However, EPA does not meaningfully attempt to discuss the potential qualitative impacts of this proposed change, as was done in the 2024 RIA. 2025 RIA at 6-4.

2. EPA Arbitrarily Minimizes the Significant Health Benefits to Further Reducing Mercury Emissions.

Mercury poses severe health risks to humans, including for developing children's brains. Long-term developmental deficits are associated with exposures of pregnant women and children to mercury through fish and shellfish consumption.[110] The suite of neurocognitive effects associated with mercury exposures include impaired memory, delayed learning, and behavioral impacts, as represented by IQ loss on "tests of attention, fine motor-function, language, and visual spatial ability."[111]

The transformation of elemental mercury (Hg^0) and oxidized mercury (Hg^{2+}) into methylmercury (CH_3Hg^+ or MeHg) is a complex chemical and biological process that primarily occurs in aquatic environments.[112] Fossil fuel power plants emit mercury as either Hg^{2+} or Hg^0, which is soon oxidized and converted into Hg^{2+}.[113] Eventually, Hg^{2+} is deposited onto the Earth's surface. Hg^{2+} that enters anoxic environments, such as wetlands, is digested by anaerobic bacteria and converted into MeHg through enzymatic methylation, or the addition of a methyl group.[114] As such, the mass is increased by about 7.5%.[115] MeHg is much more toxic, bioaccumulative, and persistent than elemental or oxidized mercury. When fish consume the MeHg-containing bacteria, mercury moves its way up the foodchain.[116] When consumed, MeHg-contaminated food, such as fish, is broken down in the human body by gastric acid and almost 100% of mercury is absorbed and distributed through the bloodstream.[117]

Mercury exposure is also associated with premature mortality due to cardiovascular disease in adults.[118] Methylmercury has "adverse effects on both the developing and the adult cardiovascular system, including fatal and non-fatal ischemic heart disease."[119] EPA also found that methylmercury is a possible human carcinogen, that it is associated with "nephrotoxicity, immunotoxicity, reproductive effects (impaired fertility), and developmental effects," and that

[110] F. Debes et al., *Cognitive deficits at age 22 years associated with prenatal exposure to methylmercury,* 74 Cortex 358 (2016).
[111] 2024 RIA at 4-4.
[112] Wisconsin Water Science Center, *Mercury Cycling in the Environment* (Jan. 10, 2013), https://wi.water.usgs.gov/mercury/mercury-cycling.html.
[113] *Id.*
[114] *Id.*
[115] Calculations as follows: Mercury (Hg) = 200.59 g/mol. Methyl group (CH3) = 15.04 g/mol. So, methylmercury = 215.63 g/mol. Thus, mass increase = (15.05/200.59) x 100 = 7.5%.
[116] EPA, *Basic Information about Mercury* (Dec. 5, 2024), https://www.epa.gov/mercury/basic-information-about-mercury.
[117] Y. Hong et al., *Methylmercury Exposure and Health Effects,* 45 J.Prev. Med. Pub. Health 353, 355 (2012).
[118] Genchi, G., et al., "Mercury Exposure and Heart Diseases." International Journal of Environmental Research and Public Health 14(1) (2017); Hu, X. F., et al., "Mercury exposure, cardiovascular disease, and mortality: A systematic review and dose-response meta-analysis." Environmental Research 193 (2021).
[119] 2024 RIA at 4-4.

methylmercury "is capable of causing chromosomal damage in a number of experimental systems."[120]

From 2011 to 2018, societal costs of mercury exposure are estimated to be between $50 to $70 billion per year.[121] Though mercury pollution is still very costly for public health in the U.S., mercury pollution from electricity generating units has improved dramatically since the 1990s.[122] Since the original MATS rule in 2012, direct public benefits of mercury reductions have been between $1.2 to $1.5 billion per year,[123] though this estimate does not include many non-quantified benefits, including for the non-mercury metals, meaning it underestimates the total benefits of MATS.

Incremental reductions in mercury emissions continue to be important because "even small amounts" of mercury from U.S. coal plants "can push individuals above levels associated with adverse health impacts" as "highlighted by the large number of U.S. women of childbearing age (60,000-100,000) who were pushed below the EPA RfD by mercury emissions reductions associated with the initial MATS controls."[124] Although EPA's RfD for methylmercury consumption is up to 5.8 micrograms per liter of blood,[125] any amount of mercury exposure is toxic to humans, and sensitive individuals including the young and elderly are particularly susceptible to health effects from even small amounts of mercury exposure.[126]

Current mercury exposures pose significant risks to humans. The EPA estimates that "more than 75,000 newborns in the United States each year may have increased risk of learning disabilities associated with in-utero exposure to methylmercury."[127] However, Dr. Sunderland's research suggests that this could be a significant underestimate: "blood mercury data for the U.S. population (NHANES 2011-2018) suggest that between 150,000 to 360,000 babies are born annually with mercury exposures above the EPA RfD, placing them at elevated risk of

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[120] 2024 RIA at 4-4.
[121] Opposition of Environmental and Public Health Respondent-Intervenors to Petitioners' Motions for Stay, Declaration of Elsie M. Sunderland, *North Dakota v. EPA*, D.C. Cir. 24-1119, ECF No. 2065869 at 8 (July 22, 2024).
[122]Comments of Elsie M. Sunderland & Colin P. Thakray, Harvard University, on EPA Proposal to Repeal 2024 MATS Rule at 3 (Aug. 11, 2025) (submitted to regulations.gov docket).
[123] Elsie M. Sunderland, C.P. Thackray, B. Geyman, M. Dai, J. Hammitt, S. Goho, & C. Driscoll.,*A Template for a State-of-the-Science Assessment of the Public Health Benefits associated with Mercury Emissions Reductions for Coal-fired Electricity Generating Units*, Harvard Chan C-CHANGE White Paper at 3 (2022), https://content.sph.harvard.edu/wwwhsph/sites/2343/2022/04/MATSTemplateAnalysis_041122b.pdf.
[124] Opposition of Environmental and Public Health Respondent-Intervenors to Petitioners' Motions for Stay, Declaration of Elsie M. Sunderland, *North Dakota v. EPA*, D.C. Cir. 24-1119, ECF No. 2065869 at 12 (July 22, 2024).
[125] EPA, Resources for Mercury Science and Research (Apr. 16, 2025), https://www.epa.gov/mercury/resources-mercury-science-and-research.
[126] EPA, Health Effects of Exposures to Mercury (Dec. 5, 2024), https://www.epa.gov/mercury/health-effects-exposures-mercury.
[127] EPA, *Mercury Emissions: The Global Context* (Apr. 22, 2025), https://www.epa.gov/international-cooperation/mercury-emissions-global-context.

neurocognitive impairment. Further, 7.4 million adults exceed thresholds associated with elevated risks of cardiovascular disease."[128]

Despite large reductions in power plant mercury emissions, a 2023 study suggests that individuals who consume self-caught fish could still exceed the RfD dose for methylmercury, especially in North Dakota and Texas.[129] This risk is highlighted by the preponderance of recreational fish advisories containing warnings for unsafe mercury content in fish.[130] Mercury also poses adverse effects for wildlife such as birds and mammals that the rule will mitigate.[131]

Sunderland and Thackray's 2025 analysis estimates that mercury reductions from the 2024 Rule will yield $200 million per year of public health benefits from 2028 to 2037 at a 3% discount rate due to avoided intelligence quotient (IQ) decreases in children and premature mortality in adults.[132] Even though this is only a partial accounting of benefits from the 2024 Rule's mercury reductions – since it estimates reductions of only two adverse health endpoints – it illustrates the substantial benefits from the 2024 Rule's reductions in mercury.

3. EPA Failed to Consider the Meaningful Benefits of Reducing Mercury at North Dakota and Texas hotspots.

The 2024 Rule provides important benefits by reducing mercury exposure for individuals living in mercury hotspots in North Dakota and Texas caused by lignite coal plants. Although the 2012 MATS program has effectively reduced mercury exposures from U.S. coal plants, recent analysis shows two deposition hotspots remain in communities surrounding lignite-fired EGUs in North Dakota and Texas.[133]

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[128] Opposition of Environmental and Public Health Respondent-Intervenors to Petitioners' Motions for Stay, Declaration of Elsie Sunderland, *North Dakota v. EPA,* D.C. Cir. 24-1119, ECF No. 2065869 at 12-13 (July 22, 2024). *See also* Figure 11 in E. Sunderland, C. Driscoll, K.F. Lambert, B. Geyman, C. Thackray, D. Evers, S. Goho, *Mercury Science and the Benefits of Mercury Regulation,* Harvard School of Public Health (2021), https://content.sph.harvard.edu/wwwhsph/sites/2343/2021/12/Mercury_WhitePaper_121621.pdf.

[129] M.Q. Dai et al., *Sociodemographic disparities in mercury exposure from U.S. coal-fired power plants,* 593.

[130] US EPA, 2011 National Listing of Fish Advisories (2013), https://archive.epa.gov/epa/sites/production/files/2015-06/documents/technical-factsheet-2011.pdf. Last Accessed: August 23, 2023. Washington, DC, U.S. Environmental Protection Agency. EPA-820-F-13-058: 9 (showing over 70% of U.S. recreational fish consumption advisories for mercury based on 2011 data from the National Listing of Fish and Wildlife Advisories Program).

[131] 2024 RIA at 4-6 ("In laboratory studies, adverse effects from exposure to MeHg in wildlife have been observed in fish, mink, otters, and several avian species at exposure levels as low as 0.25 micrograms of MeHg per gram of body weight (U.S. EPA, 1997). The risk of Hg exposure may also extend to insectivorous terrestrial species such as songbirds, bats, spiders, and amphibians that receive Hg deposition or from aquatic systems near the forest areas they inhabit (Bergeron et al., 2010a, 2010b; Cristol et al., 2008; Rimmer et al., 2005; Wada et al., 2009; Wada et al., 2010).").

[132] Comments of Elsie M. Sunderland & Colin P. Thackray, Harvard University, on *National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units*, 90 Fed. Reg. 25,535 (Jun. 17, 2025) at 3, 14 (Aug. 11, 2025) (submitted to regulations.gov docket ID No. EPA–HQ–OAR–2018–0794) [Hereinafter Sunderland & Thackray 2025 Comment].

[133] M.Q. Dai, B.M. Geyman, X.C. Hu, C.P. Thackray, E.M. Sunderland, *Sociodemographic disparities in mercury exposure from U.S. coal-fired power plants,* 10 Environ. Sci. Technol. Lett. 589, 591-92 (2023).

In the 2024 Rule, EPA projected reductions of methylmercury in fish near the lignite coal plants.[134] This is important because mercury emitted by coal plants deposits into waterbodies and converts into methylmercury (MeHg), which is taken up by aquatic organisms, bioaccumulating up the food web until it ends up in fish that people eat.[135] Because of this, high-frequency fish consumers are vulnerable to dietary mercury exposure and have higher blood mercury concentrations than the national average.[136]

Dr. Elsie M. Sunderland's research estimates that "over 1,500 high-frequency fish consumers resided within 15 km of the highest emitting lignite-fired EGUs in 2020," and had "significantly higher blood mercury concentrations" and "are especially vulnerable to mercury exposure because of their dietary preferences."[137] These populations also had statistically significantly higher rates of being low income and in poverty as compared to the population living over 15 km from power plants.[138]

The 2024 Rule would address the largest two remaining U.S. mercury hotspots attributed to coal plant mercury emissions, and the "associated adverse health effects for more than 27,000 vulnerable individuals" living within 15 km of the highest-emitting coal plants.[139] Furthermore, "[e]xposures exceeding the U.S. EPA RfD for methylmercury are still possible for the most highly exposed individuals residing next to the largest remaining power plants in 2020," in North Dakota and Texas,[140] although scientific research has exposed a regulatory lag: the RfD for methylmercury was based on the best available science in 2001, but newer data suggest it may not be protective enough.[141]

4. EPA Must Consider and Address Expert Research Demonstrating the Monetized Benefits of the 2024 MATS Rule Exceed the Costs.

Dr. Sunderland and Dr. Thackray have submitted comments to this record that reference their research on monetizing the societal benefits of reducing mercury emissions.[142] The study focuses on two key demographics of National Health and Nutrition Examination Survey (NHANES) data: women of reproductive age (to assess the effect of blood mercury concentration on fetal IQ) and adults over 45 (to assess the effect of blood mercury concentration

[134] 2024 RIA at 4-5 ("[R]eductions would be expected to have some impact (reduction) on the overall MeHg burden in fish for waterbodies near covered facilities.").
[135] *See, e.g.*, 2024 RIA at ES-12.
[136] Centers for Disease Control and Prevention (CDC), National Center for Health Statistics (NCHS), National Health and Nutrition Examination Survey Data, Hyattsville, MD: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, [2009-2018], https://wwwn.cdc.gov/nchs/nhanes/.
[137] Opposition of Environmental and Public Health Respondent-Intervenors to Petitioners' Motions for Stay, Declaration of Elsie M. Sunderland, *North Dakota v. EPA*, D.C. Cir. 24-1119, ECF No. 2065869 at 13 (July 22, 2024).
[138] Dai et al., *Sociodemographic disparities in mercury exposure from U.S. coal-fired power plants*, at 592.
[139] Opposition of Environmental and Public Health Respondent-Intervenors to Petitioners' Motions for Stay, Declaration of Elsie M. Sunderland, *North Dakota v. EPA*, D.C. Cir. 24-1119, ECF No. 2065869 at 17-18 (July 22, 2024).
[140] *Id.* at 593.
[141] Phillipe Grandjean & Esben Budtz-Jorgensen, *An ignored risk factor in toxicology: The total imprecision of exposure assessment,* 82 Pure Appl. Chem. 383, 390 (2010).
[142] Sunderland & Thackray 2025 Comment.

on cardiovascular disease-related premature mortality). Sunderland and Thackray compared blood mercury concentrations of the two demographic groups from 1999 to 2023. Finding, large declines in blood mercury levels over this time, they then use toxikinetic modeling to estimate about 75% of the decline is associated with changing seafood consumption rates and the remainder due to changing environmental mercury concentrations.[143] Sunderland and Thackray's research suggests the societal benefits of reduced mercury emissions from U.S. coal-fired power plants between 2009 to 2023 can be monetized to at least $74 billion in 2024 USD.[144] This is a conservative estimate, as it only monetizes the benefits due to minimized premature mortality from cardiovascular disease and permanent IQ deficits in children.[145] They estimate a societal cost of $465 million per Mg of mercury emitted.[146] Using this analysis to predict the benefits that would accrue from implementing the 2024 MATS Rule tightened mercury standard for lignite plants, they predict societal benefits of *$200 million per year* in benefits from the 2024 MATS Rule from mercury reductions alone.[147] Meanwhile, EPA predicts the cost saving of this rule to be between $110 to $120 million per year.[148] Thus – there are no net benefits of this rule – even leaving out a substantial portion of benefits associated with the 2024 MATS Rule it is clear that the costs of the excess pollution EPA proposes to allow outweigh any potential compliance cost savings to regulated industry.

Moreover, Sunderland and Thackray's research demonstrates why it is so important to continue to reduce mercury emissions even though we have made strides in the last decade. In the most recent NHANES cycle (2021-2023), Sunderland and Thackray found that approximately 142,000 babies and 8.5 million adults were still exposed to health-impacting levels of mercury.[149] This data was collected over five years after the compliance deadline for the 2012 MATS Rule. This underscores that, despite progress, mercury exposure continues to pose a serious risk to vulnerable populations in the U.S.

5. <u>EPA Arbitrarily Minimizes the Significant Health Benefits to Further Reducing Emissions of Other Toxic Metal Hazardous Air Pollutants Like Nickel, Arsenic, and Lead.</u>

EPA says this repeal will increase emissions of non-mercury HAPs by up to seven tons per year but does not quantify the public health or environmental consequences of this action or appear to assign them any weight. 2025 RIA at 3-5 to 3-6, tbl. 3-3, tbl. 3-4. This incorrectly tips the balance towards the side of repealing the 2024 MATS Rule. Electricity generation from combustion produced over 12,689 tons of HAPS in 2020.[150] Omitting the environmental health consequences of this additional burden understates the true cost of this regulatory rollback.

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[143] *Id.* at 3.
[144] *Id.*
[145] *Id.*
[146] *Id.* at 13.
[147] *Id.* at 14.
[148] 2025 RIA at 4-1.
[149] Sunderland & Thackray 2025 Comment at 6, Figure 2.
[150] EPA, *2020 National Emissions Inventory* (Jul. 17, 2025), https://www.epa.gov/air-emissions-inventories/get-air-emissions-data-0. To obtain this data, select the 2020 NEI, select the Online 2020 NEI Data Retrieval Tool, filter Facility Type for "Electricity Generation via Combustion", and filter Pollutant Type for "HAP", and then filter for the Pollutant(s) of interest. While 2020 electricity generation may have peculiarities due to the pandemic, it is the most recent year for which this data is available as 2023 data has not yet been released.

To illustrate the harm of increased non-mercury metal emissions, we list some of the human health impacts due to exposure to these metals and metal oxides from the burning of fossil fuels. Table 1 below provides an overview of annual emissions of metal HAP emitted by electricity generating units given in tons per year based on 2020 EPA data. The 2024 Rule is estimated to reduce up to seven tons of non-mercury metal HAP per year. By forgoing the emissions abatement of seven tons of metals per year, the proposed rule puts communities in substantial danger, especially in the context of hazardous pollutants, where even small quantities pose serious public health risks, especially for vulnerable populations.

Metal HAP	Emissions (tpy)
Aluminum (Al)	Not included
Antimony (Sb)	2.93
Arsenic (As)	13.39
Beryllium (Be)	1.81
Cadmium (Cd)	5.30
Chromium (Cr) VI and III	36.89
Cobalt (Co)	4.92
Copper (Cu)	Not included
Lead (Pb)	19.30
Manganese (Mn)	112.92
Nickel (Ni)	82.89
Particulate Matter (PM) Containing Metals	Not included
Selenium (Se)	75.27
Vanadium (V)	Not included

Table 1. Selected Metal HAP Emissions from Electricity Generation via Combustion facility category in tons per year (tpy) from EPA's 2020 National Emissions Inventory[151]

i. Aluminum (Al)

Coal power plants are a major anthropogenic source of airborne aluminum.[152] Inhalation and ingestion of aluminum has been associated with neuronal cell damage, Alzheimer's disease, neurodegenerative disorders, metabolic disorders, impaired kidney function, and impaired pulmonary function.[153]

ii. Antimony (Sb)

The International Agency for Research on Cancer (IARC) categorizes antimony trioxide, the oxidized product of antimony metal, into group 2B (possibly carcinogenic to humans).[154]

[151] *Id*.
[152] Klaudia Jomova et al., *Heavy Metals: Toxicity and Human Health Effects,* 99 Arch. Toxicol. 153, 155 (Jan. 2025).
[153] *Id*. at 157-159.
[154] Agency for Toxic Substances & Disease Registry (ATSDR), U.S. Department of Health and Human Services, *Toxicological Profile for Antimony and Compounds* 7 (Oct. 2019), https://www.atsdr.cdc.gov/toxprofiles/tp23.pdf.

Coal combustion is a significant source of anthropogenic antimony emissions.[155] Inhalation of antimony has been associated with pulmonary edema, lung inflammation, chronic bronchitis, and chronic emphysema.[156]A soil-sample study in the Anhui Province of China, a major coal-producing and burning area, found that 75% of soils sampled had a significant concentration of antimony.[157] Concerningly, contaminated samples were collected as far as 350 meters from the smokestack.[158] Antimony has also been found to be able to attach to fine particles and persists in the atmosphere for many days, potentially traveling long distances and exposing distant communities.[159]

iii. Arsenic (As)

Arsenic can cause a range of adverse health effects, both cancerous and non-cancerous. IARC classifies arsenic in group 1 (carcinogenic to humans), and EPA has determined that inorganic arsenic is carcinogenic through inhalation and oral exposure routes.[160] A 2022 study found arsenic exposure to also be associated with oxidative stress, apoptosis, airway dysfunction, abnormal lung development, spontaneous abortion, neonatal mortality, chronic cough, allergic asthma, and pulmonary tuberculosis.[161] A 2013 study found that childhood arsenic exposure is associated with precancerous skin lesions.[162] A 2016 study found an association between low level arsenic exposure and unexplained male infertility in China.[163] Simulating atmospheric fate and transport, a 2020 study found that 4.09 billion people lived with cancer risk above the 1 in 1 million threshold in 2015 from exposure to atmospheric arsenic.[164] Although groundwater ingestion is the most common pathway for arsenic exposure, the study investigators found that combined exposure through inhalation and ingestion is associated with a heightened carcinogenic risk compared to ingestion alone, highlighting the danger of airborne arsenic.[165]

Power plant emissions are a common source of arsenic emissions. A 2002 population-based case control study in Slovakia found that living within the same district as a power plant, and being exposed to arsenic emissions, is associated with higher incidences of non-melanoma

[155] H.Z. Tian et al., *Temporal and spatial distribution of atmospheric antimony emission inventories from coal combustion in China*, 159 Environ. Pollut. 1613, 1613 (2011).
[156] Cuicui Qi et al., *Assessment and Distribution of Antimony in Soils around Three Coal Mines, Anhui, China*, 61 J. Air & Waste Mgmt Ass'n. 850, 851 (2011).
[157] *Id*. at 855.
[158] *Id.*
[159] Tian et al., *Temporal and spatial distribution of atmospheric antimony emission inventories from coal combustion in China*, 159 Environmental Pollution 1613, 1613 (2011).
[160] Agency for Toxic Substances & Disease Registry (ATSDR), U.S. Department of Health and Human Services, *Toxicological Profile for Arsenic* 18-19 (Aug. 2007) https://www.atsdr.cdc.gov/toxprofiles/tp2.pdf.
[161] D. Gandhi et al., *Non-malignant respiratory illness associated with exposure to arsenic compounds in the environment,* 94 Environ. Toxicol. Pharmacol. 103922, 103925, 103928, 103933-35, 103934 (2022).
[162] L. M. Horton et al., *What do we know of childhood exposures to metals (arsenic, cadmium, lead, and mercury) in emerging market countries?* 2013 Int. J. Pediatr. at 2 (2013).
[163] X. Wang et al., *Low-level environmental arsenic exposure correlates with unexplained male infertility risk,* 571 Sci. Total. Environ. 307, 307 (2016).
[164] L. Zhang et al., *Global impact of atmospheric arsenic on health risk: 2005 to 2015*, 117 Proc. Natl. Acad. Sci. 13975, 13978 (2020).
[165] *Id.*

skin carcinoma.[166] A 2020 case-control study found that higher blood arsenic levels were associated with type 2 diabetes in coal-burning regions of China.[167] Studies in an area with endemic arsenism caused by coal-burning in China found that arsenic, copper, iron, and chromium soil concentrations were correlated with oxidative stress[168] and arsenic-induced skin and liver damage.[169] A 2022 in vitro study found that arsenic trioxide, a chemical emitted by coal-fired power plants, is associated with oxidative DNA damage to lung epithelial cells.[170]

iv. Beryllium (Be)

Beryllium, emitted by combustion of coal and fuel oil, is identified as a group 1 carcinogen by IARC.[171] A 2020 study conducted in the Czech Republic observed berylliosis, a condition typically found in occupational settings, in populations living near coal-fired power plants releasing beryllium. In these towns, the researchers found elevated immune responses due to exposure to airborne beryllium.[172]

v. Cadmium (Cd)

IARC classifies cadmium as a group 1 carcinogen and EPA classifies inhalation of cadmium as a probable human carcinogen.[173] Inhalation of cadmium can also cause chronic obstructive pulmonary disease, altered gene regulation, and cardiovascular diseases.[174] A 2023 study found that cadmium exposure can disrupt the DNA-repair system, deactivate tumor-suppressing genes, and damage the lungs, kidneys, and bones.[175] A 2019 nationwide study found that cadmium exposure is associated with increased risk of wheezing and asthma in U.S. adult smokers and various negative respiratory effects in nonsmokers.[176]

Children and neonates are particularly vulnerable to the health effects of cadmium. A 2019 study in Mongolia found that gestational cadmium exposure from coal smoke negatively

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[166] B. Pesch et al., *Environmental arsenic exposure from a coal-burning power plant as a potential risk factor for nonmelanoma skin carcinoma: results from a case-control study in the district of Prievidza, Slovakia,* 155 Am. J. Epidemiol. 798, 800-01 (2002).
[167] L. Dai et al., *Elevated whole blood arsenic level is associated with type 2 diabetes in coal-burning areas in Guizhou*, 403 Toxicol. Appl. Pharmacol. 115135, 115135 (2020).
[168] Y. Hu et al., *Effects of Essential Trace Elements and Oxidative Stress on Endemic Arsenism Caused by Coal Burning in PR China,* 198 Biol. Trace. Elem. Res. 25, 25 (2020).
[169] Y. Hu et al., *Associations between and risks of trace elements related to skin and liver damage induced by arsenic from coal burning*, 208 Ecotoxicol. Environ. Saf. 111719, 111719 (2021).
[170] K.L. Cooper et al., *Particulate arsenic trioxide induces higher DNA damage and reactive oxygen species than soluble arsenite in lung epithelial cells*, 457 Toxicol. Appl. Pharmacol. 116320, 116320 (2022).
[171] IARC Working Group on the Evaluation of Carcinogenic Risks to Humans, *Arsenic, Metals, Fibres and Dusts, vol. 100 C,* International Agency for Research on Cancer at 98, 116, (2012), https://www.ncbi.nlm.nih.gov/books/NBK304379/.
[172] J. Petanová and V. Bencko, *Health aspects of exposure to emissions from burning coal of high beryllium content: interactions with the immune system*, 28 Cent. Eur. J. Public Health 198, 199-200 (2020).
[173] Agency for Toxic Substances & Disease Registry (ATSDR), U.S. Department of Health and Human Services, *Toxicological Profile for Cadmium* 15 (Sep. 2012), https://www.atsdr.cdc.gov/toxprofiles/tp5.pdf.
[174] Klaudia Jomova et al., *Heavy Metals: Toxicity and Human Health Effects*, 161, 163, 165, https://pmc.ncbi.nlm.nih.gov/articles/PMC11742009/pdf/204_2024_Article_3903.pdf.
[175] C. E. Johns et al., *The Cd/Zn Axis: Emerging Concepts in Cellular Fate and Cytotoxicity*, 13 Biomolecules 316, 318 & 321 (2023).
[176] G. Yang et al., *Serum Cadmium and Lead, Current Wheeze, and Lung Function in a Nationwide Study of Adults in the United States*, 7 J. Allergy Clin. Immunol. Pract. 2653-2660, 2658 (2019).

affects birth weight.[177] A 2013 study found that cadmium umbilical cord blood levels and birth outcomes were negatively associated.[178] A 2019 study in Bangladesh found that cadmium negatively affects the endocrine system, metabolism, and brain development in children and can cause cancer.[179] A 2022 study found that cadmium inhalation exposure in kindergarteners in China is associated with decreased hemoglobin levels and an increase in the risk of anemia.[180]

vi. Chromium (Cr)

Coal and oil combustion release chromium into the air as trivalent chromium (Cr(III)) and hexavalent chromium (Cr(VI)).[181] IARC classifies Cr(VI) as a group 1 carcinogen.[182] A 2022 literature review found that Cr(VI) exposure is associated with apoptosis, autophagy, chromatin condensation, and DNA damage in a mix of in vivo and in vitro studies.[183] A 2018 literature review found Cr(VI) emissions from coal-powered electrical plants and coal ash impoundments to be associated kidney disease, liver disease, lung cancer, and genotoxic effects in neighboring communities in North Carolina.[184] A 2022 study found that indoor coal combustion was associated with chromium concentration in umbilical cord tissue and orofacial clefts.[185]

vii. Cobalt (Co)

Chronic exposure to airborne cobalt has been associated with rhinitis, bronchitis, asthma, pneumoconiosis, and obstructive pulmonary disease.[186] A 2020 study conducted in Sweden found exposure to cobalt in the air to be associated with uptake of cobalt in blood and urine—highlighting the bioavailability of airborne cobalt.[187] A 2018 literature review found cobalt emissions from coal-powered electrical plants and coal ash impoundments to be associated with cardiovascular and respiratory effects in neighboring communities in North Carolina. [188]

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[177] P. Barn et al., *Coal smoke, gestational cadmium exposure, and fetal growth*, 179 Environ. Res. 108830, 108830 (2019).
[178] L. M. Horton et al., *What do we know of childhood exposures to metals (arsenic, cadmium, lead, and mercury) in emerging market countries?* at 4.
[179] S. Hossain et al., *Review of Cadmium Pollution in Bangladesh*, 9 J. Health Pollut. at 1, 5, 6 (2019).
[180] K. Zheng et al, *Kindergarten indoor dust metal(loid) exposure associates with elevated risk of anemia in children*, 851 Sci. Total. Environ. 158227, 158227 (2022).
[181] Agency for Toxic Substances and Disease Registry (ATSDR), *Where is Chromium Found*? (May 2023), https://archive.cdc.gov/www_atsdr_cdc_gov/csem/chromium/where_is_chromium_found.html.
[182]Agency for Toxic Substances & Disease Registry (ATSDR), U.S. Department of Health and Human Services, *Toxicological Profile for Chromium* (Sep. 2012) 23, https://www.atsdr.cdc.gov/toxprofiles/tp7.pdf.
[183] S. Islam et al., *Toxic and carcinogenic effects of hexavalent chromium in mammalian cells in vivo and in vitro: a recent update*, 40 J. Environ. Sci. Health. C. Toxicol. Carcinog. 282, 282 (2022).
[184] J. Kravchenko & H. K. Lyerly, *The Impact of Coal-Powered Electrical Plants and 23 Coal Ash Impoundments on the Health of Residential Communities*. 79 N. C. Med. J. 289, 299 (2018).
[185] T. Tian et al., *Elevated concentrations of chromium in maternal serum, umbilical cord serum, and cord tissue are associated with an increased risk for orofacial clefts*. 214 Environ. Res. 113799, 113799 (2022).
[186] F. Wahlqvist et al., *Dermal and inhalable cobalt exposure—Uptake of cobalt for workers at Swedish hard metal plants*, 15 PLOS ONE 1, 2 (2020).
[187] *Id.* at 9-10.
[188] J. Kravchenko & H. K. Lyerly, *The Impact of Coal-Powered Electrical Plants and 23 Coal Ash Impoundments on the Health of Residential Communities,* 289.

viii. Copper (Cu)

Copper oxide nanoparticles were found to damage human lung, kidney, and neuronal cells[189] as well as human blood lymphocytes[190] in in-vitro studies. Coal-combustion related copper and zinc emissions were found to be associated with mortality in China from 1995-2014.[191]

ix. Lead (Pb)

Coal contains trace amounts of inorganic lead, which is released into the air during combustion.[192] IARC classifies inorganic lead into group 2A (probably carcinogenic to humans).[193] A 2019 nationwide study found that lead exposure negatively affects lung function in U.S. adult nonsmokers.[194] A 2018 literature review found inorganic lead emissions from coal-powered electrical plants and coal ash impoundments to be associated with abdominal pain, memory loss, and neurodevelopmental effects in neighboring communities in North Carolina.[195] Lead exposure is particularly damaging to developing children. A 2008 study found lead in umbilical cord blood, which is negatively associated with developmental indicators, from maternal-infant pairs that lived within 2.5km of a coal-fired power plant in China.[196]

x. Manganese (Mn)

A 2022 study found that manganese ingestion exposure in kindergarteners in China via house dust is associated with an increase in the risk of anemia.[197]

xi. Nickel (Ni)

IARC classifies nickel compounds as a group 1 carcinogen.[198] Nickel exposure can cause skin allergies, lung fibrosis, and respiratory tract cancer.[199] When emitted nickel interacts with carbon monoxide, it forms nickel carbonyl—the most toxic nickel compound—which can cause respiratory tract irritation, neurological effects, infertility, and death.[200] A 2022 in vitro study

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[189] Naz et al., *Toxicity of Copper Oxide Nanoparticles: A Review Study,* 14 IET Nanobiotechnol. 1, 5 (2019).
[190] E. Assadian et al., *Toxicity of Copper Oxide (CuO) Nanoparticles on Human Blood Lymphocytes*, 184 Biol. Trace. Elem. Res. 350, 350 (2018).
[191] Rui Li et al., *Atmospheric emissions of Cu and Zn from coal combustion in China: Spatio-temporal distribution, human health effects, and short-term prediction*, 229 Environ. Pollut. 724, 724 (2017).
[192] Yicheng Wang et al., *A critical review on lead migration, transformation and emission control in Chinese coal-fired power plants*, 124 J. Environ. Sci. 397, 397 (2023).
[193] Agency for Toxic Substances & Disease Registry (ATSDR), *Lead – ToxFAQs,* 2 (Aug. 2020), https://www.atsdr.cdc.gov/toxfaqs/tfacts13.pdf.
[194] G. Yang et al., *Serum Cadmium and Lead, Current Wheeze, and Lung Function in a Nationwide Study of Adults in the United States,* 7 J. Allergy Clin Immunol Pract., 2653, 2660 (2019).
[195] J. Kravchenko & H. K. Lyerly, *The Impact of Coal-Powered Electrical Plants and Coal Ash Impoundments on the Health of Residential Communities,* 5 N.C. Med. J. 289, 297 (2018).
[196] Mengling Tang et al., *Lead, mercury, and cadmium in umbilical cord serum and birth outcomes in Chinese fish consumers*, 148 Chemosphere 270, 270 (2016).
[197] K. Zheng et al., *Kindergarten indoor dust metal(loid) exposure associates with elevated risk of anemia in children,* 851 Sci. Total. Environ. 158227 (2022).
[198] IARC Working Group on the Evaluation of Carcinogenic Risks to Humans, *Arsenic, Metals, Fibres and Dusts, vol. 100 C,* International Agency for Research on Cancer at 211 (2012), https://www.ncbi.nlm.nih.gov/books/NBK304378/.
[199] H.Z. Tian et al., *Anthropogenic atmospheric nickel emissions and its distribution characteristics in China*, 417-418 Sci. Tot. Environ. 148, 149 (2012).
[200] *Id.*

found that exposure to nickel oxide nanoparticles is associated with pulmonary hypertension.[201] A 2015 literature review found there to be an association between nickel and autism spectrum disorder.[202]

xii. Particulate Matter (PM) Containing Metals

Metals from power plant emissions may also be bound to PM, affecting their deposition and absorption. A 2020 study on inhalation of PM-bound metals in Delhi found that lead primarily deposits in bone, muscle, and blood, whereas cadmium primarily deposits in lungs and intestines, and arsenic primarily deposits in lungs, skin, and the liver.[203] A 2022 in vitro study in Beijing found that concentrations of lead, chromium, cadmium, and zinc from coal-burning emissions were associated with DNA damage.[204] After Beijing implemented its Comprehensive Action Plan to reduce coal-fired power plant emissions and improve air quality, cadmium and zinc concentrations, as well as their associated average DNA damage levels, were reduced.[205] A 2022 paper found that exposure to PM-containing metals such as lead, cadmium, arsenic, and mercury is associated with inflammatory responses in the lungs, brain, liver, renal system, and cardiovascular system.[206] Concerningly, a 2022 study in rural Poland found that exposure to metals via $PM_{2.5}$ could be more health-damaging than exposure to PM2.5 alone.[207]

The type of coal burned for electricity production varies geographically, thus affecting the specific metal mixtures contained in the emitted PM. *See* Attachment 6 at 24 to Comments of Environmental Organizations on "National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units Review of the Residual Risk and Technology Review," 88 Fed. Reg. 24,854 (Apr. 24, 2023), Docket No. EPA-HQ-OAR-2018-0794, Submitted June 23, 2023. Recent analysis from the Universities of Arizona and New Mexico found metal emissions to vary by NERC region and coal type, with emissions of one metal typically being correlated with emissions of other metals. 88 Fed. Reg. 24,854 Attachment 6 at 21-22 & Table 5. This unequal distribution of metal emissions suggests the potential for localized health impacts for fenceline communities. 88 Fed. Reg. 24,854 Attachment 6 at 24. Using mine waste data as a proxy for metal HAP coal-fired power plant emissions, the authors compiled peer-reviewed literature on the health effects of metal exposures in mine tailing that are also known to be present during coal combustion. These include cardiovascular and carcinogenic effects from inhalation of arsenic-containing PM and DNA damage from inhalation of uranium-containing PM. 88 Fed. Reg. 24,854 Attachment 6 at 28, Table 9.

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[201] O. Germande et al., *NiONP-Induced Oxidative Stress and Mitochondrial Impairment in an In Vitro Pulmonary Vascular Cell Model Mimicking Endothelial Dysfunction*, 11 Antioxidants 847, 847 (2022).
[202] S. McDermott et al., *Systematic Review of Chromium and Nickel Exposure During Pregnancy and Impact on Child Outcomes*, 78 J. Toxicol. Environ. Health 1348, 1364 (2015).
[203] A. Das et al., *Estimating seasonal variations of realistic exposure doses and risks to organs due to ambient particulate matter-bound metals of Delhi*, 260 Chemosphere 127451, 127451 (2020).
[204] X. Feng et al., *Oxidative potential and water-soluble heavy metals of size-segregated airborne particles in haze and non-haze episodes: Impact of the 'Comprehensive Action Plan' in China*, 814 Sci. Total Environ. 152774, 152774 (2022).
[205] *Id.* at 152789.
[206] H. Chen et al., *Effects of air pollution on human health - Mechanistic evidence suggested by in vitro and in vivo modelling*, 212 Environ. Res. 113378, 113378 (2022).
[207] A. Mainka & P. Fantke, *Preschool children health impacts from indoor exposure to PM(2.5) and metals*, 160 Environ. Int. 107062, 107062 (2022).

PM is classified by IARC as a group 1 carcinogen.[208] PM-bound metals have also been linked to cancer. A 2020 in vitro study compared PM from two Chinese villages that use coal for cooking and found a significant correlation for concentrations of zinc, copper, cadmium, rubidium, thallium, caesium, and antimony with oxidative DNA damage.[209] A 2022 literature review on the effects of iron-mediated toxicity from the inhalation of PM found that exposure to iron oxide is associated with increased cases of cancer, cardiovascular disease, and respiratory disease.[210] A 2016 study in eight European countries found that PM containing nickel may be important for assessing lung cancer risk.[211]

Importantly, exposure to HAP metals through PM inhalation typically occurs in mixtures of metals rather than to individual metals. 88 Fed. Reg. 24,854 Attachment 6 at 32. Mixtures can complicate the toxicity and assessment of exposure to metals. Researchers have studied the Navajo Nation, a community disproportionately exposed to hazardous pollution from uranium mines, to better understand the health impacts of metal mixtures. Observed health impacts associated with proximity to abandoned uranium mines on the Navajo Nation include hypertension, multiple chronic diseases, autoimmune disorders, preterm birth, oxidative stress, and inhibition of DNA repair. 88 Fed. Reg. 24,854 Attachment 6 at 31-36.

xiii. Selenium (Se)

Coal-fired power plants are the main source of anthropogenic selenium emissions.[212] Excessive selenium exposure has been associated with nervous system poisoning, organ damage, skin cancer, and death.[213] Randomized trials have associated excessive selenium exposure with increased incidence of "all-cause" mortality.[214]

xiv. Vanadium (V)

IARC classifies vanadium pentoxide, a vanadium compound emitted by the process of burning fuel oil and coal, as a group 2B carcinogen.[215] A 2018 literature review found vanadium emissions from coal-powered electrical plants and coal ash impoundments to be associated with tremor, cardiovascular arrhythmia, and lung carcinogenesis in neighboring communities in North

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[208] International Agency for Research on Cancer, *Outdoor Air Pollution a Leading Environmental Cause of Cancer Deaths,* Press Release No. 221 1 (Oct. 17, 2013), https://www.iarc.who.int/wp-content/uploads/2018/07/pr221_E.pdf.

[209] X. Feng et al., *Particle-induced oxidative damage by indoor size-segregated particulate matter from coal-burning homes in the Xuanwei lung cancer epidemic area, Yunnan Province, China,* 256 Chemosphere 127058, 127058 (2020).

[210] J. Morgan et al, *Endogenous doesn't always mean innocuous: a scoping review of iron toxicity by inhalation*. 23 J.Toxicol.Environ. Health, Part B Crit. Rev., 107, 108 (2020).

[211] O. Raaschou-Nielsen et al., *Particulate matter air pollution components and risk for lung cancer*, 87 Environ. Int. 66, 66 (2016).

[212] S. Ma et al., *The occurrence, transformation and control of selenium in coal-fired power plants: Status quo and development*, 72 J. Air & Waste Mgmt Ass'n 131, 131 (2022).

[213] Yongda Huang et al., *Fine particulate-bound arsenic and selenium from coal-fired power plants: Formation, removal and bioaccessibility*, 823 Sci. Total Environ. 153723, 153723 (2022).

[214] Margaret P. Rayman et al., *Effect of long-term selenium supplementation on mortality: Results from a multiple-dose, randomised controlled trial*, 127 Free Rad. Biol.Med. 46, 50 (2018).

[215] *See* Agency for Toxic Substances & Disease Registry (ATSDR), *Vanadium – ToxFAQs* 2 (Oct. 2012), https://www.atsdr.cdc.gov/toxfaqs/tfacts58.pdf; Agency for Toxic Substances & Disease Registry, *Toxicological Profile for Vanadium* (Sept. 2012), https://www.atsdr.cdc.gov/toxprofiles/tp58.pdf.

Carolina.[216] A 2021 study found that dermal uranyl nitrate exposure is associated with cellular metabolism and physiology, meaning that dermal exposure to uranyl nitrate could potentially hinder wound healing and exacerbate pre-existing skin conditions.[217]

6. EPA Arbitrarily Minimizes the Significant Health Benefits to Further Reducing Criteria Air Pollutants.

In the 2024 RIA, EPA applied health impact functions from peer-reviewed epidemiological studies to model the projected effects of changes in ambient PM 2.5 and ozone concentrations resulting from the 2024 Rule. These functions were applied to estimate health outcomes for the years 2030, 2035, and 2040. EPA then employed the environmental Benefits Mapping and Analysis Program – Community Edition (BenMAP-CE) to quantify the counts of premature deaths and illnesses attributable to modeled changes in annual PM2.5 and average summer ozone concentrations. 2024 RIA at 4-17. Modeled public health impacts from changes in PM2.5 emissions include avoided mortality, cardiovascular hospital admissions, respiratory hospital emissions, cardiovascular emergency department visits, respiratory emergency department visits, acute myocardial infarction, cardiac arrest, hospital admissions for Alzheimer's disease, hospital admissions for Parkinson's disease, stroke, lung cancer, hay fever, asthma onset, Albuterol usage, lost work days, and minor restricted-activity days. 2024 RIA at 4-32, tbl. 4-3. Modeled public health impacts from changes in summer ozone concentrations include avoided premature respiratory mortalities, asthma onset, allergic rhinitis symptoms, respiratory hospital admissions, respiratory emergency department visits, asthma symptoms, minor restricted-activity days, and school absence days. 2024 RIA at 4-31, tbl. 4-2. The Agency then monetized these public health impacts at 2%, 3%, and 7% discount rates for 2028, 2030, and 2035 and summed the monetized estimated human health benefits from 2028-2037 due to long term ozone and PM2.5 mortality in millions of 2019 dollars. 2024 RIA at 4-34, tbl. 4-4. Though the 2024 RIA does not quantify or monetize the estimated health impacts associated with direct exposure to NO2 and SO2, it does list potential qualitative benefits. 2024 RIA at 4-39 to 4-44.

In contrast, the 2025 RIA does not contain *any* modeling specific to the proposed action. Citing a lack of time and resources (which can only be attributed to the Administration's own self-imposed constraints and thus unjustifiable as an excuse to complete requisite review), EPA instead assumes that the public health harms from the proposed repeal can be accurately estimated by inverting the benefit estimates presented in the 2024 RIA. 2025 RIA at 3-3 to 3-4. To estimate the counts of premature deaths and illnesses attributable to modeled changes in annual PM2.5 and average summer ozone concentrations, the 2025 RIA simply flips the positive sign to a negative sign on the 2024 RIA's results. 2025 RIA at 3-3, tbl. 3-1. In the less than three pages of analysis on criteria pollutant impacts, the EPA points to Tables 4-2 and 4-3 in the 2024 RIA, and adds a single table that "reports the estimates of avoided premature mortalities due to this proposed repeal – assuming the quantified PM2.5 and ozone-related human health benefits reported in the 2024 MATS RTR RIA will no longer occur." 2025 RIA at 3-3, tbl. 3-1. *See*

[216] J. Kravchenko & H. K. Lyerly, *The Impact of Coal-Powered Electrical Plants and Coal Ash Impoundments on the Health of Residential Communities,* 5 N.C. Med. J. 289, 297 (2018).
[217] N. Cruz et al., *Environmentally Relevant Levels of Depleted Uranium Impacts Dermal Fibroblast Proliferation, Viability, Metabolic Activity, and Scratch Closure*, 9 Toxics 211, 228-229 (2021).

section (IV) for comments on the inadequacy of this approach for modeling the non-cancer human health harms from criteria air pollutants.

7. EPA Arbitrarily Minimizes the Significant Health Benefits of Further Reducing Pollution Linked to Cancer.

The 2024 RIA lists the HAPs identified as known human carcinogens (arsenic, hexavalent chromium, nickel refinery dust, and nickel subsulfide) and probable human carcinogens (cadmium and selenium sulfide). 2024 RIA at 4-6, 4-7. The 2024 Rule is projected to reduce emissions and exposure to HAP, including these known and probable human carcinogens. 89 Fed. Reg. at 38,524.

The 2025 RIA does not assess the cancer health effects of the repeal of the 2024 MATS Rule. In fact, searching for the words "cancer" and "carcinogen" yield only two results in the document, and "carcinogenic" is not used once. The 2025 RIA admits that some HAP metals emitted by EGUs are potential carcinogens, but points to the 2024 RIA for a discussion of which metals they are and their associated carcinogenic effects. 2025 RIA at 3-2. There is no further discussion of the potential carcinogenic effects of the repeal of the 2024 MATS Rule. The failure to consider the benefits of reducing pollution associated with cancer is arbitrary and capricious.

8. EPA Arbitrarily Ignores and Undervalues the 2024 RIA's Quantitative and Qualitative Consideration of the Benefits of Reducing Coal Plant Emissions.

While EPA in adopting the 2024 MATS Rule carefully considered the full range of benefits achieved via the projected pollution reductions—EPA now arbitrarily skims over these benefits.

In 2024, EPA projected total monetized benefits from the 2024 Rule of $420 million (at a 2% discount rate) from 2028 to 2037, or $47 million in equivalent annualized value. 2024 RIA at ES-15, tbl. ES-4. This is not a representation of complete benefits, because EPA did not monetize critical benefits associated with reducing HAP pollution.

EPA projected the 2024 Rule to reduce the emission of mercury by 900 to 1,000 pounds annually. 2024 RIA at ES-15, tbl. ES-4. This includes a 16.3% reduction of power sector mercury emissions in 2028, and an 18.3% reduction in 2035. 2024 RIA at ES-8, tbl. ES-2. EPA found that the projected reductions in mercury under the 2024 Rule would "reduce the bioconcentration of MeHg in fish" and would reduce exposure to methylmercury "through fish consumption," "particularly for the subsistence fisher sub-population." 2024 RIA at ES-12, 4-1.[218]

Although modeling uncertainty and "data, time, and resource limitations" prevented EPA from quantifying the potential health and ecological benefits from mercury emission reductions, including benefits to the general population of fish consumers, the agency found that "projected emissions reductions of Hg are expected to lower deposition of Hg into ecosystems and reduce

[218] *See also* 2024 RIA at 4-5 (Mercury "reductions would be expected to have some impact (reduction) on the overall MeHg [methylmercury] burden in fish for waterbodies near covered facilities.").

U.S. EGU attributable bioaccumulation of MeHg in wildlife, particularly for areas closer to the effected units subject to near-field deposition." 2024 RIA at ES-14, 4-5, 4-6.

Sunderland and Thackray's 2025 analysis estimates that mercury reductions from the 2024 Rule will yield $200 million per year of public health benefits from 2028 to 2037 – totaling $2 billion over ten years – at a 3% discount rate due to avoided intelligence quotient (IQ) decreases in children and premature mortality in adults.[219] Though this is only a partial accounting of benefits from the 2024 Rule's mercury reductions – estimating reductions of only two adverse health endpoints – it shows that the full benefits from the rule's mercury reductions are substantial and that EPA should give weight to these significant benefits, even if the agency lacks the ability to comprehensively monetize them itself.

EPA projected the 2024 Rule to reduce the emission of non-mercury metals by 4 to 7 tons annually. 2024 RIA at ES-15, tbl. ES-4. EPA found that non-mercury metal HAP emissions reductions projected under the 2024 Rule from the use of PM controls would "reduce exposure of individuals residing near these facilities" as well as the general population to non-mercury HAP metals, including carcinogenic HAP. ES-12, 4-2, 4-3, 4-6. EPA was unable to quantify several categories of benefits from the reduction of non-mercury metals emissions, including noncancer benefits, "benefits from effects on fish, birds, and mammals, in part represented through the commercial and recreational fishing economy, " benefits to "tribal health, subsistence, fishing rights, and cultural identity," and ecosystem services, "generally defined as the economic benefits that individuals and organizations obtain from ecosystems." 2024 RIA at 4-12.

EPA projected $300 million in health benefits from the 2024 Rule from 2028 to 2037 due to the reduction of ambient PM2.5 and ozone (at a 2% discount rate), representing forgone premature deaths and illnesses. ES-15, tbl. ES-4, 4-2. This includes between $42 and $87 million in ozone and PM2.5 benefits in 2028 alone (at a 2% discount rate). 2024 RIA at 4-34, tbl. 4-4. Because the rule is expected to reduce directly emitted PM2.5, NOX and SO2, and since NOx and SO2 are precursors to secondary formation of ambient PM2.5 and ozone, reducing direct emissions reduces the incidence of ambient PM2.5-attributable health effects, thus allowing EPA to estimate the value of these health benefits.[220]

EPA considered the benefits from requiring PM Continuous Emission Monitoring System (CEMS) over quarterly stack tests to include "increased transparency," "accuracy," "granularity," and "greater certainty" on actual facility emissions, "potential emissions reductions from identifying problems more rapidly," including the possibility of "further reductions of fPM and non-Hg HAP metals" and additional health benefits beyond those that EPA projected. 2024 RIA at ES-14, 4-3. EPA explained this in the 2024 Rule:

Comments of Elsie M. Sunderland & Colin P. Thakray, Harvard University, on EPA Proposal to Repeal 2024 MATS Rule at 3, 14 (Aug. 11, 2025) (submitted to regulations.gov docket).

[220] *See* 2024 RIA at ES-13 ("In the presence of sunlight, NOX, and volatile organic compounds (VOCs) can undergo a chemical reaction in the atmosphere to form ozone. Reducing NOX emissions generally reduces human exposure to ozone and the incidence of ozone-related health effects…"); 2024 RIA at 4-2 ("Reducing PM2.5 and SO2 emissions is expected to reduce ground-level PM2.5 concentrations. Reducing NOX emissions is expected to reduce both ground-level ozone and PM2.5 concentrations.").

> Continuous measurements of emissions accounts for unforeseeable changes to processes and fuels, fluctuations in load, operations of pollution controls, and equipment malfunctions. By measuring emissions across all operations, power plant operators and regulators can use the data to ensure controls are operating properly and to assess compliance with relevant standards. Because CEMS enable power plant operators to quickly identify and correct problems with pollution control devices, it is possible that fPM emissions could be lower than they otherwise would have been for up to three months—or up to three years if testing less frequently under the LEE program— at a time. This potential reduction in fPM and non-Hg HAP metals emission resulting from the information provided by continuous monitoring coupled with corrective actions by plant operators could be sizeable over the existing coal-fired fleet and is not quantified in this rulemaking.

2024 RIA at ES-9.

EPA estimated $130 million in benefits from 2028 to 2037 due to reduction in carbon dioxide (at a 2% discount rate), calculated using the social cost of CO2. 2024 RIA at ES-15, tbl. ES-4. However, this is merely a partial accounting of climate change impacts, likely underestimating the benefits of abating emissions. 2024 RIA at 4-45.

Finally, EPA noted that "data, time, and resource limitations" precluded the agency from quantifying several additional types of benefits, including those associated with "direct exposure to NO2 and SO2 (independent of the role NO2 and SO2 play as precursors to PM2.5 and ozone), as well as ecosystem effects, and visibility impairment due to the absence of air quality modeling data for these pollutants in this analysis." 2024 RIA at ES-14. EPA was also unable to quantify effects from PM deposition on organisms and ecosystems, reduced vegetation and ecosystem effects from ozone exposure, effects on recreational and commercial fishing, recreational demand, and biodiversity impacts. 2024 RIA at 4-40, 4-41, tbl. 4-8. However, this does not mean that these benefits are not meaningful.[221]

9. EPA Arbitrarily Dismisses a Significant Portion of the Benefits Associated with the 2024 Rule that Were Not Quantified.

EPA's qualitative consideration of the benefits of HAP reduction in the 2024 Rule amidst significant methodological challenges and data limitations that precluded precise quantification of benefits represents reasoned agency action that is consistent with best practices in administrative rulemaking. Conversely, the 2025 proposed repeal neglects an important aspect of the problem by failing to weigh the value of non-monetized benefits from HAP emissions reductions that would be lost if the proposal is finalized.

In determining the standards of the 2024 Rule, EPA considered several types of benefits qualitatively, including benefits for communities from reduced exposure to mercury and non-mercury metal pollution, the added transparency and compliance assurance provided by CEMS

[221] 2024 RIA at ES-14 ("While all health benefits and welfare benefits were not able to be quantified, it does not imply that there are not additional benefits associated with reductions in exposures to HAP, ozone, PM2.5, NO2 or SO2.").

for individuals living near coal plants, improvements in water quality due to reduced mercury and non-mercury metallic HAP in waterbodies, and accelerated identification of emissions exceedances provided by CEMS. 89 Fed. Reg. at 38,553, 38,559, 38,561, tbl. 11. The agency explained that this approach of considering impacts qualitatively, as opposed to a formal benefit-cost analysis, is justified in light of the significant challenges with monetizing these several benefits, as well as "Congress's recognition of the particular dangers posed by HAP and consequent direction to the EPA to reduce emissions of these pollutants to the 'maximum degree.'" 89 Fed. Reg. at 38,553.

EPA's approach of carefully considering both the costs and benefits of its regulation is also consistent with the Supreme Court's interpretation of reasoned regulatory analysis, as it explained in *Michigan v. EPA*, albeit in a different context pertaining to the appropriate and necessary finding required under section 112(n)(1)(A). *Michigan v. EPA*, 576 U.S. 743, 759 (2015) (discussing how EPA is not required to undertake a "formal cost-benefit analysis in which each advantage and disadvantage is assigned a monetary value.").

As EPA explained in the 2024 Rule, several significant challenges exist with estimating the value of HAP emissions reductions that preclude the agency from deriving quantified and monetized information reflecting these health benefits.

As EPA discussed, several challenges to conducting relevant epidemiologic studies exist, posing barriers to obtaining the statistical rigor needed to accurately quantify and monetize health effects, such as the multi-year time lag from exposure to disease onset in health outcomes like cancer, the small population size due to HAP exposure tending to be "more uneven and more highly concentrated among a smaller number of individuals," data limitations for exposures in "critical microenvironments," and limited economic research to provide HAP benefit valuation for the wide spectrum of HAP and HAP effects.[222] In addition, epidemiologic studies with human participants are rare due to ethical concerns with exposing humans to dangerous HAP, such as known carcinogens. 89 Fed. Reg. at 38,516.

EPA's decision to consider the important nonmonetized benefits qualitatively is consistent with best practice for agency decisionmaking, as reflected in the Office of Management and Budget's (OMB) Circular A-4 providing guidance to agencies on preparing regulatory analyses for agency actions.[223] OMB recognized that "some important benefits and costs may be either difficult to quantify or difficult to monetize…" and that when the agency finds it is "not possible or appropriate, given the state of the evidence, to quantify or monetize certain effects, [ ] [the agency] should carefully identify and assess the non-monetized and unquantified benefits and costs."[224] OMB also stressed that when all of the benefits of a

[222] 89 Fed. Reg. at 38,511, 38,515-16. *See also id.* at 38,516 (discussing lack of robust data for "HAP, made even more challenging by the wide array of HAP and possible noncancer HAP effects."); *id.* ("[E]stimating the economic value of HAP is made challenging by the human health endpoints affected. For example, though EPA can quantify the number and economic value of HAP-attributable deaths resulting from cancer, it is difficult to monetize the value of reducing an individual's potential cancer risk attributable to a lifetime of HAP exposure.").
[223] OMB, Circular A-4 (Nov. 9, 2023), https://www.whitehouse.gov/wp-content/uploads/2023/11/CircularA-4.pdf.
[224] Circular A-4 (2023) at 44.

regulation are not quantified or monetized, "the policy that most enhances social welfare will not necessarily be the one with the largest quantified and monetized net-benefit estimate."[225]

But the Proposal does not indicate that EPA took into consideration the non-monetized benefits that would be lost by repealing the 2024 standards. EPA does note that there *are* four categories of non-monetized benefits that would be lost: (1) "From increases of about 65,00 to 95,000 tons of CO2 annually;" (2) "From increases of about 900 to 1,000 pounds of Hg annually;" (3) "From increases of about 4 to 7 tons of non-Hg HAP metals annually;" and (4) Disbenefits from repealing the PM CEMS requirement." 2025 RIA at 5-4, tbl. 5-3; *see also* 2025 RIA at 3-4. But there is no further description of what these lost benefits entail or *how* or even *whether* EPA weighed these lost non-monetized benefits in issuing the Proposal. While EPA's 2024 RIA specifically provided it *did* consider non-monetized benefits qualitatively (*see* 2024 RIA at 4-3, 4-12, 4-40) there is no corresponding statement or assurance in the 2025 RIA. In 2024, EPA also noted that an uncertainty and limitation of its analysis was the inability to quantify certain categories of benefits but noted that it described those benefits and considered them qualitatively. 2024 RIA at 7-10. Meanwhile, a similar assessment is notably missing from EPA's 2025 discussion of uncertainties and limitations. 2025 RIA at 5-4 to 5-7. The only reasonable conclusion is that EPA noted categories of non-monetized lost benefits but did not actually assign them any weight in its overall analysis of the costs and benefits of the Proposal.

The 2025 proposed repeal of the 2024 Rule is arbitrary and capricious for failing to recognize the significance of the benefits from reducing HAP and requiring CEMS, Congress's direction that EPA require the "maximum degree of reduction in emissions of hazardous air pollutants,"[226] the significant challenges to obtaining accurately quantified and monetized data for the health benefits of HAP reduction, and best practices calling for the use of qualitative information where quantitative data is unavailable. Merely relying on an incomplete cost-benefit analysis that contains only the limited data that can be fully monetized, as EPA noted in the 2024 Rule,[227] is misleading and omits an important part of the problem. *Motor Vehicle Mfrs. Ass'n v. State Farm*, 463 U.S. 29, 43 (1983) (agency action is arbitrary and capricious when the agency "entirely failed to consider an important aspect of the problem"). By dismissing the nonmonetized benefits in the 2025 proposed repeal, EPA has conducted a very incomplete assessment of the regulatory impacts, where the benefits from reducing emissions of the target pollutants and from the requirement that facilities use PM CEMS are not weighed by the agency in its decision-making.

[225] *Id. See also id.* at 45 ("Benefits and costs that are difficult to quantify or monetize differ from those that are uncertain (although an effect of a regulation can be both difficult to quantify or monetize and also uncertain). Uncertain effects are those that may or may not come to pass or that have uncertain magnitudes, but where some aspects of the underlying probability of occurring or of potential outcomes are known.").
[226] 42 U.S.C. § 7412(d)(2).
[227] 89 Fed. Reg. at 38,553 ("Important categories of benefits from reducing HAP cannot be monetized, making benefit-cost analysis ill-suited to the EPA's decision making on regulating HAP emissions under CAA section 112.").

10. EPA Arbitrarily and Unlawfully Fails to Conduct An Environmental Justice Analysis of the Proposal.

EPA's failure to consider the harms from its proposed repeal—including its failure to conduct any analysis of the environmental justice impacts of the rule and the disproportionate burdens of health-harms from coal plant and other pollution to surrounding communities—means that the agency failed to consider an important aspect of the regulatory problem, making any subsequent final action arbitrary and capricious.

As EPA found in the 2024 Rule, a higher population of American Indian and Alaska Native individuals and individuals within two times the poverty level than average live within 10 km of coal plants. 2024 RIA at ES-18, 6-8. The agency found "likely" the existence of "potential EJ concerns" for "population groups of concern in the baseline." 2024 RIA at ES-19. After conducting a qualitative analysis of the environmental justice impacts of HAP reductions, EPA found that "further reductions in Hg emissions from lignite-fired EGUs covered in this final action should further reduce exposures for the subsistence fisher sub-population," 2024 RIA at 6-4 to 6-6. And EPA found that the "burden of Hg exposure is not equally distributed across the population and that some subpopulations bore disproportionate risks associated with exposure to emissions from U.S. EGUs," including subsistence fishing populations due to high levels of fish consumption, which include "minorities and those with low socioeconomic status." 2024 RIA at 4-5.

In addition, ozone and PM 2.5 exposures disproportionately impact certain populations, such as "residents of redlined census tracts, those who are linguistically isolated, Hispanic individuals, Asian individuals, those without a high school diploma, and the unemployed," "American Indian individuals, residents of Tribal Lands… children," and "Black individuals, those below the poverty line, and uninsured populations." 2024 RIA at ES-18 to ES-19.

EPA's prior findings are consistent with recent research indicating populations living within 5 km of EGUs have higher percentages of individuals with low income, less than high-school education, and limited English proficiency as compared to the national average.[228] Dr. Elsie Sunderland estimated that more than 27,000 vulnerable residents, including 6,500 people with income below $20,000 per year, more than 5,000 residents with less than a high-school education, and more than 600 households with limited English-speaking capability, live within 15 km of the highest-emitting lignite fired EGUs in North Dakota and Texas in 2020.[229]

In failing to conduct any environmental justice analysis of the impacts of its proposed repeal, EPA failed to consider populations especially vulnerable to the pollution addressed by the 2024 Rule. For example, in April 2022, the comments that the Southern Environmental Law Center submitted in support of EPA's proposed reaffirmation of the MATS "appropriate and necessary" finding, included a technical analysis, prepared by Dr. Ranajit Sahu, and an air dispersion modeling of emissions, including $PM_{10,}$ from the Winyah Generating Station

[228] M.Q. Dai, B.M. Geyman, X.C. Hu, C.P. Thackray, E.M. Sunderland. 2023. Sociodemographic disparities in mercury exposure from U.S. coal-fired power plants. Environmental Science & Technology Letters. 10(7): 589-595.
[229] Opposition of Environmental and Public Health Respondent-Intervenors to Petitioners' Motions for Stay, Declaration of Elsie M. Sunderland, *North Dakota v. EPA*, D.C. Cir. 24-1119, ECF No. 2065869 at 16-17 (July 22, 2024).

(Winyah) in South Carolina.[230] The modeling revealed that "the maximum impacts from the plant's emissions were predicted to be around 5 km or less distant from the plant, with potential impacts on those living near the plants."[231]

Subsequently, as stated in the 2023 Comments of Public Health and Environmental Organizations, EPA's proposed adoption of the strengthened filterable PM standard as a surrogate for non-mercury metals was a significant step toward reducing the exposure to toxic metals that communities of color and low-income communities experience from pollution emitted by coal-fired power plants.[232] In the Southeast, the demographic data for those living within 10 kilometers of the Winyah plant revealed that the population consisted of 54% people of color and 47% Black people, with a poverty rate of 21%.[233] The overall population of South Carolina at the time was 37% people of color and 27% Black people, with a state poverty rate of 15%. This disparity was even more striking within 1 kilometer of the Winyah plant—there, based on the demographic data, the percentages of people of color and of Black people jumped to 69% and 68%, respectively.

For the 2023 comments, Dr. Sahu assessed the expected reduction in emissions of non-mercury metal HAPs from the Winyah plant, based on EPA's then-proposed limit of 0.010 lb/MMBtu in comparison to the limit in effect at the time of 0.030 lb/MMBtu. His calculations were based on emissions data for the years 2018 through 2022. Using the heat input reported for 2022, fPM emissions at Winyah were estimated to be 318,498 lbs., or approximately 159 tons.[234] Under the strengthened standard for fPM of 0.010 lb/MMBtu, however, fPM emissions would have been limited to 106,166 lbs., or approximately 53 tons—clearly a significant difference.[235] The stricter standards adopted in the 2024 MATS Rule certainly would have been expected to reduce some of the impacts from non-mercury metal HAPs on those living closest to the plants, including a disproportionate number of people of color and 47% Black people in low wealth communities.

If the Proposal is finalized, those individuals living near the plant will continue to be disproportionately burdened by emissions of non-mercury metal HAPs. This is not merely a theoretical concern. In fact, the most recent data available for Winyah revealed average emissions in 2023 of 0.0346 lbs./MMBtu for fPM, and with a high of 0.1170 lbs./MMBtu.[236] Moreover, the range of values for fPM implicates another significant concern with the proposed

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[230] Sahu 2022 Technical Analysis.
[231] *Id.* at 2.
[232] Comments of Public Health and Environmental Organizations on EPA 2023 MATS RTR Proposal at 47 (June 23, 2023), Doc. ID No. EPA–HQ–OAR–2018–0794-5996, https://www.regulations.gov/comment/EPA-HQ-OAR-2018-0794-5996.
[233] This assessment used block-level data from the 2020 decennial census and tract-level data from the 2015-2019 American Community Survey 5-Year Estimate, with findings expressed as a percentage rounded to the nearest whole number.
[234] *See*, Dr. Ranajit (Ron) Sahu, Consultant, Technical Analysis in Support of the Comments of Southern Environmental Law Center et al. on EPA's Proposed Revisions to the Mercury and Air Toxics Standards (June 2023), Att. 10 to Comments of Public Health and Environmental Organizations on EPA 2023 MATS RTR Proposal (June 23, 2023), Doc. ID No. EPA–HQ–OAR–2018–0794-5996, https://www.regulations.gov/comment/EPA-HQ-OAR-2018-0794-5996.
[235] *Id*.
[236] The range for 2023 was 0.0040 – 0.1170 lbs./MMBtu. *See* Form EIA-923, Schedule 8C (Winyah Plant ID 6249), Form EIA-923. As of 23 July 2025, data for 2024 was not yet available.

repeal of the 2024 MATS rule—elimination of the requirement for EGUs to monitor non-mercury metal HAP emissions using CEMS. The use of CEMS for fPM would allow operators to detect and correct more promptly problems with pollution controls and standard exceedances, certainly in comparison to periodic stack testing.

VI. EPA HAS REOPENED ITS 2019 RESIDUAL RISK REVIEW AND 2020 FINAL ACTION, WHICH WAS ARBITRARY AND UNLAWFUL AND MUST BE ADDRESSED (RESPONSE TO QUESTION #8).

In question #8, EPA invites comments on whether potential revisions to emissions standards resulting from the technology review would yield any meaningful risk reduction from reductions in HAP emissions. As stated in section I.C above, EPA is not permitted to consider the 112(f)(2) assessment of residual risk or other risk reductions as part of a 112(d)(6) technology review.

EPA's proposal and invitation to comment on meaningful risk reductions reopens for further consideration and comment the 2019 residual risk assessment itself and EPA's decisions and conclusions on it, which can be found in 85 Fed. Reg. 31,286 (May 22, 2020) (the "2020 Final Action"). *See Pub. Emps. for Env't Resp. v. EPA*, 77 F.4th 899, 911, 914 (D.C. Cir. 2023) (reopening occurs "if an agency has opened the issue up anew, even though not explicitly" including where an agency "invite[s] public comment on a prior decision"). In this section, we provide the following comments on EPA's 2019 residual risk assessment and 2020 Final Action. In support of these comments, we attach and incorporate by reference the Comments submitted by James Pew, Earthjustice, on behalf of Chesapeake Climate Action Network et al., EPA-HQ-OAR-2018-0794-3364 (April 17, 2019) and the Petition for Reconsideration submitted by James Pew, Earthjustice, on behalf of Air Alliance Houston et al., EPA-HQ-OAR-2018-0794-4565 (July 21, 2020).

As explained below, the 2019 residual risk assessment and 2020 Final Action were unlawful and arbitrary in several ways, including because EPA underestimated emissions of hazardous air pollutants from power plants, EPA failed to account for and/or underestimated multipathway and other health risks, and EPA failed to promulgate standards to reduce lifetime excess cancer risks to the individual most exposed to emissions to less than one in one million. Moreover, since the 2019 residual risk assessment and 2020 Final Action were deeply flawed, and do not account for up-to-date information about health risks from arsenic and other heavy metals, it would be unlawful and arbitrary for EPA to use or rely on them in its proposed action.

A. EPA's Claim That it Has Not Underestimated Power Plants' Emissions of Organic Hazardous Air Pollutants Is Unsubstantiated and Arbitrary.

EPA's 2019 residual risk assessment and its 2020 Final Action both rest on the remarkable claim that the entire power plant category emits less than 3 tons per year (tpy) of organic HAPs. As shown by multiple sources, including data in EPA's own record, that claim is wildly inaccurate.

In its proposed Section 112(f)(2) residual risk review, EPA stated that it did not collect any new emissions test data through an information collection request (ICR) but, instead, chose to rely on the information it collected in its 2010 ICR and on various other sources. 84 Fed. Reg. 2670, 2685-86 (Feb. 27, 2019). The only supplemental sources of information for organic HAP emissions were the Electric Power Research Institute (EPRI) Report[237] (which uses the 2010 ICR data) and the NEI 2014 data. Although EPA claimed to have used these data sources, *id.*, the agency did not acknowledge in the proposal that they both indicate power plants emit approximately 3,000 tons per year of organic hazardous air pollutants, let alone explain why it was choosing to ignore or reject this information.

Then, apparently having become aware that the NEI data refute its assertion that power plants emit only 3 tons per year of organic HAPs, in the Response to Comments accompanying the 2020 Final Action ("2020 RTC") EPA sought to dismiss these data. EPA changed its position and claimed "[w]ith regard to the organic HAP included in the 2014 NEI as being emitted by power plants, the EPA points out that the emissions estimates referred to by commenters do not reflect the most current information obtained via emissions testing." 2020 RTC at 71. EPA further claimed "the data suggested for use by the commenters"—*i.e.*, apparently, both the NEI data and the EPRI data—"are based on pre-MATS compliance information. The EPA maintains that its use of the most current and accurate emissions data is appropriate." *Id.*

EPA did not identify what emissions data it has or is now relying on to defend its 3 tons per year estimate. EPA has previously claimed that measuring emissions of organic HAPs was "impracticable," and it provided no information regarding either power plants' baseline emissions of organic HAPs, or how much those emissions would be reduced by its "periodic tune-up" requirement. EPA itself said it did not collect any emissions data for the residual risk review. 84 Fed. Reg. at 2685. Thus, unless EPA has some source of more "current information obtained via emissions testing" it has not yet identified to the public, 2020 RTC at 71, the agency's only organic HAP emissions data are the NEI data and the data used in the EPRI Report. It makes little sense to disparage the NEI and EPRI data as being less "current" than data that do not exist. If EPA believed the NEI and EPRI data it claimed to be using in the proposed residual risk review do accurately represent power plants' organic HAP emissions, the agency could have collected more data. Without providing any explanation in the record, it chose not to do so.

Further, EPA never calculated either what power plants' pre-2012 MATs organic HAP emissions were or how much—if at all—those emissions were reduced by MATS compliance. Because EPA does not even know whether compliance with 2012 MATS reduced organic HAP emissions at all, let alone how much it might have reduced them, it is arbitrary for EPA to assume that emissions test data collected before power plants came into compliance with the 2012 MATS rule are not indicative. Indeed, the NEI and EPRI data both indicate that power plants emit approximately 3,000 tons per year of organic hazardous air pollutants. EPA does not claim—and it is not even remotely plausible—that compliance with the periodic tune up

[237] In 2018, the Electric Power Research Institute (EPRI) published a report on the inhalation risks from power plants after they came into compliance with the MATS rule. EPA stated that it used this report, Entitled "Hazardous Air Pollutants (HAPs) Emission Estimates and Human Health Risk Assessment for U.S. Coal-Fired Electric Generating Units", in preparing its proposed residual risk review. 84 Fed. Reg. at 2685.

requirement in the 2012 MATS rule reduced emissions of organic HAPs to 3 tons per year. If EPA wanted to reject the NEI and EPRI data, it needed to provide a rational basis for doing so, and suggesting that compliance with a periodic tune up requirement reduced organic HAP emissions by 99.9 percent falls far short of that standard.

One significant flaw was that, in reaching its 3 tons per year estimate, EPA counted emissions of only a few of the many organic HAPs that power plants emit. *See* Residual Risk Assessment for Coal- and Oil-Fired EGU Source Category in Support of the 2019 Risk and Technology Review Proposed Rule ("RRA"), Attachment 1, Development of the RTR Risk Modeling Dataset for the Coal- and Oil-Fired EGU Source Category ("Risk Modeling Memo") at 4-5 (identifying 16 organic HAP considered). By considering only EGU's emissions of formaldehyde, naphthalene, POM, dioxins/furans, and PCBs, EPA ignored the vast majority of HAPs that EGUs that EGUs emit and understates the quantity of organic HAP emissions.

Moreover, with the exception of formaldehyde, the organic HAPs EPA chose to consider are emitted in relatively small quantities. *See* RRA at 38. According to EPA, formaldehyde accounts for virtually all of the 3 tpy it claims power plants emit, and the other pollutants EPA considered account for less than 0.2 tpy. Thus, EPA's 3 tpy estimate completely ignores other organic HAPs that power plants emit in far greater volumes, including cyanide,[238] benzene, acetaldehyde, isophorone, methyl bromide, methyl chloride, methyl ethyl ketone, and toluene, to name just a few. EPRI estimates that power plants emit more than 50 tons per year of each of these pollutants individually, and its estimates for some of them, including benzene and toluene, are "A"-rated because EPA has data from at least 50 facilities and at least 50 percent of those data are above detection levels. The NEI also shows that power plants emit many more organic HAPs, and lists 37 of them.

EPA provided no explanation of its choice of which organic HAPs to consider in the preamble to the 2020 Final Action or anywhere else. To the extent EPA is suggesting that it chose to consider only certain HAPs because those were the only ones for which it had adequate emissions data, its argument is belied by the record on the 2020 Final Action. EPA itself compared the 2010 ICR data favorably to "pre-MATS compliance data." 85 Fed. Reg. at 31,317 & n.59. In particular, EPA noted that the 2010 ICR data—which are used in the EPRI Report—include data "from up to 170 site-specific tests which would have an "A" rating and which were conducted just 9 years ago." *Id.* Those "A"-rated data include data for at least five organic HAPs, and show that power plants emit more than 500 tons per year of those organic HAPs alone—*i.e.*, more than 100 times more than the amount EPA estimates for all organic HAPs combined. Nowhere did EPA even suggest that these data are not reliable or provide any reason for rejecting them. Nor did EPA provide any reason for rejecting the "B"- and "C"-rated data it has, and these data show that power plants' actual organic HAP emissions exceed EPA's 3 tpy estimate by even more.

EPA claimed in the 2020 RTC its use of representative detection limits (RDLs) to estimate organic HAP emissions was "reasonable." 2020 RTC at 71. EPA failed to offer any support for that conclusory assertion. Further, merely asserting that the RDL approach is "reasonable" does not make it so. EPA did not even begin to explain why EPA prefers estimates

[238] The EPRI report lists cyanide as an organic hazardous air pollutant.

based on RDLs over the actual "A"-rated emissions test data in the record. Indeed, faced with a choice between "site-specific tests which … have an A rating and which were conducted just 9 years ago" and estimates based on RDLs, the need for EPA to explain choosing the latter is especially great. EPA's use of RDLs is, according to EPA, premised on the assumption that a significant majority of test data are below detection limits. The EPRI Report, however, identifies five organic HAPs for which EPA has "A"-rated data—*i.e.*, data from at least fifty facilities at least fifty percent of which is above detection levels. Given this, it is arbitrary to assume that the majority of these emissions of these HAPs are below detection levels—*i.e.*, to assume emissions of these HAPs are negligible even though "A"-rated emissions test data show that they exceed 500 tons per year. It is irrational for EPA to rely on such an assumption without even explaining it or considering record evidence that shows it to be wrong.

EPA's use of RDLs was flawed for several other reasons. For formaldehyde, EPA acknowledged that the RDLs it received in response to its 2010 ICR varied by more than four orders of magnitude, from approximately 0.0002 parts per million (ppm) to approximately 5.0 ppm. EPA, Development of Representative Detection Levels of Certain Organic HAP, at 2-3, July, 2018, EPA-HQ-OAR-2018-0794-0011 ("RDL Memo"). EPA stated that it chose to use the "second lowest" of these, 0.000384 ppm. *Id.* at 2. For the other organic HAPs it considered, EPA stated its RDLs are "based on" different sources, including the MATs ICR and the ICRs for industrial boilers and coke ovens. EPA did not explain how they are based on these data. Significantly, EPA's approach to using RDLs to estimate emissions departs sharply from the approach EPA has used in its previous rulemakings for EGUs and other categories and that it has represented as accurate in litigation. In that context, EPA did not use the "second lowest" RDL – an approach that would have led to much more stringent emission standards – but a number equal to three times the arithmetic mean of the RDLs it had. *See* EPA, National Emission Standards for Hazardous Air Pollutants (NESHAP) Maximum Achievable Control Technology (MACT) Floor Analysis for Coal- and Oil-fired Electric Utility Steam Generating Units for Final Rule, December 2016 ("2011 Floor Memo"). By using one approach to generate a high number for the purpose of setting lenient emission standards and another approach to generate a low number for the purpose of determining residual risk, EPA acts arbitrarily. By doing so without any explanation, EPA makes the arbitrariness of its conflicting approaches egregious.

What is more, EPA provided so-called "actual" emission numbers and may have based its risk assessment on them. An estimate based on those numbers is unlawful and arbitrary, as many of those numbers are not actual emissions at all, but instead are from emission factors, emission factor-based ratios, and RDLs. Emission factors underestimate emissions in part because (1) they incorporate the erroneous assumption that equipment is operating as designed under normal conditions and (2) the emission factors do not account for environmental variables that significantly impact emissions. The tests used to develop emission factors are biased because they are conducted on new equipment operating under normal conditions and do not take into account or reflect circumstances that cause short-term fluctuations in emissions, such as during startup, shutdown, or malfunction.[239] The emissions from startup, shutdown, or malfunction ("SSM") events can be significant, and industry-filed reports show that for some facilities, releases from SSM events were actually higher than the total annual emissions reported to EPA's

[239] EPA, Compilation of Air Pollutant Emission Factors, Vol. 1: Stationary Point and Area Sources, 4-5, *available at* https://www.epa.gov/system/files/documents/2024-04/ap42_5thed_orig.pdf.

Toxics Release Inventory ("TRI") or state emission inventories for the entire facility for the entire year.[240]

Even where EPA does not use emission factors, the data EPA uses range widely in quality. Where EPA uses anything less than a continuous and uninterrupted stream of CEMS compliance data, it is providing only a partial picture of EGUs' actual emissions or just a snapshot in the case of a single stack test. EPA itself has consistently taken the position that it needs to account for the variability of sources' emissions during the times other than when the test is being conducted. To do so, in the standard-setting context, EPA has used a 99 percent upper prediction limit (99% UPL) approach. EPA has represented repeatedly to courts and to the public - including in setting the standards for EGUs that it is now reviewing - that this 99% UPL approach yields an estimate of the "average" level of emissions for the sources to which it applies. EPA has argued that it could not use the emissions test without applying the 99% UPL because doing so would fail to account for the higher emission levels that occur when a source is not being tested. Given EPA's prior representations, EPA must apply the same 99% UPL approach to any so-called "actual" emissions data it chooses to use in the risk assessment process. Failure to do so would be unlawful and arbitrary. Further, EPA's failure to even acknowledge its own prior representations that actual data do not accurately represent sources' performance and that a 99% UPL is necessary to account for variability, and to explain why it is not using the 99% UPL approach in its risk assessment, is arbitrary.

EPA also claimed in the 2020 RTC it would not make any difference to its risk analysis if it used emission numbers that were three orders of magnitude higher than those it actually used. 2020 RTC at 71. Specifically, EPA claimed to have conducted a "screening analysis" using the NEI emissions data and that analysis "did not indicate other organic HAP as risk drivers." *Id.* No such screening analysis appeared in the residual risk assessment. Nor did EPA say what it entailed.

B. EPA Must Account For The Increased Emissions, And Health Risks, From "Non-Routine" Or Malfunction-Based Emissions, And During Startup And Shutdown Periods, Instead Of Simply Ignoring These Emissions And Risks.

EPA stated that it believes the use of so-called "MACT-allowable" emission levels to determine risk levels "is inherently reasonable since that risk reflects the maximum levels facilities could emit and still comply with national emission standards." 84 Fed. Reg. at 2689. For two obvious reasons, EPA's premise is wrong.

First, EPA ignores that its emission limits do not apply to periods of startup and shutdown. EGUs can and do exceed their emission limits during these periods. EPA has recognized that EGUs' pollution can be significant during periods of startup and shutdown. *See, e.g.*, 80 Fed. Reg. 33,840, 33,850 (June 12, 2015). EPA stated that it is "concerned about the amounts of excess emissions that occur during" periods of startup, shutdown, and malfunction. *Id.* at 33,850 n.22; Memorandum: Statutory, Regulatory, and Policy Context for this Rulemaking, EPA-HQ-OAR-2012-0322-0029 at 22 ("Rulemaking Context Memo"). "Available

[240] Envtl. Integrity Project, Gaming the System: How Off-the-Books Industrial Upset Emissions Cheat the Public Out of Clean Air (Aug. 2004).

evidence suggests that the amount of extra emissions that occurs during these … periods is potentially large." Rulemaking Context Memo at 23. By failing to account for EGUs' HAP emissions during startup, EPA unlawfully and arbitrarily ignores risk from EGUs and understates the total risk from this category.

Second, EGUs can and do exceed their emission limits during malfunctions. The excess hazardous emissions that occur during malfunctions are not "allowable," but that does not make them any less real or any less dangerous to the people who are exposed to them. Malfunction events increase emissions and thereby pose increased health risks which EPA must consider. If power plants are not operating CEMS, such malfunction events are likely to last longer and release more emissions because operators will not learn of them as quickly. Where control equipment fails for any reason, emissions could be at least 100 times greater than usual (e.g., in the circumstance where a control device has 99% efficiency, such that an uncontrolled release would cause 100 times the usual amount of emissions). Ignoring such emissions is an unlawful and arbitrary example of the problem of ignoring health risk in the agency's assessment. Failing to look at the true potential for spikes in emissions over a person's lifetime may underestimate acute risk, cancer risk, and the amount of chronic non-cancer risk based on pollutants that persist in the environment, such as nickel and antimony (for the two source categories EPA recognizes emit one or both of those pollutants). EPA knows that there is additional risk from malfunctions and violations, and it has no lawful or scientific basis to ignore this additional risk.

C. EPA's Risk Analysis for Lead Emissions Was Unlawful and Arbitrary.

EPA compared modeled lead emissions with the lead NAAQS and assumed that emissions at or below the NAAQS levels are acceptable and protect the public with an ample margin of safety. 2020 RTC at 92. This approach is not permissible under section 112(f)(2) just because, in the agency's view, the lead NAAQS is sufficiently protective. *Id.* at 92-93.

EPA recognizes that power plants emit at least 12,000 pounds of lead (6 tons) each year. Residual Risk Assessment, EPA-HQ-OAR-2018-0794, at 38 (Table 3.1-1). Lead is a well-known toxic heavy metal with diverse and severe health impacts that has no safe level of human exposure.[241] In particular, lead is associated with neurological, hematological, and immune effects on children, and hematological, cardiovascular, and renal effects on adults. Children are particularly sensitive to the effects of lead, including sensory, motor, cognitive, and behavioral impacts. No safe blood lead level in children has been identified; even low levels of lead in blood have been shown to affect IQ, ability to pay attention, and academic achievement; and effects of lead exposure cannot be remedied.[242] One study found that for every 0.2 µg/dL of lead in the blood, an adolescent's IQ was reduced one point.[243] Children in poverty and Black children face higher exposures to lead and are consequently more susceptible to lead's health impacts. Reproductive effects, such as decreased sperm count in men and spontaneous abortions in

[241] *See* National Ambient Air Quality Standards for Lead, 73 Fed. Reg. 66,964, 66,975-76 (Nov. 12, 2008).
[242] Centers for Disease Control and Prevention ("CDC"), About Childhood Lead Poisoning Prevention (last visited July 25, 2025), https://www.cdc.gov/lead-prevention/about/index.html?CDC_AAref_Val=https://www.cdc.gov/nceh/lead/acclpp/blood_lead_levels.htm.
[243] Lucchini, R.G., et al., Inverse association of intellectual function with very low blood lead but not with manganese exposure in Italian adolescents, 118 Envtl. Research 65 (Oct. 2012).

women, have been associated with lead exposure. EPA has classified lead as a probable human carcinogen. EPA, Centers for Disease Control and Prevention ("CDC"), California EPA, and the American Academy of Pediatrics ("AAP") acknowledge that no safe level of lead can be identified.[244]

By insisting it can rely solely on the NAAQS for lead rather than conducting an independent risk assessment, EPA took the position that it had no obligation to complete or create a lawful and rational risk assessment for lead, including the interaction of different risks from lead--*i.e.*, inhalation (risks from breathing) and multipathway (risks from other types of exposure). EPA wrote off serious risk from lead by saying its results "estimate" that the NAAQS would not be exceeded based on a "maximum annual lead concentrations" analysis. But EPA did not show there is *no* risk from such exposure. EPA did not evaluate health risks from lead further and did not attempt to quantify the health risks that new lead emissions are causing from these sources in communities already contaminated by prior lead emissions. Thus, EPA failed to assess either inhalation or multipathway risks for lead in the way it has recognized the need to do for all other pollutants. EPA must do so rather than only relying on the NAAQS. When lead is emitted, there is no safe level of exposure to lead and so there is some risk that EPA ignored.[245] Yet EPA has failed to assess the risks from lead to determine whether the cumulative health risk burden from lead is "acceptable." EPA cannot presume and has not demonstrated that achieving an ambient air concentration of the NAAQS for lead (which is based on the "adequate margin of safety to protect public health") is sufficient to ensure acceptable health risk and provide an "ample margin of safety to protect public health" from lead alone for Section 112(f) purposes. *Compare* 42 U.S.C. § 7409 *with* 42 U.S.C. § 7412(f)(2). These are different statutory tests and EPA's NAAQS itself recognizes harm (including the loss of IQ points as an indicator of neurological harm) occurs below the level of the NAAQS.[246]

The Children's Health Protection Advisory Committee has advised EPA that it should strengthen the Lead NAAQS by an order of magnitude (to 0.02µg/m^3 or below, require better monitoring, and base the measurements on a one-month period) because it "is insufficient to protect children's health."[247] The NAAQS in place now only seeks to avoid an air-related

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[244] EPA, Basic Information about Lead in Drinking Water (last updated May 22, 2025), https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water; CDC, About Childhood Lead Poisoning Prevention, https://www.cdc.gov/lead-prevention/about/index.html?CDC_AAref_Val=https://www.cdc.gov/nceh/lead/acclpp/blood_lead_levels.htm; American Academy of Pediatrics (AAP) Council on Environmental Health, Prevention of Childhood Lead Toxicity, *Pediatrics*, Vol. 138, No. 1 (July 2016).

[245] *See, e.g.*, CDC, About Childhood Lead Poisoning Prevention, https://www.cdc.gov/lead-prevention/about/index.html?CDC_AAref_Val=https://www.cdc.gov/nceh/lead/acclpp/blood_lead_levels.htm (no safe blood lead level in children has been identified); EPA, Basic Information about Lead in Drinking Water, https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water ("EPA and the Centers for Disease Control and Prevention (CDC) agree that there is no known safe level of lead in a child's blood. … Lead is harmful to health, especially for children."); Cal. Ofc. Envtl. Health Hazard Assessment (OEHHA), Carlisle, J., et al., Development of Health Criteria for School Site Risk Assessment Pursuant to Health and Safety Code Section 901(g): Child-Specific Benchmark Change in Blood Lead Concentration for School Site Risk Assessment, Final Report at 1 (April 2007).

[246] *See, e.g.*, 73 Fed. Reg. at 67,006 (stating that EPA set the NAAQS at 0.15 µg/m3 based on the finding that—the estimated mean IQ loss from air-related Pb in the subpopulation of children exposed at the level of the standard would generally be somewhat to well below 2 IQ points).

[247] Letter from Sheela Sathyanarayana, CHPAC to Gina McCarthy, EPA (Jan. 8, 2015) (CHPAC 2015 Letter).

population mean IQ loss in excess of 2 points--recognizing that on average that, or in some communities even higher neurological harm is occurring under the 2008 Lead NAAQS.[248] There can be no doubt that risks and likely harm occur *below* the level of the 2008 NAAQS. It is unacceptable for EPA to ignore this harm and by doing so to tolerate such significant IQ loss in children as an indicator of and in addition to all of the neurological and other harms of lead. This is particularly true when these impacts do not fall equally across the country, but hit poor children and communities of color the most.[249]

In regard to lead emissions, therefore, EPA may not merely rely on the lead NAAQS to decide what is "acceptable" risk under Section 112(f)(2). EPA must address and incorporate the best currently available information on children's exposure, including the Children's Health Protection Advisory Committee's ("CHPAC") recommendation of lowering the lead standards to 0.02µg/m^3 from the current EPA NAAQS level of 0.15 µg/m^3.[250] The CDC has long recognized that there is no safe level of exposure, and continues to reduce the blood lead reference level; it is now 3.5 µg/dL.[251] California's health benchmark for lead shows EPA should look at a blood-lead level change of 1.0 g/dL as the level at which measurable neurological harm, illustrated by a correlating loss of one IQ point, can occur.[252]

To assess risk and be able to attempt to fulfill its obligation to provide an ample margin of safety to protect public health, EPA must fully evaluate lead risks posed to the fetus, infants and children. One way of considering these risks would be to utilize the Integrated Exposure Uptake Biokinetic ("IEUBK") model for infants and children and the Adult Lead Methodology ("ALM") for the fetus. EPA must come up with a numerical risk value for lead, rather than ignore this risk from both inhalation and multipathway exposure. It is not adequate or acceptable to simply not evaluate lead because EPA believes there will be no NAAQS exceedance from any source.

EPA should also update the residual risk assessment to include available data on testing of lead in soil and waterways and evaluate the potential health impacts following the emission of lead from each facility. Additional monitoring should also be required to ensure that lead emitted

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[248] 73 Fed. Reg. at 67,006.
[249] 84 Fed. Reg. at 69,212, tbl. 5.
[250] Letter from Dr. Melanie A. Marty, Chair, Children's Health Protection Advisory Comm., to Administrator Stephen L. Johnson, (June 16, 2008).
[251] CDC, About Childhood Lead Poisoning Prevention, https://www.cdc.gov/lead-prevention/about/index.html?CDC_AAref_Val=https://www.cdc.gov/nceh/lead/acclpp/blood_lead_levels.htm.
[252] *See* OEHHA, J. Carlisle et al., Development of Health Criteria for School Site Risk Assessment Pursuant to Health and Safety Code Section 901(g): Child-Specific Benchmark Change in Blood Lead Concentration for School Site Risk Assessment, Final Report at 1 (Apr. 2007) (explaining that this blood-lead level increase may occur from a daily intake of 6 µg of ingested soluble lead or 5 µg of inhaled lead), https://oehha.ca.gov/media/downloads/crnr/pbhgv041307.pdf; *see also* Cal. EPA, Prioritization of Toxic Air Contaminants Under the Children's Environmental Health Protection Act at 25-26 (Oct. 2001) ("Lead is in Tier 1 because it is a developmental neurotoxin. The increased susceptibility of infants and children is well established and the neurological effects are extremely prolonged. In addition, lead is a carcinogen. Although airborne lead exposures have dropped due to removal of lead from gasoline, airborne lead exposures still occur as a result of stationary source emissions and reentrainment of soil contaminated with lead. In addition, deposition of airborne lead onto soil, vegetation, and other surfaces results in exposure via ingestion.").

from the facility is at low enough concentrations such that it does not raise an individual's blood lead level by 1μg/dL.

Looking at the NAAQS alone cannot be the end of EPA's analysis of health risk related to lead under Section 112 for a community exposed to a multi-pollutant source category under Section 112. The NAAQS only addresses a single pollutant, while Section 112(f) requires EPA to prevent unacceptable risk from the combination of all toxic pollutants emitted by a major source category of HAP. EPA's acceptability determination under Section 112(f) requires the agency to protect the most-exposed person from the total health risk caused by the interaction of all of these pollutants, combined. This requires a final step of the analysis that assesses the interaction of the various pollutants and combines health risk in an appropriate metric to protect the most-exposed person from their cumulative effects. Section 112 requires EPA to consider and address the total health risk for all toxic air emissions from the source category. EPA must assess each pollutant appropriately, but then must also assess the total cumulative health risk from these risks and these different pollutants. Relying solely on the NAAQS, which is a risk assessment for a single pollutant, meant that EPA performed only a segmented risk analysis that failed to consider the interaction of the different pollutants together, on the most exposed person.

After assessing risk from each pollutant alone, EPA must consider their interaction by addressing the total, cumulative health risk burden created by the source category. Using only the NAAQS—and not any indication of the combined health risk caused by lead and other pollutants—meant that EPA failed to satisfy the ultimate requirement under Section 112 not just to protect people from a single pollutant (as if it were emitted in isolation), but to protect people from all emissions from the source category. *See* 42 U.S.C. § 7412(f)(2). By failing to assess risk and relying on the NAAQS alone, EPA also failed to reach a lawful or rational determination of the "ample margin of safety" required to protect public health from power plants' lead emissions. Because EPA simply replicated its determination on the lead NAAQS in its residual risk determination, EPA has not met the legal standard of Section 112(f)(2). The Clean Air Act sets different tests for these rules to meet (*e.g.*, "ample margin of safety to protect public health" versus "adequate margin of safety to protect public health") and EPA cannot substitute one for the other. *Compare* 42 U.S.C. § 7409, *with* 42 U.S.C. § 7412(f)(2). The residual risk standards are designed to do more than just replicate other statutory protections, such as those provided by the NAAQS. If Congress had intended EPA simply to replicate the NAAQS, or some other different Clean Air Act requirement, in its Section 112(f)(2) residual risk rulemaking, the Section 112(f)(2) requirement would become redundant for any hazardous air pollutant that also has any relationship to any other regulated pollutant. If there were any ambiguity on this question, statutory construction requires a reading of Section 7412(f)(2) that preserves its independent value and meaning.

Finally, the data EPA collected show that risk is likely too high from lead emissions from these sources. EPA has shown that there are significant emissions and has refused to assess the risk that is caused by an additional 120 pounds per year, going into the air in communities that have already faced this level of emission for years. EPA failed to show how it can ignore this simply because there is no exceedance of the Lead NAAQS in a given year. The record for the 2020 Final Action shows, instead, that EPA must evaluate the additional health risk that these lead emissions are causing, based on the best available science, and that risk is likely

unacceptable in view of the serious harm lead causes, particularly to children and to communities of color and low-income communities facing already high levels of lead exposure and harm. Further, EPA did not provide the data showing the actual ambient air concentrations or how close those are to exceedances, which seriously prejudices Commenters' ability to evaluate and comment on EPA's residual risk assessment.

D. EPA's Multipathway Risk Analysis Is Unlawful and Arbitrary.

EPA did not consider the multipathway risks from several pollutants that EPA acknowledged are persistent and bioaccumulative. *See* 2020 RTC at 93. By failing to account for the risk that these hazardous air pollutants present to people who are exposed to them by pathways other than inhalation—*i.e.*, by drinking water, by eating food, and by dermal exposure—EPA understated the actual risk presented by power plants.

Contrary to EPA's assumption, 2020 RTC at 93, EPA cannot simply dismiss the risks that it chose not to account for in its risk analysis. Clean Air Act Section 112(f)(2) directs EPA to ensure its Section 112 emission standards for a category protect public health with an ample margin of safety. 42 U.S.C. § 7412(f)(2). To do that, EPA necessarily needs to know the full extent of the health risks that a category presents. EPA cannot possibly ensure that its standards protect public health with an ample margin of safety if it chooses to ignore or dismiss some of the risk that the emissions from a category create. Yet, by insisting it is "reasonable" to ignore or dismiss the multipathway risks presented by hexachlorobenzene, hexachlorocyclohexane, lead compounds, PCBs, nickel, manganese, and hexavalent chromium—all of which are undisputedly emitted by power plants and all of which undisputedly can harm people through pathways other than inhalation—that is precisely what EPA has done.

Nor does EPA's alleged lack of data excuse EPA from determining the risk posed by power plants' emission of these hazardous air pollutants. It is EPA's job to get the data it needs to assess the full risk from power plants and determine whether its standards protect public health with an ample margin of safety. Where EPA has an unambiguous statutory obligation—as the agency has here to ensure that its standards protect public health with an ample margin of safety—EPA's failure or refusal to collect necessary data cannot excuse it from compliance with that obligation. *U.S. Sugar v. EPA*, 579, 644 (D.C. Cir. 2016) ("in light of the unambiguous statutory command to promulgate numeric standards for *all* solid waste incineration units, the EPA had no discretion to avoid regulating any such units—even if its choice to avoid regulating these units would have been otherwise reasonable."). If EPA has not collected the necessary data and does not know what the actual risk presented is, the agency's conclusion that its existing standards protect public health with an ample margin of safety is unlawful and arbitrary.

EPA's choice to continue assessing only certain contaminants that bioaccumulate is not supported by the 2004 Guidance which states that "multipathway risk assessment may be appropriate generally when air toxics that persist and which also *may* bioaccumulate and/or biomagnify are present in releases."[253] This guidance does not direct that the multipathway

[253] EPA, Air Toxics Risk Assessment Reference Library, Vol. 1, Technical Resource Manual (April 2004) at Part III, Ch. 14 "Human Health Risk Assessment: Multipathway," at 14-1 (emphasis added), available at https://www.epa.gov/sites/default/files/2013-08/documents/volume_1_reflibrary.pdf.

assessment be limited to only those contaminants listed as PB-HAPs, let alone a subset of those HAPs, but that is what EPA did. By excluding persistent and bioaccumulative HAPs from its analysis, EPA underestimated risks from HAPs. The 2004 guidance document recognized deposition of *persistent* HAPs as a source of soil contamination presenting a potentially significant route of exposure, particularly for children.[254]

Hexachlorobenzene, hexachlorocyclohexane, lead compounds, PCBs, nickel, manganese, hexavalent chromium are all persistent and bioaccumulative HAPs. Air emissions of these compounds therefore present a risk to nearby communities via dermal, ingestion, and other noninhalation pathways that were not considered in the residual risk assessment. Extensive documentation on the rationale for multipathway analysis for these compounds and multipathway exposure parameters is provided by the OEHHA 2012 Guidelines for Exposure Assessment.[255]

In addition to other metals listed by OEHHA, manganese is a pollutant to which children have particular exposure and vulnerability, and there is evidence that it can pose a multipathway risk due to elevated levels in soils around major emission sources.[256] Naphthalene is a PAH and as such must be considered in the POM category which is listed as a PB HAP. Naphthalene has been demonstrated to be persistent and to bioaccumulate in biota, particularly shellfish.[257]

EPA failed to take into account that the science shows *additional pathways* that it has not addressed for certain pollutants, for which it does recognize the need for a multipathway assessment. For example, OEHHA has recognized that soil ingestion, dermal exposure to contaminated soil, and breast milk consumption are all "mandatory exposure pathways" that must be evaluated for residential receptors.[258] EPA should have evaluated the research on various pathways of toxic exposure discussed by OEHHA and incorporated it into its risk assessment. In particular, science shows that EPA has been relying on outdated estimates of incidental soil ingestion exposures and EPA must update these values to ensure that it considers the urban child scenario in its multipathway risk assessment. Risk assessment of exposure to soil contaminants should evaluate both direct exposure, hand-to-mouth, and indirect, object-to-mouth exposure.

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[254] *Id.* ch. 20.
[255] *Id.* App. E.
[256] *See, e.g.*, ATSDR, "Draft Toxicological Profile for Manganese" at 12 (Sept. 2012) ("Manganese concentrations in soil may be elevated when the soil is in close proximity to a mining source or industry using manganese and may therefore pose a risk of excess exposure to children who ingest contaminated soil.") http://www.atsdr.cdc.gov/ToxProfiles/tp151.pdf; *see also* Cal. EPA, OEHHA, "Development of Health Criteria for School Site Risk Assessment Pursuant to Health and Safety Code Section 901(g): Child-Specific Reference Doses (chRDs) for School Site Risk Assessment: Manganese and Pentachlorophenol," at 10 (June 2006) (discussing science showing that manganese can accumulate in the brain and showing that ingestion of high levels of manganese is associated with harm).
[257] R. Yender *et al.*, NOAA, "Managing Seafood Safety after an Oil Spill," (Nov. 2002).
[258] OEHHA, Air Toxics Hot Spots Program Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessment at 8-10, tbl 8.6 (2015), https://oehha.ca.gov/air/crnr/notice-adoption-air-toxics-hot-spots-program-guidance-manual-preparation-health-risk-assessments; Cal. EPA, Air Toxics Hot Spots Program Risk Assessment Guidelines: Technical Support Document for Exposure Assessment and Stochastic Analysis at App. E, at E-12, tbl. E3 (Aug. 27, 2012) ("OEHHA 2012 Guidelines"), http://www.oehha.ca.gov/air/hot_spots/tsd082712.html.

EPA must assess multipathway risk based on "allowable" emissions, not just the so-called "actual" emissions, which are likely underestimated. EPA assessed the "allowable" emissions number for inhalation, and has given no reasonable basis not to do the same for multipathway risk. Intermittent or short spikes of PBHAPs can represent a significant health risk because the contaminants stay in the environment and small amounts can accumulate into larger amounts over time. For this reason, EPA's analysis likely underestimates the health risks from multipathway routes of exposure.

EPA must assess the total and synergistic cancer risk and total chronic noncancer risk for different pollutants. For example, as OEHHA found, "[t]he potential neurotoxicity of arsenic in children, possibly in combination with other environmental agents, is also a concern. Studies in mice (Meija et al. 1997) indicate combined effects of lead and arsenic on the central nervous system that were not observed with either metal alone."[259] In addition, EPA should apply these same principles to create a mechanism for assessing the total acute risk to chemical mixtures, such as the target organ specific hazard index ("TOSHI") for chronic risk, that aggregates the acute impacts on the same organ systems for all pollutants.

EPA must create a metric to assess the total and cumulative risk burden, rather than only looking at each type of risk in a discrete, separate way.[260] EPA should be integrating its assessments and performing a "comprehensive risk assessment" as the NAS has emphasized.[261] After first assessing the total cancer, chronic non-cancer, and acute risks, for both inhalation and multipathway exposure, EPA also must create a metric to assess the total bundle of risks.[262] EPA must aggregate health risk for each pollutant, and each type of health risk, to create a cumulative risk determination for the individual "most exposed" to emissions as Section 112(f)(2) requires. Unless and until EPA creates a combined health risk metric, it is unclear how it can make an ample margin of safety determination that is based on the full picture of health risk for a source category and that can be compared to other source categories. EPA must assess the full cumulative burden for public health. By failing to perform a full, cumulative risk assessment, EPA fails to gather the information needed to assess whether the risk to public health is acceptable under Section 112(f)(2).

EPA failed to assess and account for the cumulative impact and risk caused by exposure to multiple source categories' toxic air emissions. In many communities containing EGUs, there are many other nearby sources of toxic air emissions within the 3, 5, 10, and the full 50 km radius of EPA's residual risk assessment. Such exposures increase the vulnerability of a community to new and additional toxic air emissions. Therefore, in addition to performing a

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[259] Cal. EPA, OEHHA, "Prioritization of Toxic Air Contaminants – Children's Environmental Health Protection Act, Arsenic and Arsenic Compounds" at Arsenic-2 (Part II) (Oct. 2001).
[260] *See, e.g.*, National Research Council, National Academy of Sciences, "Science and Decisions: Advancing Risk Assessment" at 177 (2009), http://www.nap.edu/catalog.php?record_id=12209 ("The underlying scientific and risk-management considerations point to the need for unification of cancer and noncancer approaches in which chemicals are put into a common analytic framework regardless of type of outcome.").
[261] *Id.* at 131; *see also id.* at 132-33 (discussing related issues).
[262] Cal. EPA, OEHHA, "Cumulative Impacts," at 19-21, 25 (describing total "pollution burden" as sum of exposures, public health effects, and environmental effects) https://oehha.ca.gov/sites/default/files/media/downloads/calenviroscreen/report/cireport123110.pdf; EPA, "Concepts, Methods and Data Sources," at 4-42 to 4-46, https://ordspub.epa.gov/ords/eims/eimscomm.getfile?p_download_id=474337.

cumulative assessment from EGUs alone, EPA also must perform a cumulative analysis that considers source categories' individual impact and risk with that of other sources to which people are exposed.

Although EPA has calculated what it calls "facility-wide" risk for different sources collocated at the same address, RRA at 42, it has not used that number to set standards, and it has ignored different sources in close proximity. In addition, EPA has provided no information at all on how it reached the "facility-wide" risk number. EPA's failure to assess the combined, cumulative impact on health risk from multiple pollution source categories conflicts with the recommendation from the Scientific Advisory Board that in May 2010 urged EPA to incorporate cumulative risk into its residual risk analysis.[263] As a scientific and policy matter, where there is exposure to air toxic emissions beyond the individual source category, the level of total risk that is occurring, including the baseline health risk and the risk from other sources, is greater. Thus, the total risk that is unacceptable for the most-exposed person must in fact be lower for each source category that person is exposed to, because it combines with other risks to create a *total* risk from all regulated source categories which must be minimized. Looking at a source category's contribution of risk in isolation is equivalent to ignoring the facts and pretending other health risks are not occurring.

E. EPA's Refusal to Add Inhalation Cancer Risk and Multipathway Cancer Risk Is Unlawful and Arbitrary.

The number EPA provided in the 2019 risk review for multipathway risks from power plants was 50-in-1 million; EPA has provided no data or analysis to support its speculation that the "actual" multipathway risk might be lower. EPA cannot support its refusal to add the risks from inhalation exposure and the risks from other forms of exposure.

Even assuming *arguendo* that EPA's assessment includes certain health protective assumptions and components, they do not explain why EPA refuses to do the basic math needed to holistically assess cancer risk from power plants' toxic emissions. The objective of Section 112(f)(2) and the health risk rulemaking is to require EPA to take an advance, precautionary approach to assess risk and protect public health from toxic air pollution *before* harm occurs. Health-protective assumptions (also known as scientific "defaults") and uncertainties are always present in risk assessment where the goal is to attempt to predict and prevent future harm. Congress understood that there would likely be scientific limits and uncertainties that would make it difficult or impossible to assess the exact amount of additional cancer risk a person faced from a given industrial source category. So that scientific gaps or risk assessment uncertainties do not inadvertently lead to dangerous gaps in health protection, Congress directed EPA to push forward: not just to take the most basic, lowest level of action possible, but to assure standards provide "an ample margin of safety to protect public health," 42 U.S.C. § 7412(f)(2). Further, the Act does not just require this as a general matter, but it directs EPA to protect the "individual most exposed"—based on the *maximum* potential risk to human health. *Id.* In the context of public health protection and to meet the statutory test that focuses on the "most exposed" and

[263] EPA, Sci. Advisory Bd., Review of EPA's draft entitled, "Risk and Technology Review (RTR) Risk Assessment Methodologies: For Review by the EPA's Science Advisory Board with Case Studies - MACT I Petroleum Refining Sources and Portland Cement Manufacturing," EPA-SAB-10-007 (May 2010), at ii, 10 ("SAB May 2010").

requires an "ample margin of safety," the statute favors a conservative approach in the face of any uncertainties. Here, EPA cannot rationally assess risk based on record facts and the science, and then turn around and ignore its own health risk assessment results as too "health protective" to be useful. EPA recognized the need to ask key questions and account for the risks that its assessment found. The agency cannot justify now ignoring the answers, just because they point to the need for more stringent regulations.

EPA's own risk assessment policy and guidelines recognize that carcinogenic risk adds up with each increment of exposure. There is no safe level of exposure to carcinogens—they have no threshold. Adding the inhalation risk and multipathway risks that EPA calculated for power plants would result in 60-in-1 million risk even if all the many other ways that EPA understated risk from power plants could be overlooked. Thus, if EPA provided a risk analysis that was otherwise rational and summed the inhalation and multipathway risks, the agency would have to acknowledge that the total risk exceeds the 100-in-1 million level that is presumptively unacceptable. And, overall, EPA guidelines direct that "the primary goal of EPA actions is protection of human health; accordingly, as an Agency policy, risk assessment procedures, including default options that are used in the absence of scientific data to the contrary, should be health protective."[264] Therefore, EPA appropriately used certain health-protective assumptions or defaults in its risk assessment, and they do not justify sidelining that risk assessment at the regulatory step in this rulemaking. Its rationale that the numbers it found are conservative or "health protective" and may be lower does not justify refusing to add together carcinogenic risk or to recognize that this risk is above EPA's benchmark of unacceptability. Due to gaps that remain in the agency's risk assessment approach, EPA likely has undercounted, not overestimated, risk, showing how important the assumptions it does use are.

Similarly, EPA's claim that it is "unlikely" that the person at the highest risk from inhalation exposure is also at the highest risk from multipathway exposure, *id.*, cannot support the agency's decision. EPA's decision-making must be based on data and rational analysis, not speculation about what is "unlikely." EPA has provided no data to show that a person who is at maximum risk from inhalation exposure is not also at maximum risk from ingestion and other exposures. Indeed, there is strong reason to believe that a person who lives near one or more power plants and is therefore at risk from inhalation exposure would also catch fish from water bodies near the same plant or plants and would therefore be at risk from ingestion exposure. EPA's failure to support its speculation and to address the fact that people who live near power plants are likely to consume fish caught near power plants is unlawful and arbitrary.

Notably, the Act directs EPA to protect "the individual most exposed." 42 U.S.C. § 7412(f)(2). That term necessarily requires EPA to account for the highest possible cancer risk to the nearby community from any route of exposure—and to assume that an "individual" is experiencing that risk. Refusing to look at the maximum potential exposure for an individual from aggregate cancer risk, when it is scientifically well-known that community members both breathe air and take in carcinogenic pollution through ingestion, violates the Act and is arbitrary. Further Section 112(f) standards must be "based on the most current scientific knowledge and on

[264] EPA's 2005 Guidelines for Carcinogen Risk Assessment, https://www.epa.gov/sites/production/files/2013-09/documents/cancer_guidelines_final_3-25-05.pdf.

sound scientific judgment."[265] As the National Academies of Sciences recognized: "Because exposure to a specific chemical is rarely confined to a single route (although one route might dominate), *the total exposure must be calculated by summing air (inhalation), dermal, and dietary (food and water) intakes*. For example, pollutants that begin as "air pollutants" can generate substantial exposures through other media if they can move from air to water, soil, or vegetation."[266] To protect communities and the most-exposed individual from the highest risk allowed under the MATS, EPA must add multipathway and inhalation risk just as OEHHA does. As OEHHA has explained in its 2015 Risk Assessment Guidelines: "If multiple substances are emitted, the substance specific cancer risks for all exposure pathways are summed to give the (total) multipathway cancer risk at the receptor location."[267]

F. EPA's Refusal To Account For The Risks To People Who Fish in Large Waterbodies Is Unlawful And Arbitrary.

EPA advanced the following arguments for excluding the risks faced by people who eat fish caught in water bodies greater than 100,000 acres from its assessment of the risks posed by power plants' hazardous air emissions: (1) the large volume of these lakes dilutes the hazardous air pollution that is deposited in them; (2) EPA models exposure for people who fish in smaller lakes that are near the large waterbodies; and (3) large waterbodies may contain pollution from other sources. 2020 RTC at 96-97. These arguments are irrelevant. Regardless of whether air emissions of power plants' hazardous emissions are diluted in larger water bodies or whether other sources contribute to the pollution load in such water bodies, the facts remain that these emissions contribute to pollution in these water bodies, that people consume fish caught from these water bodies, and that they face health risks as a result. Indeed, because these water bodies are so large, people consume large quantities of fish that are caught in them and the risks presented by the power plant toxics present in these fish are especially great. EPA may not simply ignore or dismiss these risks simply because dilution and the contribution of toxics from other sources may make calculating the risks attributable to power plant pollution more complicated.

Further, EPA's refusal to assess the risks posed by power plants' hazardous emissions to people who eat fish caught in large water bodies flies in the face of Congress's intent that EPA's air toxics program address these risks. Section 112(m) expressly directs EPA "to identify and assess the extent of atmospheric deposition of hazardous air pollutants (and in the discretion of the Administrator, other air pollutants) to the Great Lakes, the Chesapeake Bay, Lake Champlain and coastal waters." 42 U.S.C. § 7412(m)(1). As part of that process, EPA must:

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[265] Benzene Rule, 54 Fed. Reg. 38,044, 38,062-63 (Sept. 14, 1989).
[266] NRC Science and Judgment in Risk Assessment at 595 (1994), https://www.nap.edu/catalog/2125/scienceandjudgment-in-risk-assessment. EPA cited and relied upon this report in creating the Residual Risk Report to Congress in 1999. Residual Risk Report at 130-31, https://www.epa.gov/sites/production/files/2013-08/documents/risk_rep.pdf.
[267] Cal. EPA, OEHHA, Risk Assessment Guidelines: Guidance Manual for Preparation of Health Risk Assessments, at 8-12 (Feb. 2015) ("Cancer risks from all carcinogens addressed in the HRA [health risk assessment] are added."); ("Cancer risks from different substances are treated additively in risk assessment generally, and in the Hot Spots Program in part because many carcinogens act through the common mechanism of DNA damage.").

> (A) monitor the Great Lakes, the Chesapeake Bay, Lake Champlain and coastal waters, including monitoring of the Great Lakes through the monitoring network established pursuant to paragraph (2) of this subsection and designing and deploying an atmospheric monitoring network for coastal waters pursuant to paragraph (4);
> (B) investigate the sources and deposition rates of atmospheric deposition of air pollutants (and their atmospheric transformation precursors);
> (C) conduct research to develop and improve monitoring methods and to determine the relative contribution of atmospheric pollutants to total pollution loadings to the Great Lakes, the Chesapeake Bay, Lake Champlain, and coastal waters;
> (D) evaluate any adverse effects to public health or the environment caused by such deposition (including effects resulting from indirect exposure pathways) and assess the contribution of such deposition to violations of water quality standards established pursuant to the Federal Water Pollution Control Act [33 U.S.C. 1251 et seq.] and drinking water standards established pursuant to the Safe Drinking Water Act [42 U.S.C. 300f et seq.]; and
> (E) sample for such pollutants in biota, fish, and wildlife of the Great Lakes, the Chesapeake Bay, Lake Champlain and coastal waters and characterize the sources of such pollutants.

Id. Congress especially intended EPA to consider the effects of power plants' toxic emissions on people who eat fish. *Id.* § 7412(n)(1). Ignoring or dismissing the effects of power plants' toxic emissions on people who consume fish caught from large water bodies such as the Great Lakes could hardly be more at odds with Congress's plainly expressed intent in the Clean Air Act, and EPA's failure to even consider Congressional intent on this issue is unreasonable and arbitrary.

EPA's claim that it models exposure for people who fish in smaller lakes that are near the large waterbodies, 2020 RTC at 96-97, is irrelevant. The risk to people who fish in the large water bodies that EPA excluded from its analysis exists in addition to—not instead of—the risk to people who fish in nearby smaller water bodies. By failing to account for this risk in its analysis, EPA understates the total risk from power plants' hazardous emissions. As a result, its conclusions that the risk from power plants is acceptable and that existing standards provide an ample margin of safety are arbitrary.

G. EPA Underestimated Health Risks from EGUs.

EPA must apply the best available, current science and scientific tools to address the real-world health risk for the individual most exposed to the current source categories in the risk assessment for EGUs. In particular, EPA has no valid basis not to follow the recommendations of the National Academy of Sciences and its own Science Advisory Board on the below-discussed key issues that affect the most-exposed and most vulnerable populations, especially children and environmental justice communities. California's Office of Health Hazard Assessment ("OEHHA") has addressed most of the scientific developments described below, particularly the explicit consideration of infants and children; EPA had no reasonable basis not to do the same.

EPA was required to consider the science in its risk assessment in the following ways, and failed to do so and failed to provide a reasoned explanation for not doing so:

- Account for individual-level vulnerability in this risk assessment by better incorporating the vulnerability of children, early-life exposures, and the developing fetus into risk assessment methods:
    - Account for increased susceptibility by using age-dependent adjustment factors for all carcinogens, not just known mutagens.
    - Pre-natal susceptibility: Account for increased susceptibility by using a prenatal adjustment factor for all carcinogens of at least 10X.
    - For chronic non-cancer risk, consult and apply child-specific reference values (such as those created by California EPA scientists), where available.
    - If child-specific reference values are unavailable, consult science on early exposure impacts, and use an additional default factor of at least 10X.
- Account for vulnerability due to residence in a community that is highly exposed, by including factors to account for increased vulnerability based on demographic differences, as part of the risk assessment. EPA also must fully integrate the findings of its environmental justice analyses into this risk assessment and rulemaking, and set stronger pollution limits to provide environmental justice.
- Assess the cumulative burden of exposures to multiple pollutants and sources via multiple pathways:
    - Assess and aggregate exposure from multiple pathways – including by adding inhalation and non-inhalation-based cancer risks.
    - Include the interaction of multiple pollutants
    - Account for exposure to multiple sources. Until EPA has a specific mechanism for estimating total exposures, a default or uncertainty factor of at least 10X should be used to provide overburdened communities with the protection they need now.
- Account for cumulative impacts of multiple exposures and vulnerabilities by shifting the level of risk which triggers policy action.
    - Reduce EPA's benchmark of what it considers acceptable lifetime cancer risk instead of relying on the outdated upper limit of 100-in-a-million.
    - Use a Margin of Exposure ("MOE") framework for non-cancer impacts and adjust the target MOE according to known vulnerability factors
- In the face of increasing evidence calling into question the assumption of a safe or acceptable level of exposure, EPA should also consider changing its approach to risk assessment to support reducing risks to the lowest possible level, to protect public health, rather than suggesting that there is always a safe or acceptable level. As EPA itself has recognized, there are many uncertainties suggesting its risk assessment is an underestimate and only addresses part of the picture.

It was unlawful under Section 112(f)(2) for EPA to ignore the health risks outlined above, and arbitrary and capricious for EPA to avoid applying the best available science to the risk assessment.

1. EPA's Assessment Of Health Risks At The Census Block Centroid Violated The Act's Requirement To Protect "The Most-Exposed Individual" And Was Arbitrary.

EPA unlawfully and arbitrarily failed to assess the health risks for "the individual most exposed to emissions" from the MATS source category, as Section 112(f)(2) requires. Instead, EPA has chosen an arbitrary point, a census-block centroid, without demonstrating that this is equivalent to the person "most exposed." 84 Fed. Reg. at 2690. As EPA's Science Advisory Board explained in a 2018 report, EPA's ad hoc attempt to assess health risks to the most-exposed person is not scientifically justified.[268]

EPA's modeling understates cancer and other chronic health risk by assuming that chronic exposure to hazardous air pollutants from a source occurs at the census block centroid and *not* at the facility fence or property line, even though people do live and spend time in locations at or near the facility fence or property line. EPA made no effort to move receptor points closer to the facility to assess chronic or cancer risk, even in those instances where local residents live nearer to a facility than the geographic centroid of the census block. EPA's action conflicts with and disregards the recommendation of the SAB, which has urged EPA to consider "specific locations of residences."[269]

The SAB has found that EPA's approach "does not provide enough information about the tool, especially regarding criteria that would determine the number and placement of new receptors."[270] Like the SAB panel, Commenters are concerned that EPA's method is not scientific or lawful, would not be reproducible, and that application would vary should a different risk assessor conduct modeling on an individual facility. It is imperative that EPA has verification metrics in place to ensure that it assesses health risks based on the actual or likely locations of specific receptors representative of those living near the facility and/or who are the people most exposed to a source or source category.

Taking geographic variation out of the equation fails to properly account for exposure to the "individual most exposed to emissions" as required by Section 112(f)(2)(A), and fails to provide an accurate accounting of risks. Estimating the annual average concentrations at the area-weighted centers of census blocks blatantly and artificially underestimates the risk estimated for people at the fence-line since the center of a census block is almost always further away from the facility than the fence-line. Census blocks vary greatly in size, especially outside of large urban areas, yet EPA provides no evidence that it reviewed census block size or configuration to consider how concentrations of pollutants might vary within these blocks. Therefore, area-weighted centers of census blocks likely significantly underestimate exposure in some cases. By failing to assess health risks for the most-exposed person (rather than just by the middle of a census block) EPA violates this provision.

[268] SAB, "Review of EPA's Screening Methodologies to Support Risk and Technology Reviews (RTR): A Case Study Analysis" (April 25, 2018).
[269] SAB May 2010 at 4.
[270] SAB, "Review of EPA's Screening Methodologies to Support Risk and Technology Reviews (RTR): A Case Study Analysis" (April 25, 2018).

EPA's failure to adjust receptor points for residents living on the fence-line is particularly inexcusable given that the HEM-AERMOD system allows for such an adjustment, and that such an adjustment was appropriately made for the estimation of acute health risks.[271] Having recognized that the maximum exposed individual for acute risks is likely present at the fenceline, EPA cannot justify failing to analyze cancer and other chronic health effects in a similar manner.

2. EPA Unlawfully And Arbitrarily Chose Less Protective Risk Values, And Assigned Zero Risk To Pollutants When It Lacked Risk Information.

EPA admitted that it did not have dose-response values for all of the HAPs it considered in its risk assessment. RRA at 54. EPA stated that "where we conclude similarity with a HAP for which a dose-response assessment value is available, we use that value as a surrogate for the assessment of the HAP for which no value is available." *Id.* However, EPA also stated that some HAPs were not included in its quantitative risk assessment because EPA lacked dose-response values for them and, apparently, did not believe any other HAPs were similar enough to use as surrogates. *Id.* EPA did not say which HAPs these are but, EPA's failure to assess the risk for each of the HAPs that EGUs emit renders its RTR unlawful and arbitrary. If EPA assigns a zero risk to any of the HAPs EGUs emit, its assessment of the risk from EGUs is unlawful and arbitrary. If there is anything EPA knows about HAPs, it is that the risk of exposure to them is not zero. EPA cannot lawfully ignore that risk. As the NAS explained, EPA should develop "explicitly stated defaults to take the place of implicit or missing defaults," and "[k]ey priorities should be development of default approaches to support risk estimation for chemicals lacking chemical-specific information to characterize individual susceptibility to cancer . . . and to develop a dose-response relationship."[272] EPA did not even provide a qualitative assessment of the additional, missing risks, or account for them in its analysis.

There are many HAPs that EPA claimed to consider in its risk assessment for which EPA did not provide any dose-response number for cancer (known as a "unit risk estimate" or URE). RRA at 38; *see* Comments submitted by James Pew, Earthjustice, on behalf of Chesapeake Climate Action Network et al., EPA-HQ-OAR-2018-0794-3364 at 21-22 & tbl. 3.1-1 (April 17, 2019). For the HAPs for which EPA has no URE, EPA apparently assumed that the cancer risk is zero. EPA cannot assume that a pollutant is not carcinogenic simply because it has not determined whether or not that pollutant causes cancer. *Sierra Club v. EPA*, 895 F.3d 1, 10-11 (D.C. Cir. 2018). Indeed, *Sierra Club* expressly rejects EPA's claims that hydrogen chloride, hydrogen fluoride "pose no cancer risk." *Id.* at 11.

EPA also lacks dose-response numbers for non-cancer from some of the HAPs it claims to have considered. RRA at 38. For example, EPA provides no non-cancer risk number for polycyclic organic matter, *id.*, even though it is well known that POM causes many serious non-cancer health harms, including birth defects,[273] asthma-related symptoms for babies and young

[271] 83 Fed. Reg. at 46,273 (stating that EPA evaluated acute exposures and risks "at the point of highest off-site exposure to assess the potential risk to the maximally exposed individual," *i.e.*, not just the census block centroids).
[272] *See, e.g.*, National Research Council, National Academy of Sciences, "Science and Decisions: Advancing Risk Assessment" at 203-04, 107 (2009) ("NAS 2009"), http://www.nap.edu/catalog.php?record_id=12209.
[273] Perera FP. "DNA Damage from Polycyclic Aromatic Hydrocarbons Measured by Benzo[a]pyrene-DNA Adducts in Mothers and Newborns from Northern Manhattan, The World Trade Center Area, Poland, and China," *Cancer Epidemiology Biomarkers & Prevention* 14, no. 3 (2005):709–14.

children, diminished cognitive development with implications for diminished school performance,[274] lowered IQ,[275] and a weakened immune system.[276] By treating the non-cancer risk from POM as zero, despite strong evidence to the contrary, EPA unlawfully and arbitrarily understated the risks that EGUs present. Moreover, the mere fact that EPA lacked information on whether a pollutant presents non-cancer risks, does not mean the non-cancer risk from pollutant is zero. By pretending the non-cancer risk from HAPs for which it lacks a non-cancer dose-response value is zero when it has not shown that to be true, EPA acted unreasonably and arbitrarily. *Sierra Club*, 895 F.3d at 10-12.

Even where EPA had dose-response values, EPA arbitrarily chose low values, and that presented the risk from EGUs as lower than it actually is. For example, EPA chose to use the ASTDR MRL for manganese instead of its own reference concentration from IRIS. RRA at 27. The ASTDR MRL (.0003 mg/m^3) is more than an order of magnitude less protective than the IRIS RfC (.00005 mg/m^3). Although EPA described the former as "updated," the agency did not say why it believed the updates--which EPA did not discuss in any detail--makes this far less protective number more accurate. To issue a non-arbitrary risk assessment, EPA must do more than simply claim the less protective number it prefers is updated and, therefore, more appropriate. Making EPA's choice of the weaker number even more arbitrary is the agency's failure to even acknowledge that there is another dose-response figure that is also more protective than the ATSDR number, California EPA's RfC (0.00009 mg/m^3). EPA claimed the California EPA numbers are a source of its dose-response information. RRA at 25-27. By choosing the less protective ATSDR number over the California EPA RfC without explaining why or even acknowledging the existence of that RfC, EPA acted arbitrarily. To the extent EPA simply gave the ATSDR number a higher "priority" than those from the California EPA without explaining why it is doing so in this situation, *id.* at 25, the agency's approach was unreasonable and arbitrary. *Sierra Club*, 895 F.3d at 11-12.

For mercury, EPA used its own RfC of .0003 mg/m^3, again ignoring California EPA's RfC which is ten times more protective (.00003 mg/m^3). EPA provided no explanation for this choice and did not even recognize the existence of the more protective number, rendering its decision arbitrary. To the extent EPA simply gives its own numbers a higher "priority" than those from the California EPA, *id.* at 25, the agency's approach has already been held to be unreasonable and arbitrary. *Sierra Club*, 895 F.3d at 11-12. EPA admitted that it lacks dose-

[274] Perera FP, Rauh V, Tsai WY, Kinney P, Camann D, et al. "Effects of transplacental exposure to environmental pollutants on birth outcomes in amultiethnic population," *Environmental Health Perspective* 111 (2003): 201–205. Perera FP et. al. "Effect of Prenatal Exposure to Airborne Polycyclic Aromatic Hydrocarbons on Neurodevelopment in the First 3 Years of Life among Inner-City Children," *Environmental Health Perspective* 114 (2006):1287–1292.
[275] Perera, FP et. al. "Prenatal Airborne Polycyclic Aromatic Hydrocarbon Exposure and Child IQ at Age 5 Years" *Pediatrics* 124 (2009):e195–e202.
[276] Bolton, J., Trush, M.A., Penning, T.M., Dryhurst, G., & Monks, T.J. (2000). Role of Quinones in Toxicology. Chemical Research in Toxicology, 13(3), 135–160. doi: 10.1021/tx99; Hew, K. M., Walker, A. I., Kohli, A., Garcia, M., Syed, A., McDonald-Hyman, C., Noth, E. M., Mann, J. K., Pratt, B., Balmes, J., Hammond, S. K., Eisen, E. A., & Nadeau, K. C. (2015). Childhood exposure to ambient polycyclic aromatic hydrocarbons is linked to epigenetic modifications and impaired systemic immunity in T cells. Clinical and experimental allergy; Journal of the British Society for Allergy and Clinical Immunology, 45(1), 238–248. https://doi.org/10.1111/cea.12377; Yu, Y. Y., Jin, H., & Lu, Q. (2022). Effect of polycyclic aromatic hydrocarbons on immunity. Journal of translational autoimmunity, 5, 100177. https://doi.org/10.1016/j.jtauto.2022.100177.

response values "[f]or certain HAP." RRA at 27. Among these are acrolein, glycol ethers, and carbonyl sulfide.

It is unlawful under Section 112(f)(2), arbitrary, and capricious for EPA not to assess risk at all from any HAP, because it ignores risks EPA knows exist and which led Congress to list that pollutant under Section 112(b)(1), and conflicts with scientific evidence before the agency. Just as *National Lime Association*, 233 F.3d at 642, requires EPA to set emission limits for all HAPs, EPA must assess the health risk for all listed HAPs. EPA may not, as it stated here, just write off the amount of a highly dangerous pollutant even if EPA believes it is "not emitted in appreciable quantities (0.001 tpy)" (notwithstanding its underestimation of emissions).[277] Pollutants like PCBs are highly toxic and persistent in the environment, creating reservoirs of future exposure by contaminating soil and dust, and fish that people will eventually eat. EPA cannot write off the long-term and multi-pathway impacts that such toxic chemicals can have when they are emitted pollutants that the Act requires EPA to regulate.

Where there is no reference value for a pollutant, EPA may not simply *ignore* health risks associated with these pollutants completely in its analysis by hiding behind uncertainty. Section 112 requires EPA to address and regulate all emitted HAPs. An understatement of risk for pollutants that are excluded from the analysis is *certain* because EPA has performed no quantitative assessment of health risk for those pollutants *at all*. The absence of a reference value means that EPA does not know by how much it is *underestimating* risk to human health, but it does know that its assessment is an underestimation.

As the NAS explained, it is a problem that "agents that have not been examined sufficiently in epidemiologic or toxicologic studies are insufficiently included in or even excluded from risk assessments" by EPA.[278] Many chemicals have no cancer slope factor, RfD, or RfC.[279] It is not appropriate to treat such compounds "as though they pose no risk that should be subject to regulation."[280] The NAS has recommended that EPA develop "explicit defaults to use in place of missing defaults," including for its "untested-chemical assumption," *i.e.*, that a chemical with no reference value poses no risk.[281] In the absence of an available reference dose, EPA must, at minimum, add an uncertainty factor to account for the additional risk that a HAP likely causes, until such time as EPA does have a reference value to use. Using a protective uncertainty factor--developed based on the best available science--would allow EPA to satisfy its legal duty under Section 112(f)(2) to prevent unacceptable health risk, and ensure an "ample margin of safety to protect public health." 42 U.S.C. § 7412(f)(2). The NAS has described an approach EPA can use to account for this risk, and explained that this approach "is based on the notion that for virtually all chemicals it is possible to say *something* about the uncertainty distribution regarding dose-response relationships."[282] For example, EPA can use information on chemical structure, available toxicologic tests and model or experimental data, and data on similar chemicals that have been well-studied.[283]

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[277] 79 Fed. Reg. at 36,936.
[278] NAS 2009, at 193.
[279] *Id*. at 203.
[280] *Id.* at 193.
[281] *Id.* at 203.
[282] NAS 2009, at 203 (emphasis added).
[283] *Id.* at 204.

For pollutants currently under IRIS assessment, EPA must use the best available scientific information from the IRIS review during current rulemakings.[284] At minimum, EPA was required to account for the lack of reference values or the lack of an up-to-date final IRIS assessment and failed to do so.

3. EPA Must Recognize that Chronic (Non-Cancer) Risk-Causing Pollutants Have No Safe Level of Exposure.

NAS recommends that cancer and chronic non-cancer risk assessment use the same approach in order to address the fact that very low levels of non-carcinogen exposures can pose health risks.[285] The use of reference doses ("RfDs") for dose-response risk assessment of chronic noncancer health effects may significantly underestimate risk according to NAS.[286] For this reason, EPA should have followed the NAS recommendation to use similar approaches for chronic non-cancer as for cancer risk assessment, which assumes deleterious health effects for any amount of exposure.

For 400 years the foundation of toxicology has been the concept of "the dose makes the poison" which is a presumption that health effects are related to dose, and that a dose can be found for virtually all chemicals where no effect is found. Medical scientists are now pointing out two important contradictions to this pillar of toxicology. The greatest public health threat of chemicals is for fetal exposure and the dose may be less important than the timing, *i.e.*, does the exposure occur during a critical window of embryonic development? The second contradiction is the idea that the smaller the dose, the less effect. Medicine is now discovering that for some toxic chemicals, the clinical effect can actually increase as the chemical concentration decreases and that there is no safe level of exposure.

The extraordinary vulnerability of in utero development makes reducing EGU emissions an urgent public health matter. This risk was specifically addressed by a recent joint public statement by the American College of Obstetricians and Gynecologists and the American Society for Reproductive Medicine.[287] A recent panel of 12 national endocrine disruptor specialists recently wrote a review of the medical literature and made this comment: "[for] every chemical that we looked at that we could find a low-dose cutoff, if it had been studied at low doses it had an effect at low doses."[288] Finally, a report published in The New England Journal of Medicine, regarding the toxicity of volatilized compounds from oil made these important statements illustrating the risk from small exposure to toxic agents:

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[284] Integrated Risk Information System (IRIS); Announcement of 2012 Program, 77 Fed. Reg. 26,751 (May 7, 2012).
[285] NAS 2009, at 265-266.
[286] NRDC Issue Paper, Strengthening Toxic Chemical Risk Assessments to Protect Human Health at 10 (Feb. 2012), https://www.nrdc.org/sites/default/files/strengthening-toxic-chemical-risk-assessments-report.pdf.
[287] American College of Obstetricians and Gynecologists Committee on Health Care for Underserved Women, American Society for Reproductive Medicine Practice Committee, Committee Opinion No. 575, Exposure to Toxic Environmental Agents (Oct. 2013).
[288] Vandenberg L, et al. Hormones and endocrine-disrupting chemicals: low-dose effects and nonmonotonic dose responses. Endocrine Rev; doi:10.1210/er.2011-1050 [online 14 Mar 2012], available at https://pmc.ncbi.nlm.nih.gov/articles/PMC3365860/.

- "Mutagenic effects theoretically can result from a single molecular DNA alteration. Regulatory prudence has led to the use of "one-hit models" for mutagenic end points, particularly cancer, in which every molecule of a carcinogen is presumed to pose a risk."
- "Pregnant women should particularly avoid dermal contact with oil and should avoid areas with visible oil contamination or odors."[289]

The medical community's growing recognition of this science illustrates the exquisite sensitivity that the developing fetus has to toxic agents at extremely small doses, and the fact that EPA needs to evaluate non-cancer chronic risk similarly to cancer risk: in recognizing that there is no safe level of human exposure.

4. To Assess The Risk To The Most Exposed Person, EPA Must Account For Individual Level Vulnerability And Variability.

EPA is legally required under Section 112(f)(2) to assess the health risks to the "individual most exposed" to EGU emissions. 42 U.S.C. § 7412(f)(2). EPA's failure to account for vulnerability and variability based on the current science, particularly the science addressing early-life and socioeconomic factors in the risk related to exposure, has led EPA to underestimate the health risks from EGUs to the most-exposed individuals.

First, the NAS reports and other new scientific and policy developments direct that EPA must better account for vulnerability and variability.[290] In particular, the science is now clear that "children are not 'little adults'" when it comes to toxic chemicals.[291] They are both susceptible to greater harm from exposure to toxic chemicals, because they are still growing and developing, *and* they are exposed to such chemicals at a greater rate than adults because of age-specific behaviors and physiological characteristics.

Second, EPA must also better account for other types of human variability because some people exposed to the same amount of a pollutant experience greater health risk due to other factors, such as genetics and baseline health status. Socioeconomic status has been shown to act as a proxy for other types of human variability to chemical risk that EPA has not adequately addressed in its risk assessment for the EGUs rule.[292]

EPA acted unlawfully and arbitrarily in its 2019 residual risk assessment by not addressing the greater risk to children (including from early-in-life exposure to toxic chemicals), and other important types of human variability.

[289] Goldstein B, Osofsky H, Lichtveld M. The Gulf Oil Spill N Engl J Med 2011; 364:1334-1348 April 7, 2011.
[290] NAS 2009.
[291] National Research Council, "Pesticides in the Diets of Infants and Children" at 3 (1993).
[292] Draft Risk Assessment, EPA-HQ-OAR-2010-0682-0225.

5. Cancer: Promulgate Standards To Reduce Cancer Risks To Less Than One In One Million.

EPA unlawfully failed to promulgate standards pursuant to Section 112(f)(2) to reduce lifetime excess cancer risks to the individual most exposed to EGU emissions to less than one in one million. The third sentence of Section 112(f)(2) provides:

> If standards promulgated pursuant to subsection (d) and applicable to a category or subcategory of sources emitting a pollutant (or pollutants) classified as a known, probable or possible human carcinogen do not reduce lifetime excess cancer risks to the individual most exposed to emissions from a source in the category or subcategory to less than one in one million, the Administrator shall promulgate standards under this subsection for such source category.

Here, EGUs emit known, probable, or possible carcinogens, and the Section 112(d) standards for EGUs do not reduce lifetime excess cancer risks to the individual most exposed to less than one in one million. Thus, the statute requires EPA to "promulgate standards under this subsection for such source category" to "reduce lifetime excess cancer risks" below one in one million. That is the "best reading of the statute" and the meaning that controls and the meaning that EPA must follow and implement, regardless of whether the agency's earlier interpretation was "reasonable." *Loper Bright Enterprises v. Raimondo*, 603 U.S. 369, 400 (2024). And that is the only interpretation that gives effect to the third sentence of Section 112(f)(2)(A) and does not render it surplusage. *Nat'l Ass'n of Mfrs. v. Dep't of Defense*, 583 U.S. 109, 128-29 (2018) (rejecting a statutory interpretation that would result in surplusage and stating that "the Court is 'obliged to give effect, if possible, to every word Congress used.'"). The commenters' interpretation also comports with the language of Section 112(f)(2)(B), which references EPA's emission standard for benzene. Section 112(f)(2)(B) functions as a savings clause that preserves EPA's regulations regarding benzene, but does not bear on the interpretation for other regulations. EPA's failure to promulgate standards reducing lifetime excess cancer risks to less than one in one million directly contravenes the Act.

6. Risk Is Unacceptable Even Where The MIR Is 100-in-1 Million Or Below.

EPA assumes that it is possible to find a safe or acceptable level of cancer and other kinds of health risks. This assumption is outdated and inconsistent with currently available science, and it is arbitrary for EPA to continue to apply it. Currently available science debunks this assumption because there is so much uncertainty built into EPA's risk assessment, and because EPA lacks information on so many pollutants. For communities overburdened by pollution, EPA's use of this assumption is especially problematic.

Cancer risk from a major industrial source category of toxic air pollution (listed under Section 112) that is 100-in-1 million or less cannot be presumed safe or "acceptable." Since 1990, however, EPA has made this assumption. EPA based this assumption not on scientific information about cancer risk, but on an unusual study of people's perceptions of their own risk from 1988, known as the Survey of Societal Risk (July 1988), to consider various types of health

risks at that time.[293] Using a comparison of cancer risk to other kinds of hazards Americans then faced in their daily lives, EPA effectively chose a number out of a hat that it would consider acceptable. EPA looked at an odd collection of risks, such as dangers from driving a car, and found that "the presumptive level established for MIR [maximum individual risk of cancer] of approximately 1 in 10 thousand is within the range for individual risk in the survey, and provides health protection at a level lower than many other risks common 'in the world in which we live.'"[294]

EPA has failed to revisit or update this number for the decades since, even though scientists have made breakthroughs on early-life exposure and children's vulnerability; biomonitoring and other data on adult body burdens of chemicals; the vulnerability of overburdened communities, including socioeconomic disparities; and on ways to analyze and control the impacts of pollutants on human health.[295] EPA arbitrarily failed to take such relevant information into account. Indeed, EPA's own policy regarding carcinogens recognizes that they have no safe threshold of exposure. EPA has appropriately recognized that cancer risks add up to an increased lifetime risk. EPA cannot reconcile what it knows--and does not know--about carcinogens with its outdated presumption that a cancer risk of 100-in-1 million is acceptable.

Importantly, EPA's presumption regarding cancer risk ignores the experience of communities exposed to multiple sources and types of sources of pollution. Even if some level of risk might otherwise be acceptable, that cannot be assumed to be true for communities exposed to more than one source that is causing that level of health risk. EPA has a responsibility to address the science on cumulative impacts and risk and update its assumptions accordingly, to acknowledge that cancer risks below 100-in-1 million cannot be presumed safe.

EPA found that the health risks it has identified are acceptable. EPA based its proposed acceptability determination mainly on the fact that the cancer risks (MIR) from inhalation are below 100-in-1 million, "which is [EPA's] presumptive limit of acceptability." *Id.* This overly narrow view fails on its own terms. Moreover, EPA has significantly underestimated the cancer risk from inhalation. If EPA addressed any of the above science outlined on this point, including the fact that it is underestimating the risk from early exposure, it would likely find the inhalation-based cancer risk exceeds even EPA's presumptive limit. EPA has also underestimated the cancer risk from multipathway exposure. If EPA fully assesses multipathway cancer risk and adds that to the inhalation risk, that is also likely to exceed EPA's presumptive limit. The combination of cancer, and high chronic non-cancer and acute risks, together, create unacceptable risk, particularly where EPA has underestimated all other kinds of risk as well, as described above. The rule likely does not address all emissions, particularly fugitive emissions. Lastly, it is inconsistent with the Clean Air Act's health-protection purpose to allow the high health risks caused by EGUs to fall disproportionately on communities of color and lower income communities who are least equipped to deal with the resulting health effects.

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[293] Benzene Rule Docket No. OAQPS 79-3, Part I, Docket Item X-B-1, EPA Air Docket (cited at Nat'l Emission Standards for Hazardous Air Pollutants; Benzene Emissions from Maleic Anhydride Plants, Ethylbenzene/Styrene Plants, Benzene Storage Vessels, Benzene Equipment Leaks, and Coke By-Product Recovery Plants, 53 Fed. Reg. 28,496, at 28,512-13 (July 28, 1988)).

[294] 54 Fed. Reg. 38,044, 38,046 (Sept. 14, 1989) (emphasis added) (quotation omitted).

[295] *See* Comments of Chesapeake Climate Action Network et al., EPA-HQ-OAR-2018-0794-3364 at 50-53 (listing landmarks and scientific breakthroughs since 1990).

H. EPA Must Provide an Ample Margin of Safety.

Regardless of whether EPA thinks the current level of risk from EGUs is "acceptable," EPA must determine whether stronger standards are "required in order to provide an ample margin of safety to protect public health." 42 U.S.C. sec. 7412(f)(2). The D.C. Circuit has confirmed that, where the Clean Air Act demands an "ample margin of safety," EPA must provide one. *Sierra Club*, 895 F.3d at 12-13.

EPA's statement that its existing standards do provide an ample margin of safety to protect public health lacks record support and is arbitrary and unlawful. It is based entirely on EPA's claim that the remaining risks from EGUs are low, that reductions from "available control options would result in minimal health benefits," and that "no additional measures were identified for reducing HAP emissions" from EGUs.[296] EPA did not identify any "margin of safety" provided by its existing standards, let alone explain how that unidentified margin is "ample." EPA's opinion that the risks from EGUs are low fails to identify an ample margin of safety or show that one exists. The same is true with respect to EPA's claims about "available control options" and the health benefits they would confer. Thus, EPA's claim that its existing standards do not need to be changed in fact says nothing about whether those standards provide an ample margin of safety.

Whether or not EPA thinks the risks from EGUs are acceptable, a cancer risk level of 60-in-1-million or even 50-in-1-million is not "low." Moreover, EPA has significantly understated the risk from EGUs by, inter alia, ignoring the vast majority of EGUs' emissions of organic HAPs, many of which are carcinogenic. Without considering the risk from these HAPs, EPA cannot possibly know whether the risks from EGUs are either "low" or "acceptable," let alone claim they provide an "ample margin of safety to protect public health." Also, there are "additional measures for reducing HAP emissions," and they would confer health benefits. Most obviously, EPA could set limits to reduce EGUs' organic HAP emissions instead of pretending these emissions do not exist. EPA's failure to even consider these points renders unlawful and arbitrary the agency's claim to have provided an ample margin of safety and the agency's refusal to set stronger limits for the pollutants that are covered by the existing EGU standards and new limits to control organic HAPs.

1. Cancer: Account For Increased Early Life Susceptibility By Using Age-Dependent Adjustment Factors For All Carcinogens.

EPA's cancer risk assessment for EGUs does not adequately account for early-life exposure or the greater risk to and susceptibility of children. EPA must follow the science and account for increased early-life susceptibility by applying age-dependent adjustment factors for *all carcinogens* emitted by a source category. EPA has restricted its application of age-dependent adjustment factors, as discussed in the 2005 *Guidelines* and *Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens*, to those HAPs included in

[296] 85 Fed. Reg. at 31,317; *see also* 78 Fed. Reg. 24,854 (Apr. 24, 2023).

EPA's list of carcinogens that act by a mutagenic mode of action.[297] EPA therefore has not applied age-dependent adjustment factors to assess cancer risk from all of the carcinogens emitted by EGUs. The NAS recognized this as a "missing" default in EPA's approach that it should address and account for.[298]

EPA must follow the science showing the need to use age-dependent adjustment factors for all carcinogens.[299] Because OEHHA has provided robust scientific support for this approach, using these factors to assess cancer risk for all carcinogens would be consistent with the NAS recommendations. As the NAS explained in 2009: "EPA needs methods for explicitly considering in cancer risk assessment . . . chemicals that do not meet the threshold of evidence that the agency is considering for judging whether a chemical has a mutagenic mode of action . . . . Special attention should be given to hormonally active compounds and genotoxic chemicals that do not meet the threshold of evidence requirements."[300] The 2005 Guidelines recognized that updates would be needed if more data become available.[301] Now that such data are available, including from the NAS and OEHHA, to follow even EPA's own guidelines, the agency must update its approach and implement age-dependent adjustment factors for all carcinogens.[302]

2. Cancer: Pre-Natal Susceptibility: Account For Increased Susceptibility To Pre-Natal Exposures By Using Pre-Natal Adjustment Factors For All Carcinogens.

EPA's risk assessment also does not take into account increased susceptibility to carcinogens due to pre-natal exposures, even for known-to-be mutagenic carcinogens.[303] The 2005 Supplemental Guidance recognized the scientific findings of increased susceptibility to carcinogens resulting from pre-natal exposure, but did not develop adjustment factors to account for increased cancer risk resulting from pre-natal exposures.[304] For example, EPA recognized that "[e]xposures that are of concern extend from conception through adolescence and also include pre-conception exposures of both parents."[305] The NAS identified the lack of accounting for "*in utero* periods" of exposure as a major omission in EPA's 2005 cancer guidelines.[306]

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[297] Draft Risk Assessment, EPA-HQ-OAR-2010-0682-0225 at 29-30; *See* EPA, "Guidelines for Carcinogen Risk Assessment," EPA/630/P-03/001F, at 1-19 to 1-20 (Mar. 2005); EPA, "Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens," EPA/630/R-03/003F (2005).
[298] NAS 2009, at 196 (Tbl. 6-3 - Examples of "Missing" Defaults in EPA "Default" Dose-Response Assessments).
[299] Cal. EPA, OEHHA, "Technical Support Document for Cancer Potency Factors: Methodologies for Derivation, Listing of Available Values, and Adjustments to Allow for Early Life Stage Exposures" 3-4, 50-51 (May 2009).
[300] NAS 2009, at 112 (ch. 4) (describing the fact that "*in utero* periods and nonmutagenic chemicals were not covered" by EPA's 2005 guidelines, as significant omissions).
[301] *See* EPA, "Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens," EPA/630/R-03/003F at 21, 31 (2005) ("EPA expects to expand this Supplemental Guidance to specifically address modes of action other than mutagenicity when sufficient data are available and analyzed.").
[302] Cal. EPA, OEHHA, TSD for Cancer Potency Factors.
[303] Draft Risk Assessment, EPA-HQ-OAR-2010-0682-0225 at 29 (noting that EPA applied factors only to known mutagens to account for "children aged 0-1" but not younger than that).
[304] EPA, "Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens," EPA/630/R-03/003F at 4-5, 14 & tbl. 1a (A-1) (discussing research on human and animal cancer risks from prenatal exposure).
[305] EPA, "Guidelines for Carcinogen Risk Assessment," EPA/630/P-03/001F, at 1-16.
[306] NAS 2009, at 112-13; *see also id.* at 112, 196 (noting that it is a "missing" default that EPA recognizes in utero carcinogenic activity, but fails to take account of it or calculate any risk for it as "EPA treats the prenatal period as devoid of sensitivity to carcinogenicity").

OEHHA conducted its own review of the scientific literature to account for pre-natal susceptibility and exposures, which EPA should also consult and use.[307] It has also developed methods and adjustment factors to account for pre-natal susceptibility and exposures that EPA should use.[308] In its risk assessment guidelines and risk assessment manual, OEHHA includes procedures for exposure assessment during fetal development, which EPA should evaluate.[309] OEHHA specifically discusses the use of a 10X adjustment factor for cancer risk to account for pre-natal (third trimester) to age two exposures, and EPA should consider using this same factor.[310] EPA should consult the science OEHHA has used to develop this well-supported factor, and should then use at least a 10X adjustment factor for all carcinogens to assess health risk due to pre-natal exposure. As EPA's rules are insufficient to protect humans at the critical stage of embryonic development, they simply are failing to protect public health. Exposure to toxic agents in the intrauterine stage of life has one of the most important impacts on lifelong health, and can be irreversible.

3. Chronic Non-Cancer Risk: EPA Must Consult And Apply Child-Specific Reference Values, Where Available.

Most of EPA's IRIS toxicity threshold values (reference concentrations and reference doses) used for chronic non-cancer risk assessment do not incorporate the latest science on increased susceptibility of children.[311] EPA needs to account for early exposure and the greater risk to and susceptibility of children in its risk assessment, including for nickel, cadmium, manganese and lead. EPA has recognized these are emitted by EGUs.

OEHHA child-specific health values include reference doses for cadmium, manganese, nickel, pentachlorophenol, and a benchmark for lead.[312] OEHHA has generated these child-specific reference values based on the latest science to take into account children's greater exposure and greater vulnerability. Until the IRIS values fully account for the increased risk caused by early-life exposure to an emitted pollutant, EPA should use the OEHHA child-specific reference doses or benchmarks available to assess chronic non-cancer health risk from ingestion for certain pollutants. EPA should also assess such risk from inhalation by using standard

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[307] *See* Cal. EPA, OEHHA, TSD for Cancer Potency Factors, App. J: "In Utero and Early Life Susceptibility to Carcinogens: The Derivationko of Age-at-Exposure Sensitivity Measures" – conducted by OEHHA's Reproductive and Cancer Hazard Assessment Branch." http://oehha.ca.gov/air/hot_spots/2009/AppendixJEarly.pdf.
[308] *Id.* App. J at 7-8 & tbl. 1.
[309] *See* Cal. EPA, *Air Toxics Hot Spots Program Risk Assessment Guidelines: Technical Support Document for Exposure Assessment and Stochastic Analysis* at 1-6 to 1-7 (Aug. 27, 2012) ("OEHHA 2012 Guidelines"), http://www.oehha.ca.gov/air/hot_spots/tsd082712.html.
[310] *See id.*; http://oehha.ca.gov/air/hot_spots/riskguidancedraft2014.html OEHHA, Air Toxics Hot Spots Program Guidance Manual (Draft) at 8-4 (2014), http://oehha.ca.gov/air/hot_spots/riskguidancedraft2014.html.
[311] OEHHA has explained why child-specific reference doses or values are needed and provided a list of chemicals. *See, e.g.*, Cal. EPA, OEHHA, "Prioritization of Toxic Air Contaminants – Children's Environmental Health Protection Act" (Oct. 2001) http://oehha.ca.gov/air/toxic_contaminants/pdf_zip/SB25 TAC prioritization.pdf; Cal. EPA, OEHHA, "Development of Health Criteria for School Site Risk Assessment Pursuant to Health and Safety Code 901(g): Identification of Potential Chemical Contaminants of Concern at California School Sites, Final Report" (June 2002) http://oehha.ca.gov/public_info/public/kids/pdf/ChildHealthreport60702.pdf.
[312] A full list, with links to each scientific determination document, is available here: OEHHA, Table of all child chRDs Finalized to Date (last updated 06/22/09), http://oehha.ca.gov/public_info/public/kids/chrdtable.html.

methods to translate these values into child-specific reference concentrations to assess inhalation-based risk.

4. Chronic Non-Cancer Risk: EPA Erred In Failing To Use An Additional Default Or Uncertainty Factor To Account For Early Exposure Impacts, Where Child-Specific Reference Values Are Unavailable.

Nevertheless, EPA must account for children's susceptibility in its risk assessment, and its failure to do so is arbitrary and unlawful. Until EPA has child-specific or child-based reference values available for a given pollutant, EPA should apply a default or uncertainty factor of at least 10 to account for increased risk from early-life exposures for non-cancer risk. This would be consistent with the NAS recommendation on the need for EPA to use default factors to account for greater risk,[313] with the science developed and considered by OEHHA, and with the 10X factor enacted by Congress in the Food Quality Protection Act. Yet EPA did not do so. Specifically, as the SAB report explained:

> California EPA/OEHHA has determined that inhalation dosimetry for children is sufficiently different from adults to warrant a full 10-fold intra-individual pharmacokinetic uncertainty factor (i.e., an extra 3-fold PK uncertainty for children relative to the IRIS method) as a default approach. In setting non-cancer reference exposure levels (RELs), Cal EPA/OEHHA also considers that children may be outliers in terms of chemical susceptibility and on a case-specific basis adds a children's pharmacodynamic factor of 3-fold, making the inhalation risk for children as much as 10 times greater than adults.[314]

In addition, Congress has recognized this science in its unanimous vote on toxics legislation passed in 1996 – the Food Quality Protection Act ("FQPA") – in which Congress found the need to use, and enacted, a Ten-fold Margin of Safety, or "10X factor." Specifically, the Act provides that "an additional tenfold margin of safety for the pesticide chemical residue and other sources of exposure shall be applied for infants and children to take into account potential pre- and post-natal toxicity and completeness of the data with respect to exposure and toxicity to infants and children."[315] Congress's recognition of the need to use this default factor provides a model that EPA should consider and incorporate into its residual risk assessment.

It would be appropriate and within EPA's authority under Clean Air Act Section 112(f)(2) to determine that EPA must similarly use a children's ten-fold margin of safety factor here, to fulfill the Clean Air Act's "margin of safety" requirement. 42 U.S.C. sec. 7412(f)(2). In doing so, EPA may rely directly on the science itself, and also on the unanimous guidance from Congress, provided in the FQPA, that the existing evidence of increased harm requires significant action to protect children from toxic exposure.

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[313] NAS 2009 at 190-93, 203.

[314] Cal. EPA, OEHHA, "Technical Support Document for Cancer Potency Factors: Methodologies for Derivation, Listing of Available Values, and Adjustments to Allow for Early Life Stage Exposures" 3-4, 50-51 (May 2009), https://oehha.ca.gov/sites/default/files/media/downloads/crnr/tsdcancerpotency.pdf.

[315] 21 U.S.C. § 346a(b)(2)(C) (requiring that, in establishing, modifying, leaving in effect, or revoking a tolerance or exemption for a pesticide chemical residue, "for purposes of clause (ii)(I) an additional tenfold margin of safety for the pesticide chemical residue and other sources of exposure shall be applied" to protect infants and children).

Further, the child-specific reference doses that OEHHA has created for some pollutants provide support for the use of an additional ten-fold Margin of Safety Factor. EPA's current reference values are generally one order of magnitude less protective (*i.e.*, larger) than the values that California has recognized as needed to protect children, based on the currently available science and a specific assessment of research relevant to early life exposures. EPA can have no valid basis for ignoring science showing that pollutants other than carcinogens also can cause substantial harm even at low doses if exposure occurs *in utero* and during the early windows of vulnerability.

I. EPA Must Consider New Scientific Data Showing The Health Risks From Coal Power Plant Emissions

EGUs emit heavy metals including arsenic, cadmium, hexavalent chromium, and nickel. A new study published in the *Journal of the American College of Cardiology* in June 2025 found that people who are exposed to metals in their surrounding environments are at higher risk of heart failure.[316] The study examined health data and found links between exposure to metals in soil, water, and air, and heart failure. For instance, the study found that rural American Indian people had a 55% higher likelihood of heart failure when exposed to an environmental mix of metals including arsenic, cadmium, molybdenum, selenium, and zinc. The study also found that adults in certain urban and suburban areas of the United States had a 38% higher risk of heart failure when exposed to environmental metals.

EPA's own, recent health assessment of arsenic reveals that arsenic is more dangerous to people than previously understood. EPA posted a final report on its IRIS Toxicological Review of Inorganic Arsenic and updated key IRIS values for inorganic arsenic in January 2025.[317] Among other things, the 2025 IRIS review for arsenic found that "currently available evidence demonstrates that [inorganic arsenic] causes diseases of the circulatory system (DCS) and diabetes in humans given sufficient exposure conditions." Support for that finding includes evidence of increased heart disease and hypertension, as well as cardiovascular disease. EPA also found that "currently available evidence indicates that inorganic arsenic likely causes fetal, newborn, and infant health outcomes and neurodevelopmental effects in humans given sufficient exposure conditions." Support for that finding includes evidence of fetal and infant mortality, inverse fetal and post-natal growth, length of gestation or birth weight, and cognitive and behavioral deficits in children and adolescents. EPA used this scientific information in the IRIS review to derive reference doses for noncancer outcomes associated with inorganic arsenic exposure and cancer slope factors for cancer outcomes.

EPA also found that arsenic is a far more potent carcinogen than previously understood. EPA's prior cancer slope factor for ingestion is 1.5 per mg/kg-BW/day (a factor that was last

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[316] Martinez-Morata, I, Domingo-Relloso, A, Mayer, M. et al. *Associations Between Urinary Metal Levels and Incident Heart Failure: A Multi-Cohort Analysis*. 13 J Am Coll Cardiol HF. (2025)) https://doi.org/10.1016/j.jchf.2025.03.046 (abstract).

[317] EPA, *IRIS Toxicological Review of Inorganic Arsenic, CASRN 7440-38-2*, at xiv (Jan. 2025) https://iris.epa.gov/static/pdfs/0278tr.pdf; EPA, *IRIS Toxicological Review of Inorganic Arsenic (Summary)*, *CASRN 7440-38-2*, at 1 (Jan. 2025), https://iris.epa.gov/static/pdfs/0278_summary.pdf; *see also*, *generally*, EPA, IRIS: Arsenic, Inorganic, https://iris.epa.gov/document/&deid=363892 (last updated Jan. 13, 2025) (collecting materials supporting the IRIS review).

updated in 1991), which it applied in its assessment of the multipathway ingestion risk for cancer. *See* RRA at 38. EPA's newly adopted risk factor, which has been cited as credible by EPA's SAB, is 32 per mg/kg-BW/day – a significantly more potent cancer slope factor compared to the slope factor utilized in EPA's multipathway analysis for arsenic in the 2019 draft risk assessment and remained the same in the final 2020 RRA.[318]

By applying the outdated cancer slope factor, EPA is significantly underestimating cancer risks from arsenic exposure. The final RRA determined that the maximum individual risk for inhalation cancer risk was 9-in-1 million for the source category, driven by nickel compounds. In a separate multipathway assessment, EPA evaluated cancer risk from persistent and bioaccumulative HAPs (PB-HAPs) and conducted a Tier 3 screening, which is done only when facilities show potential health risks after passing through Tier 1 and Tier 2 screening assessments. In its Tier 3 screening assessment, EPA found ingestion cancer risk of 50-in-1-million, driven by arsenic. At the time, EPA's screening value was lower than 100-in-1 million and chose not to conduct a site-specific assessment for cancer, however, by applying the updated arsenic cancer slope factor (32 mg/kg/day compared to 1.5 mg/kg/day), results in a screening level of ~1067-in-1 million. Here, all parameters in the risk calculation stay the same except the cancer slope factor, which represents a 21.3x increased cancer potency. In this scenario, EPA's presumptive threshold of 100-in-1 million is significantly exceeded and would trigger a more refined site-specific multipathway assessment for arsenic, which EPA did not do in the original analysis.

Importantly, the Tier 3 screening found the gardener scenario (consuming home-grown produce and incidental soil ingestion) had the highest arsenic exposure and this represents the exposure pathway of greatest concern. While the screening values represent conservative, upper-bound estimates and actual risk is likely to be lower than 1067-in-1 million, risk is not likely to be reduced below 100-in-1 million without reducing emissions. EPA must conduct a site-specific assessment utilizing the best available science, which is the IRIS arsenic cancer slope factor.

The above-mentioned health risk information and data must be considered by EPA, including in its evaluation of the health benefits of the 2024 Rule, and in its assessment of the residual risks. EPA's 2019 risk assessment is obsolete and incomplete in the absence of consideration of the up-to-date scientific information about the health risks of arsenic and other heavy metals.

Moreover, EPA must create a combined cancer risk value that includes inhalation and multipathway risks of cancer. It is also a basic scientific principle that additional exposure to carcinogens causes additional cancer risk, such that the cancer risks are additive. That is, the more carcinogens a person is exposed to, the greater their risk of cancer over their lifetime, and cancer risks should be summed together. EPA has codified that scientific principle in its own guidelines.[319] EPA found the multipathway cancer risks were 50-in-1- million, for the Tier 3

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[318] *Id.*

[319] *See, e.g.*, Petroleum Refining Sector Final RRA at 34, EPA-HQ-OAR-2010-0682-0800 ("To combine risks across multiple carcinogens, our assessments use the mixtures guidelines' default assumption of additivity of effects and combine risks by summing them using the independence formula in the mixtures guidelines.") (citing EPA, Guidelines for the Health Risk Assessment of Chemical Mixtures, EPA-630-R-98-002 (1986)); EPA, Supplementary Guidance for Conducting Health Risk Assessment of Chemical Mixtures at 73, 125 & A-9, EPA-630/R-00- 002 (2000)).

screening assessment and would be significantly higher if the assessment was updated to account for the IRIS arsenic cancer slope factor. Yet, EPA did not add that to the inhalation risk—which, is 9-in-1 million for the source category. Doing so would show an even higher cancer risk (59-in-1 million utilizing the outdated arsenic cancer value vs. 1076-in-1 million utilizing the updated value) for the person most-exposed to this source category's emissions through both breathing and eating produce grown near an EGU source.

The purpose of the multipathway assessment is to allow EPA to look overall at a person's exposure—not just inhalation, and not just other exposure pathways, in isolation. To do so, EPA must add inhalation and multipathway risk. Failing to add up each type of risk to come up with a total cancer risk value makes EPA's overall risk assessment incomplete. EPA must assess the total cancer risk for the source category, to include all exposure pathways.

VII. EPA'S RECONSIDERATION OF THE 2024 RULE BASED ON PURPORTED IMPACTS TO COAL PLANT RETIREMENTS, GRID RELIABILITY, AND ELECTRICITY COSTS IS ARBITRARY AND CAPRICIOUS.

EPA notes in a section of the preamble titled "Summary of Authority for this Action" that Executive Order 14,154, "Unleashing American Energy," 90 Fed. Reg. 8,353 (Jan. 29, 2025), proclaimed that "it is the policy of the United States to 'protect the United States's economic and national security and military preparedness by ensuring that an abundant supply of reliable energy is readily accessible in every State and territory of the Nation'" and therefore "directed the heads of all agencies to review all existing regulations to identify agency actions that impose an undue burden on the identification, development, or use of domestic energy resource[sic], with particular attention to oil, natural gas, coal, hydropower, biofuels, critical mineral, and nuclear energy resources." 90 Fed. Reg. at 25,540. EPA explains further that "Agencies were directed to suspend, revise, or rescind all agency actions identified as unduly burdensome." *Id*. The Proposal also mentions Proclamation 10,914 of April 8, 2025, "Regulatory Relief for Certain Stationary Sources to Promote American Energy," 90 Fed. Reg. 16,777 (Apr. 21, 2025), which exempted certain coal-fired power plants from the 2024 Rule on the purported basis that "[t]he Rule places severe burdens on coal-fired power plants and, through its indirect effects, on the viability of our Nation's coal sector" and "[t]he current compliance timeline of the [2024 Rule] raises the unacceptable risk of the shutdown of many coal-fired power plants, eliminating thousands of jobs, placing our electrical grid at risk, and threatening broader, harmful economic and energy security effects." *See* 90 Fed. Reg. at 25,540.

EPA states that the review of the 2024 Rule was taken "[i]n response to these and other recent Presidential Actions" and cites five additional executive orders: (1) Executive Order 14,179, "Removing Barriers to American Leadership in Artificial Intelligence," 90 Fed. Reg. 8,741 (Jan 31, 2025); (2) Executive Order 14,192, "Unleashing Prosperity Through Deregulation," 90 Fed. Reg. 9,065 (Feb. 6, 2025); (3) Executive Order 14,262, "Strengthening the Reliability and Security of the United States Electric Grid," 90 Fed. Reg. 15,521 (Apr. 14, 2025); (4) Executive Order 14,261, "Reinvigorating America's Beautiful Clean Coal Industry and Amending Executive Order 14,241," 90 Fed. Reg. 15,517 (April 14, 2025); (5) Executive Order 14,270, "Zero-Based Regulatory Budgeting to Unleash American Energy," 90 Fed. Reg. 15,643 (Apr. 15, 2025). *See* 90 Fed. Reg. at 25,540 n. 7.

A number of these executive orders make unsubstantiated claims questioning the reliability of the U.S. power grid and its ability to meet anticipated demand. For example, Executive Order 14,262 states that "[t]he United States is experiencing an unprecedented surge in electricity demand driven by rapid technological advancements, including the expansion of artificial intelligence data centers and an increase in domestic manufacturing," and "[t]his increase in demand, coupled with existing capacity challenges, places a significant strain on our Nation's electric grid." It also references "the national emergency declared pursuant to Executive Order 14,156 of January 20, 2025 (Declaring a National Energy Emergency)," to declare a policy that "our electric grid must utilize all available power generation resources, particularly those secure, redundant fuel supplies that are capable of extended operations."

Not only does the preamble itself suggest that EPA was motivated to propose to repeal the 2024 MATS Rule due to concern over grid reliability, but statements made by EPA in relation to the Proposal also suggest so. For example, EPA's fact sheet on the Proposal states that "this proposed action would contribute to Restoring American Energy Dominance by removing undue burdens on coal-fired EGUs while accomplishing the Agency's core mission of protecting human health and the environment."[320]

This suggests that EPA was motivated to propose to repeal the 2024 MATS Rule because it believes that the rule will lead to coal plant retirements and/or otherwise have grid reliability impacts. But EPA nowhere in the record for the Proposal *explicitly* makes or supports that argument. Nor could it. The record for the 2024 Rule demonstrated that there would be no significant impacts on energy prices, coal plant retirements, or power grid reliability. The Proposal is arbitrary and capricious to the extent that EPA is making unstated, unexplained, unsupported, and wrong assumptions about any adverse impact of the 2024 Rule on grid reliability.

To the extent that EPA undertakes this action in response to grid reliability and energy resource issues—it does not grapple with the analysis it has before it—much less conduct up-to-date analysis to reflect the current energy policy landscape. EPA's analysis of projected compliance costs and energy impacts from the Proposal relies totally on the record for the 2024 Rule. *See* 2025 RIA at 2-1. EPA concludes: "The proposed repeal has minimal estimated energy market impacts." *Id.* at 2-7. This is a bald admission by EPA that there are no grid reliability or energy availability benefits to withdrawing the 2024 Rule—in direct opposition to the suggestions EPA has made in the preamble and otherwise that this action is taken to further grid reliability and prevent coal plant retirements. As we explain in this section—while EPA should have updated the analysis to reflect the "significant market and regulatory changes that have

[320] EPA, *Fact Sheet, Proposal to Repeal Revisions to the Mercury and Air Toxics Standards for Power Plants* at 1 (Jun. 11, 2025), https://www.epa.gov/system/files/documents/2025-06/6.11.25-mats-rtr-repeal-proposal-fact-sheet-final.pdf; *see also* EPA News Release, EPA Proposes Repeal of Biden-Harris EPA Regulations for Power Plants, Which, If Finalized, Would Save Americans More than a Billion Dollars a Year (Jun. 11, 2025), https://www.epa.gov/newsreleases/epa-proposes-repeal-biden-harris-epa-regulations-power-plants-which-if-finalized-would (stating EPA is "breaking down barriers to affordable, dependable energy," that the 2024 Rule together with greenhouse gas standards for power plants "directly result in coal-fired power plants having to shut down" thereby "imperiling the reliability of our electric grid" and stating that repealing the 2024 Rule would "enhance efforts to Restore American Energy Dominance by removing costly burdens on coal- and oil-fired power plants.").

occurred since the promulgation of the 2024 MATS RTR, including changes that affect both the baseline and policy case"—the most recent analysis of the 2024 MATS Rule that EPA adopts in the Proposal projects that the 2024 Rule would not drive any coal plant retirements, would not adversely impact the reliability of our power grid, and would have no impacts on electricity costs. 2025 RIA at ES-1 to ES-2.

A. The 2024 MATS Rule Is Projected To Have No Impact on Coal Plant Retirements.

As EPA found in the 2024 Rule, and as incorporated into the regulatory impact analysis for the 2025 proposal, no retirements or changes to resource adequacy are projected to occur as a result of the 2024 Rule's compliance requirements.[321] This finding is bolstered by independent expert analysis conducted in July of 2024 by Susan F. Tierney and Amlan Saha, who agreed with EPA's analysis that the rule will not jeopardize reliability, as we will discuss.

The 2024 Rule imposes only modest control requirements, projected to impact a small number of plants in the coal-fired fleet totaling less than 3 percent of total U.S. energy supply from all sources in 2023.[322] This is in contrast to the 2012 MATS rule, which affected approximately 37 percent of U.S. generation.[323] Since the 2025 proposed repeal incorporates EPA's prior analysis that there will be no retirements, and EPA does not provide any contrary findings, any subsequent repeal on the basis of power plant retirements would be arbitrary and capricious.

B. The 2024 MATS Rule Is Projected To Have No Impact on Grid Reliability.

In developing the 2024 MATS Rule and other rules affecting the power sector, EPA thoroughly evaluated the implications of these regulations on the industry's ability to provide electricity reliably. EPA took reliability into account in its design of the suite of power plant rules and thoroughly analyzed both the resource adequacy impacts of the 2024 MATS Rule alone as well as in the context of other power sector regulations finalized around the same time.[324] It

[321] 89 Fed. Reg. 38,508, 38,526 ("The units requiring additional fPM controls are projected to generate less than 1.5 percent of total generation in 2028. Moreover, the EPA does not project that any EGUs will retire in response to the standards promulgated in this final rule. Because the EPA projects no incremental changes in existing operational capacity to occur in response to the final rule, the EPA does not anticipate this rule will have any implications for resource adequacy."); *see also id.* at 38,555 ("The Agency estimates that this rule will require additional fPM and/or Hg removal at less than 15 GW of operable capacity in 2028, which is about 14 percent of the total coal-fired EGU capacity projected to operate in that year. The units requiring additional fPM and/or Hg removal are projected to generate less than 2 percent of total generation in 2028. Moreover, the EPA does not project that any EGUs will retire in response to the standards promulgated in this final rule. Consistent with the small share of EGUs required to reduce fPM and/or Hg emissions rates, this final action has limited energy market implications. There are limited impacts on energy prices projected to result from this final rule.").

[322] Opposition of Environmental and Public Health Respondent-Intervenors to Petitioners' Motions for Stay, Ex. 2, Declaration of Susan F. Tierney at 10-11, *North Dakota v. EPA*, D.C. Cir. 24-1119, ECF No. 2065869 (July 22, 2024) [hereinafter Tierney 2024 Declaration] (citing EIA, Preliminary Monthly Electric Generator Inventory (Apr. 24, 2024)).

[323] *Id.*

[324] *See, e.g.*, 89 Fed. Reg. 38,508, 38,519, 38,526 (May 7, 2024) (responding to comments raised regarding reliability); *see also* EPA, "Resource Adequacy Analysis Technical Support Document," Doc. ID No. EPA-HQ-

found the 2024 MATS Rule would have no significant impacts on total operational capacity, coal retirements, new capacity additions, or reserve transfers between regions.[325] It also determined that the suite of power plant rules finalized around the same time, taken together, would still not create any resource adequacy concerns.[326] In 2023, EPA entered into a memorandum of understanding with the U.S. Department of Energy to coordinate, share information, and consult with one another on grid reliability issues.[327] Through the MOU and otherwise, EPA consulted with the U.S. Department of Energy, the U.S. Federal Energy Regulatory Commission,[328] utilities, other grid operators, and other experts on electric reliability issues before it finalized the 2024 MATS Rule.

EPA also received and reviewed comments on reliability issues submitted by entities in response to its 2023 proposed rule. EPA explained that it provided flexibilities in the 2024 Rule to address reliability concerns (e.g., the potential for unit owners to request a fourth year to comply with the rule).[329] Units were provided a full three years to make changes to controls and operations necessary to comply with the 2024 Rule, the maximum time period allowed by law.[330] It also recognized the responsibilities of relevant, external authorities over ensuring the reliability of the U.S. power grid – including grid managers such as utilities, state regulators, Regional Transmission Organizations, the Federal Energy Regulatory Commission, and the North American Electric Reliability Corporation, explaining:

> The EPA understands that before implementing such a retirement decision, the unit's owner will follow the processes put in place by the relevant regional transmission organization (RTO), balancing authority, or state regulator to protect electric system reliability. These processes typically include analysis of the potential impacts of the proposed EGU retirement on electrical system reliability, identification of options for mitigating any identified adverse impacts, and, in some cases, temporary provision of additional revenues to support the EGU's continued operation until longer-term mitigation measures can be put in place. [331]

OAR-2018-0794-6918 (Apr. 2024), https://www.regulations.gov/document/EPA-HQ-OAR-2018-0794-6918; *see also* EPA, "Resource Adequacy Analysis: Vehicle Rules, Final 111 EGU Rules, ELG and MATS RTR Technical Memo" (Apr. 2024), Doc. ID No. EPA-HQ-OAR-2018-0794-6971, https://www.regulations.gov/document/EPA-HQ-OAR-2018-0794-6971.

[325] EPA, "Resource Adequacy Analysis Technical Support Document," Doc. ID No. EPA-HQ-OAR-2018-0794-6918 at 5-8 (Apr. 2024), https://www.regulations.gov/document/EPA-HQ-OAR-2018-0794-6918.

[326] EPA, "Resource Adequacy Analysis: Vehicle Rules, Final 111 EGU Rules, ELG and MATS RTR Technical Memo" (Apr. 2024) Doc. ID No. EPA-HQ-OAR-2018-0794-6971, https://www.regulations.gov/document/EPA-HQ-OAR-2018-0794-6971.

[327] DOE & EPA, "Joint Memorandum on Interagency Communication and Consultation on Electric Reliability" (Mar. 2023), https://www.epa.gov/power-sector/electric-reliability-mou.

[328] *See* "Prepared Statement of Joseph Goffman, Principal Deputy Assistant Administrator Office of Air and Radiation, United States Environmental Protection Agency," presented to the FERC Reliability Technical Conference, Docket No. AD23-9-000 at 11-14 (Nov. 9, 2023), https://www.ferc.gov/media/statement-joseph-goffman-principal-deputy-assistant-administrator-office-air-and-radiation (discussing how EPA "made it a top priority to consult fellow federal agencies, reliability experts and grid operators" and detailing those efforts).

[329] 89 Fed. Reg. at 38,519.

[330] *Id.* at 38,526.

[331] *Id.* at 38,526.

EPA thus sensibly noted that it was not the case that the 2024 MATS Rule "would somehow authorize any EGU owner to unilaterally retire a unit without following these processes."[332]

EPA also recognized that the power industry and regulators had a suite of tools to deploy in order to ensure grid reliability:

> Power companies, grid operators, and regulators have well-established, adaptive procedures and policies in place to preserve electric reliability in response to system changes. Grid operators administer adaptive programs, such as capacity markets and resource adequacy programs, designed to require or incentivize medium- and long-term investment in the resources that will be needed to meet demand. In many states, regulators oversee planning by utilities to ensure that there is a diverse portfolio of generating resources with the qualities and attributes needed to reliably meet electricity demand. The Federal Energy Regulatory Commission, in partnership with the North American Electric Reliability Corporation and regional reliability organizations, establishes and enforces standards that transmission and generation utilities must meet to ensure operational reliability. Over shorter time horizons, grid operators and regulators have rules that require utilities to follow processes designed to protect reliability before making major plant modifications or retirement decisions.[333]

In sum, EPA concluded that its rule would not jeopardize electric system reliability either alone or in combination with EPA's other power plant rules.[334] The 2025 proposed repeal incorporates this assessment and does not add any new analysis on reliability, demand, or resource adequacy, reinforcing how any subsequent EPA repeal of the power plant standards on the basis of reliability concerns would be arbitrary and capricious.

C. Additional Expert Analysis Confirms the 2024 MATS Rule Will Not Impact Grid Reliability, Even Considering Load Growth Projections.

EPA's 2024 findings are bolstered by independent expert analysis conducted in July of 2024 by Susan F. Tierney and Amlan Saha, who agreed with EPA's analysis that the rule will not jeopardize reliability.[335] Even though EPA states this action is in response to executive

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[332] *Id.*

[333] EPA, "Resource Adequacy Analysis: Vehicle Rules, Final 111 EGU Rules, ELG and MATS RTR Technical Memo" at 11-12 (Apr. 2024), Doc. ID No. EPA-HQ-OAR-2018-0794-6971, https://www.regulations.gov/document/EPA-HQ-OAR-2018-0794-6971.

[334] *Id.* at 3(concluding that "the impacts of both the 111 EGU Rules [i.e., EPA's rule to control greenhouse gas emissions from power plants] alone and combined with other recent EPA actions related to electricity generating units are projected to result in anticipated power grid changes that (1) remain within the confines of key North American Electric Reliability Corporation (NERC) assumptions, (2) are consistent with peer reviewed projections for the power sector, and (3) are consistent with goals, planning efforts and Integrated Resource Plans (IRPs) of industry itself. We project that the 111 EGU Rules, whether alone or combined with other Rules, are unlikely to adversely affect resource adequacy.")

[335] Tierney 2024 Declaration at 5 ("The 2024 MATS Rule will not jeopardize reliability and will certainly not trigger reliability issues in the near term."); Opposition of Environmental and Public Health Respondent-Intervenors to

orders addressing AI, data centers, and energy load growth, this contradicts the record before the Agency. Expert Susan F. Tierney, Ph.D. also conducted analysis finding that the 2024 Rule will not trigger any reliability problems.[336] This analysis considered the analysis EPA had done on reliability impacts, the flexible compliance timelines provided, the authorities the U.S. Department of Energy has to address any emergency-related generation shortfalls, and the very small (2%) amount of total U.S. generating capacity affected by the rule.[337]

Furthermore, claims that the 2024 Rule threatens regional grid reliability are also without merit. North Dakota, one of the states containing several of the lignite plants that need to comply with the 2024 Rule's revised mercury standard, is a net exporter of electricity, with in-state generation that "greatly exceeds its in-state demand as of 2023," even with significant shifts in resources from coal to wind and gas.[338] Allegations that Colstrip's closure in Montana[339] would destabilize that state's grid are similarly unfounded. NorthWestern, Montana's energy provider, enjoys a large surplus of generating capacity and could easily replace Colstrip's capacity several times over by extending existing—or signing new—power contracts or bringing new generating sources online.[340]

These findings are consistent with a new Analysis Group white paper finding that even considering growth in electricity demand from building and vehicle electrification, artificial intelligence, and data centers, forecasts, while high compared to the last decade, are "well within the pace of actual demand growth that the industry has reliably met for many decades," and "[e]xisting wholesale markets and resource planning processes are well suited to ensure that demand growth is met through a strong supply (and demand) response."[341] In addition, other existing trends are working to improve grid reliability and supply including "an increase in price-responsive demand," "active, ongoing efforts at the state level . . . focused on fundamental changes to rate designs to empower consumers to actively manage energy budgets," "continued declines in the cost of distributed generation and 'virtual power plant technologies,'" "increases in efficiency of operations at large load facilities and a plateauing of demand in the industry," "[c]ontinued rapid declines in the cost of major grid connected solar, wind, and storage resources," "[vast] development interest expressed through projects included in interconnection queues," efforts to make "improvements in interconnection processes," proposed data center and large load projects plans to "incorporate co-location of new, incremental generation capacity," and a "healthy pipeline for major transmission investment . . . to improve the reliability of the bulk power system on an interstate and interregional basis."[342]

Petitioners' Motions for Stay, Ex. 4, Declaration of Amlan Saha at 4, *North Dakota v. EPA*, D.C. Cir. 24-1119, ECF No. 2065869 (July 22, 2024). ("The overall results of my analysis are consistent with EPA's conclusion that the MATS Update Rule is not likely to result in any incremental retirements, all else being equal.").

[336] Tierney 2024 Declaration at 5, 15-21.

[337] *Id.*

[338] *Id.* at 22-23(citing EIA data sources).

[339] If it occurred.

[340] Opposition of Environmental and Public Health Respondent-Intervenors to Petitioners' Motions for Stay, Ex. 6, Declaration of Michael Goggin, *North Dakota v. EPA*, D.C. Cir. 24-1119, ECF No. 2065869 at 1-3, 5 (July 22, 2024).

[341] Paul Hibbard et al., Meeting Forecasted Growth in Electricity Demand, Analysis Group at 44, 56 (Aug. 2025).

[342] *Id.* at 5-6.

Any attempt by EPA to repeal the 2024 Rule on the basis of reliability without having so much as mentioned the word in its record supporting the proposed repeal – let alone failing to conduct any meaningful analysis on reliability, resource adequacy, demand, or retirements that could explain how its reasoning so dramatically departs from the evidence in the record– would render the finalizing this proposal arbitrary and capricious.

D. The 2024 MATS Rule Is Projected to Have No Impact on Retail Electricity Prices.

It would also be arbitrary and capricious for EPA to finalize any changes to the 2024 Final Rule on the basis of purported impacts on electricity prices. In its proposed repeal, EPA relies on energy market impact projections from the regulatory impact analysis for the 2024 Rule, and concludes that the proposed repeal would have "minimal estimated energy market impacts," with "changes to retail electricity prices …estimated to be approximately zero percent in all run years under the 2024 MATS [Rule], and, as such . . . expected to be minimal under this proposed action." 2025 RIA at 2-7.

This finding is consistent with the 2024 expert analysis of Amlan Saha, who found the project compliance costs of the 2024 Rule are "unlikely to impact utility retail customer rates for most utilities," and that "[e]ven if some or all of the compliance costs end up included in customer rates, the overall impacts are likely to be negligible" as "approved cost recovery amounts… will be further spread over several years through the end of the useful life of the EGUs."[343]

VIII. EPA'S COMPLETE DISREGARD FOR THE PUBLIC'S RELIANCE INTERESTS IN LIMITS ON COAL-FIRED POWER PLANTS' TOXIC EMISSIONS RENDERS THE PROPOSED RULE ARBITRARY (RESPONSE TO QUESTION #9).

EPA has an obligation to consider the public reliance interests in the 2024 Rule before weakening or rescinding the policy.[344] This is so even though the agency claims that the 2024 Rule was unlawful in certain respects, and notwithstanding the fact that the rule does not grant substantive rights.[345] The Supreme Court has recognized that environmental concerns present an injury-in-fact sufficient to establish standing,[346] and it has left open the possibility that individuals may have a cognizable claim to abate power plants' cross-state emissions.[347] Further, polling suggests that many individuals know of and support current levels of environmental protections: a 2024 survey found that more than a third of respondents view EPA as doing just the right amount to protect the public from air pollution and other environmental

[343] Opposition of Environmental and Public Health Respondent-Intervenors to Petitioners' Motions for Stay, Declaration of Amlan Saha, *North Dakota v. EPA*, D.C. Cir. 24-1119, ECF No. 2065869 at 16-17 (July 22, 2024).
[344] *DHS v. Regents of the Univ. of Cal.*, 591 U.S. 1, 30-33 (2020).
[345] *Id.*
[346] *Friends of the Earth, Inc. v. Laidlaw Envtl. Servs. (TOC), Inc.*, 528 U.S. 167, 183-84 (2000).
[347] *Am. Elec. Power Co. v. Connecticut*, 564 U.S. 410, 422-23 (2011).

threats.[348] Moreover, even though the compliance deadlines of the 2024 MATS Rule have not yet passed, EPA must acknowledge that the public has come to rely on the current state of lowered emissions that most of the fleet is already achieving. The public is currently benefiting from the fact that much of the coal-fired fleet can and has achieved lowered emissions of mercury and other toxic air pollution. The 2024 MATS Rule protects those reliance interests by enshrining lower emissions rates into law to protect the public from sudden increases in emissions. But this Proposal ignores those reliance interests and offers to allow power plants demonstrably achieving rates below the 2012 requirements the freedom to increase those emissions at any point. Without acknowledging and grappling with the public's reliance on existing environmental protections, the agency's rule is arbitrary.[349] Further, the required analysis of alternatives in the final rule must be informed by the public's reliance interests and must consider options that would protect those interests.

IX. EPA'S RULEMAKING PROCESS AND OPPORTUNITIES FOR PUBLIC PARTICIPATION HAVE BEEN WOEFULLY INADEQUATE.

A. EPA Has Not Complied with the Procedural Requirements of the Clean Air Act in Issuing the Proposal

EPA failed to provide sufficient time for the public to provide written comments on the proposal. The Clean Air Act requires that EPA provide "a reasonable period for public participation" and suggests a minimum of "*at least* 30 days." 42 U.S.C. § 7607(h). The 55 days that EPA has provided for written comment on this proposal is unreasonable given the consequential nature of this action, for the reasons explained below, and as set forth in the requests for an extension of the public comment period submitted by EDF and others,[350] which EPA denied in a letter to EDF on August 5, 2025.[351]

The comment period for this proposed rule is not sufficient for the following reasons:

- If adopted as proposed, the proposal would have serious adverse effects on human health by allowing more emissions of highly toxic pollutants like mercury, arsenic, nickel, and lead. For such a rule, EPA should have provided more time for stakeholder (including public health expert) consideration and input on the effect of increased pollution loads on public health and well-being.

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[348] Environmental Protection Network, 2024 Voter Priorities (Nov. 2024), https://www.environmentalprotectionnetwork.org/wp-content/uploads/2024/11/2024-Post-Election-Poll-EPN-Questions-Deck.pdf.

[349] *Regents*, 591 U.S. at 30-33.

[350] *See, e.g.*, Letter from EDF to Lee Zeldin (Jun. 23, 2025), Doc. ID No. EPA-HQ-OAR-2018-0794-7005, https://www.regulations.gov/comment/EPA-HQ-OAR-2018-0794-7005 (requesting comment deadline extension); Letter from Appalachian Mountain Club et. al. to Lee Zeldin (Jun. 20, 2025), Doc. ID No. EPA-HQ-OAR-2018-0794-7004, https://www.regulations.gov/comment/EPA-HQ-OAR-2018-0794-7004 (requesting comment deadline extension).

[351] Letter from David Cozzie, Acting Director, Sector Policies and Programs Division, EPA, to Surbhi Sarang, Senior Attorney, Clean Power, Environmental Defense Fund at 1 (Aug. 5, 2025) ("The Agency has evaluated and balanced multiple practical, programmatic, and policy considerations and does not intend to extend the public comment period for this proposal at this time."); *see also* Letter from David Cozzie, Acting Director, Sector Policies and Programs Division, EPA, to Madeline Page Director, Administrative Advocacy Climate Action Campaign (Aug. 5, 2025).

- EPA requested public comment on issues that extend beyond the proposal and pertain broadly to EPA's administration of Section 112 of the Clean Air Act. These issues include how EPA assesses the cost-effectiveness of control technologies in the context of prior Section 112 rulemakings[352] and whether EPA's consideration of costs when conducting Section 112(d)(6) technology reviews should take into account whether "there would be any meaningful risk reduction from reductions in HAP emissions based on potential revisions to emission standards."[353] More time should have been provided for outreach to the broad set of stakeholders who have an interest in *any* Clean Air Act Section 112 rules (beyond the coal and oil-fired EGU source category) and thus in how EPA resolves these questions.
- EPA proposes to reverse conclusions on cost-effectiveness and achievability regarding various control technologies reached by the Agency just one year ago and rooted in a lengthy technical record. The issues at the heart of this proposal are technical and complex and require careful research and analysis. A public comment period of only 55 days is inadequate to allow the public to assess EPA's proposed conclusions and their evidentiary basis, and to compare those assertions to the lengthy and detailed technical records EPA previously developed in support of its regulatory approach.
- The proposal implicates the record for the 2024 rulemaking that adopted the MATS updates, which itself was a review of a prior 2020 risk and technology review[354] as well as a 2022 proposed rule in which EPA solicited comment on developments in control technologies.[355] The complex history of this rule, and the substantial record developed over that history, require more than 55 days for the public to sufficiently review and provide informed comment on.
- EPA has proposed this rule during the summer months when many interested members of the public may be traveling or have additional childcare responsibilities. EPA should have provided more than 55 days to allow stakeholders with capacity constraints additional time to provide input on the proposal.
- EPA issued this proposed rule in the context of numerous other actions that also seek public comment on actions that would allow more pollution from power plants. These actions include: proposed rescission of the greenhouse gas standards for fossil-fuel fired power plants,[356] imminent proposed "Reconsideration of the Greenhouse Gas Reporting Program,"[357] the proposed *Reconsideration of 2009 Endangerment Finding and Greenhouse Gas Vehicle Standards,* 90 Fed. Reg. 36288 (Aug. 1, 2025) as well as other actions that have demanded attention and resources from advocates and those concerned about power plant pollution such as President Trump's actions to exempt 71 coal-fired

[352] 90 Fed. Reg.at 25,541, 25,544.
[353] 90 Fed. Reg. at 25,545.
[354] 85 Fed. Reg. 31286.
[355] 87 Fed. Reg. 7624.
[356] Repeal of Greenhouse Gas Emissions Standards for Fossil Fuel-Fired Electric Generating Units, 90 Fed. Reg. 25752 (Jun. 17, 2025).
[357] Off. of Info. & Reg'y Affairs, Regulatory Review Page for Reconsideration of the Greenhouse Gas Reporting Program, RIN 2060-AW76, https://www.reginfo.gov/public/do/eoDetails?rrid=1002216 (last accessed July 14, 2025) (showing proposed rule pending review).

power plants from the 2024 MATS Rule,[358] among others.[359] EPA should be aware that interested stakeholders are responding to many different Agency actions and requests for input right now and that more time is warranted in this context. The failure to allow additional time reads as an attempt by the Agency to limit public comment across the suite of actions by releasing numerous proposals at once, all with tight comment deadlines, and thus overwhelming the capacity of stakeholders to exercise their statutory rights to participate in the public processes for these actions.

The Clean Air Act also requires for this rulemaking that EPA "shall give interested persons an opportunity for the oral presentation of data, views, or arguments." 42 U.S.C. § 7607(d)(5). EPA held only one, insufficient, public hearing for this proposal on July 10, 2025. There were multiple issues associated with this single public hearing that denied the public a full opportunity to participate. EPA published Federal Register notice of this hearing on June 17, 2025.[360] The pre-publication notice for the proposal indicated that EPA originally intended to hold a single public hearing exactly 15 days after publication of the hearing notice in the Federal Register—the bare minimum suggested as reasonable under the Federal Register Act. *See* 44 U.S.C. § 1508. Once the rule was published in the Federal Register, the actual public hearing date was set for 24 days after publication--which was a confusing discrepancy for those monitoring the pre-publication notice. Interested individuals were encouraged to pre-register for the public hearing in order to be guaranteed a speaking opportunity, stating that non-registered individuals would be permitted to speak only if time allowed after all pre-registered speakers. Pre-registration opened on June 18, 2025, and closed on Sunday, June 29, 2025—just 13 days after the notice of hearing. EPA provided scant notice and time for members of the public to be notified of the hearing and to pre-register.

As early as June 25, 2025, members of the public attempting to pre-register were informed that there were no time slots remaining and could only select an option indicating that they were interested in speaking despite there being no remaining openings. On June 30, 2025, EPA posted on its website that "all available timeslots for the public hearing have been filled." Once time slots filled, EPA did not provide additional hearing days or times until July 3rd, when individuals who had indicated they wanted to speak were emailed and told that EPA had added an additional hour from 10-11 am ET. This slot also filled up quickly. EPA added an additional slot from 8-10 AM ET, but some individuals interested in speaking did not receive confirmation of their speaking time until July 9, the day before the hearing.

There is no indication that EPA accommodated everyone who wished to speak—a fatal deficiency to providing adequate opportunity for public participation. Moreover, EPA's rushed and disorganized process may have prevented interested individuals from even attempting to

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[358] *See* Proclamation No. 10914, Regulatory Relief for Certain Stationary Sources To Promote American Energy, 90 Fed. Reg. 16777 (Apr. 8, 2025); Proclamation No. 10956, Regulatory Relief for Certain Stationary Sources To Promote American Energy, 90 Fed. Reg. 34583 (July 17, 2025).

[359] U.S. Dep't of Energy Order No. 202-25-4 (May 30, 2025), https://www.energy.gov/sites/default/files/2025-05/Federal%20Power%20Act%20Section%20202%28c%29%20PJM%20Interconnection.pdf (order on Eddystone oil and gas power plant); DOE Order No. 202-25-3 (May 23, 2025), www.energy.gov/sites/default/files/2025-05/Midcontinent%20Independent%20System%20Operator%20%28MISO%29%20202%28c%29%20Order_1.pdf (order on J.H. Campbell coal-fired power plant).

[360] 90 Fed. Reg. at 25,535–36.

register to speak. When EPA originally provided notice on the pre-registration form that the original time slots had filled, it did not clearly state that it would be adding additional times to accommodate other speakers. This may have deterred individuals from registering under the option to indicate interest in speaking despite there being no remaining times available. Interested speakers were given short notice of the limited additional time slots EPA added, forced to respond nearly immediately to claim a time, and the only times EPA offered were for early in the day at times not reasonable for individuals located on the West Coast or for individuals working during the daytime.

Once the time slots were filled, EPA should have re-published notice of additional hearing days and times in the Federal Register to ensure that interested persons could exercise their right to oral presentation guaranteed by the Clean Air Act. EDF submitted letters to EPA informing the agency of these issues and received no response.[361] This process does not meet the Clean Air Act's requirements that "interested persons" be given an opportunity for oral presentation. 42 U.S.C. § 7607(d)(5).

B. EPA Failed to Place Relevant Documents and Records in the Docket for this Rulemaking

EPA omitted key information and relevant documents from the docket for this rulemaking, in violation of the Clean Air Act. The Clean Air Act requires that when undertaking a proposed rulemaking, that "[a]ll data, information, and documents [] on which the proposed rule relies shall be included in the docket on the date of publication of the proposed rule." 42 U.S.C. § 7607(d)(3). It further provides that "[a]ll documents which become available after the proposed rule has been published and which the Administrator determines are of central relevance to the rulemaking shall be placed in the docket as soon as possible after their availability." *Id.* § 7607(d)(4)(B)(i).

EPA states in the proposal that "EPA has undertaken a review of the 2024 Final Action" "in response to . . . Presidential Actions" that include President Trump's April 8, 2025 Proclamation No. 10914. 90 Fed. Reg. at 25,540. The proclamation exempted 68 coal-fired power plants from the 2024 MATS update under purported authority of Section 112(i)(4) of the Clean Air Act. 90 Fed. Reg. 16777. This provision allows the President to issue an exemption from a section 112 standard "if the President determines that the technology to implement such standard is not available and that it is in the national security interests of the United States to do so." 42 U.S.C. § 7412(i)(4).

EPA's press release announcing its intent to reconsider the 2024 MATS rule stated that the Administration "is considering a 2-year compliance exemption via Section 112(i)(4) of the Clean Air Act for affected power plants while EPA goes through the rulemaking process."[362] EPA created a process where regulated plants could email EPA to request an exemption. EPA

[361] Letter from EDF to Lee Zeldin, Doc. ID No. EPA-HQ-OAR-2018-0794-7007 (June 27, 2025), https://www.regulations.gov/comment/EPA-HQ-OAR-2018-0794-7007.
[362] News Release, EPA, Trump EPA to Reconsider Biden-Harris MATS Regulation That Targeted Coal-Fired Power Plants to be Shut Down (Mar. 12, 2025), https://www.epa.gov/newsreleases/trump-epa-reconsider-biden-harris-mats-regulation-targeted-coal-fired-power-plants-be.

requested information relevant to this proposal including a request to "Provide a justification to support the request, including: [a]n explanation why the technology to implement the standard is not available and [a]n explanation why an extension is in the national security interests of the United States."[363]

Documents and information relating to the MATS exemptions are relevant to this proposal—particularly given EPA's own linking of the two actions. Information from regulated industry about the availability of technology, the impact of the 2024 MATS rule on national security interests, and the ability of sources to meet compliance deadlines is all relevant to EPA's decision to withdraw or maintain the 2024 MATS Rule. The public needs access to these documents to provide informed comment on the proposal. While EPA has placed the proclamation itself in the regulatory docket, there are numerous other documents related to the proclamation (and to this rulemaking) that EPA has not placed in the docket—including the requests from sources for exemptions and the information submitted as part of those requests. All of the information submitted by regulated industry and the responses by EPA should be placed in the docket for this rulemaking. EPA's failure to do so is a violation of the Clean Air Act.

X. EXEMPTIONS PROCLAMATIONS ISSUED UNDER SECTION 112(I)(4) CAST FURTHER DOUBT ON EPA'S PROPOSAL.

Before this proposal was released, the President issued a proclamation under Section 7412(i)(4) purporting to exempt several coal-fired power plants from the 2024 Rule until July 8, 2029. 90 Fed. Reg. 16,777 (Apr. 21, 2025) ("Exemption Proclamation"); *see* 42 U.S.C. § 7412(i)(4). In this proposal, EPA fails to account for the premises of that proclamation and fails to address or resolve apparent conflicts between the Exemption Proclamation and EPA's subsequent proposal. As EPA has failed to address an important aspect of the problem, it cannot finalize the proposed rule.

To be sure, some commenters here are pursuing legal challenges to the Exemption Proclamation. But assuming, *arguendo*, that the Proclamation was validly issued, it undermines EPA's proposal in two ways. First, although EPA premises its repeal of the fPM, mercury, and CEMS requirements on its new view that the industry compliance costs identified in the 2024 Rule "are too high," are underestimated, or are no longer outweighed by the benefits, 90 Fed. Reg. at 25,541-42, 25,544, the Exemption Proclamation exempts units at more than 60 facilities from compliance with those standards until July 8, 2029. 90 Fed. Reg. at 16,777-84. EPA's review of the 2024 cost data failed entirely to recognize that, by virtue of the Exemption Proclamation, many covered facilities will be exempted from compliance with the fPM, mercury, and CEMS standards until 2029 rather than having to comply beginning in 2027. EPA's proposal does not address whether and how a delay in implementation of that magnitude and for that many facilities – which, at a minimum, extends the lead time for installation of controls and monitoring systems – will affect expected costs to those facilities.

[363] EPA, Clean Air Act Section 112 Presidential Exemption Information (version as of March 24, 2025), https://www.epa.gov/stationary-sources-air-pollution/clean-air-act-section-112-presidential-exemption-information (EPA has since updated the website and it no longer has this language).

This failure is made more notable by the fact that EPA explicitly relies on the "significant costs to certain facilities" of the standards, including the Colstrip Power Plant, which EPA explains accounted for "almost half of the 2024 Final Action's total compliance costs." 90 Fed. Reg. at 25,541. But Colstrip has been exempted from compliance at least until July 8, 2029, by the Exemption Proclamation. 90 Fed. Reg. at 16,780 (Annex I Entry 13.a). So its purported "significant costs" from complying with the 2024 Rule, as well as the "total compliance costs" of that Rule cited by EPA, cannot be a basis for the Agency's proposal here – at least without full consideration of how those costs have been altered by the Exemption Proclamation. By failing to account for the actual circumstances on the ground, EPA's analysis is *per se* arbitrary and capricious, 42 U.S.C. § 7607(d)(9); fails to address an important aspect of the problem, *State Farm*, 463 U.S. at 43; and fails to "give reasoned consideration to the issues before [it] and reach a result which rationally flows from this consideration." *Motor Equipment Mfrs. Assoc. v. EPA*, 627 F.2d 1095, 1106 (D.C. Cir. 1979). EPA cannot finalize a rule based on this proposal without conducting the missing analysis.

The Regulatory Impact Analysis supporting the proposal is incorrect for the same reason: it suggests costs from the proposed repeal that are not, in fact, attributable to this proposed action. *See* 90 Fed. Reg. at 25,538, 25,545 (estimating cost savings starting in 2028, despite the fact that some facilities are now exempt until 2029).[364] EPA's supporting documentation thus similarly fails to account for present circumstances, rendering it arbitrary and capricious.

Second, EPA's proposal conflicts with the findings in the Exemption Proclamation. That Proclamation asserted that the technologies necessary to meet the standards in the 2024 Rule are not "available" because they "do not yet exist in a commercially viable form."[365] 90 Fed. Reg. at 16,777. EPA's proposal here does not claim that these technologies are not "available," nor that they are not "commercially viable." Indeed, the record shows that most facilities already have the necessary technology to meet the standards. *See, e.g.*, 89 Fed. Reg. 38,508, 38,530 (May 7, 2024) (discussing available technology and explaining that "the vast majority of the fleet" is already meeting the fPM standard with "only 33 EGUs … currently operating above this revised limit"); *see id.* at 38,536-37 (addressing CEMS) & 38,539 (addressing lignite facilities). EPA's proposal admits this outright with respect to CEMS, acknowledging that "review of MATS compliance reporting for the 2023 Proposal showed that … one-third of coal-fired EGUs were using PM CEMS." 90 Fed. Reg. at 25,541. In keeping with this record, the proposal thus side-steps any

[364] *See* 2025 RIA.

[365] The Proclamation errs in interpreting the requirement that technology be "available" to mean "commercially viable." *See, e.g.*, *Ross v. Blake*, 578 U.S. 632, 642 (2016) ("[T]he ordinary meaning of the word 'available' is 'capable of use for the accomplishment of a purpose,' and that which 'is accessible or may be obtained.'" (internal citation omitted)); *Bluewater Network v. EPA*, 370 F.3d 1, 20 (D.C. Cir. 2004) (distinguishing between the "pure technological feasibility" of what "technology 'will be available'" and the "appropriate consideration[s]" when assessing achievability, which include costs); *see also, e.g.*, 42 U.S.C. § 7412(n)(1)(B) (distinguishing, in directing EPA's study of EGU mercury emissions, between the "technologies which are available" and "the costs of such technologies"); *id.* § 7412(f)(1)(B) (distinguishing "technologically" and "commercially" available methods of reducing public health risks); EPA, "New Source Review Workshop Manual (Draft 1990)", https://www.epa.gov/sites/default/files/2015-07/documents/1990wman.pdf (describing the Agency's five-step "top-down" process for determining "best available control technology," which begins with identifying "all 'available' control options" – meaning "all control options with potential application to the emissions unit" – before considering whether those control options have "unacceptable … economic" impacts). But in any event, *neither* assertion tracks with EPA's distinct claim here.

suggestion of unavailability and relies instead on conclusions that the costs were not justified by the benefits or that the changes were not otherwise "necessary under CAA section 112(d)(6)." *Id.* at 25,541; *see id.* (explaining that it now believes "cost effectiveness of the revised [fPM] standard is inconsistent with the EPA's prior [] technology review determinations") & *id.* at 25,542 (explaining that it no longer believes the "advantages [of more efficient pollutant abatement and more transparency of EGU emissions] outweigh the increased cost of PM CEMS"). To the extent EPA now claims that the new mercury limits for lignite-fired units are not achievable, it still does not point to the "unavailability" of relevant technology, and it could not, because as we show above the mercury standard is achievable via dialing up of the same sorbent injection already in use to meet the existing limits and with the configurations already present at the fleet of lignite plants. The explanations concerning the 2024 standards in the proposal here and in the Exemption Proclamation cannot both be correct, and yet EPA does not address the inconsistency, let alone attempt to reconcile it.

Indeed, as noted above, the docket underlying EPA's proposal does not include the requests solicited from and submitted by covered facilities for exemptions under Section 112(i)(4).[366] The docketing of those requests would be required if EPA had considered the requests when formulating this proposal. *See* 42 U.S.C. § 7607(d)(2), (3), & (6)(C). Their absence suggests that EPA did not consider any data concerning the supposed unavailability of the technologies in the 2024 Rule – despite the fact that such industry submissions were plainly germane to the reconsideration of the 2024 Rule EPA was conducting at the time and that has resulted in this proposal. While commenters here dispute any suggestion that the technologies in question are not available, not least because they are already installed at many facilities, EPA has plainly failed to consider an important aspect of the problem if it failed to consider industry data concerning technology availability that is indisputably in the Agency's possession.

The presence of Exemption Proclamations applicable to requirements under the 2024 Rule also frustrates the public's ability to rely on the faithful execution of the Clean Air Act and Administrative Procedure Act's process and participation provisions. With the broad grant of exemptions from the 2024 MATS Rule – itself undertaken without any public process or satisfactory explanation whatsoever – the public cannot have confidence that participation in this rulemaking is not a futile and performative exercise. The President's (ab)use of the Section 112(i)(4) exemption authority – and the breadth of the resulting Proclamations – have placed a significant thumb on the scale here and deprive the public of confidence that EPA will faithfully consider, with an open-mind, public input on the proposal advanced here. This fundamentally suppresses public engagement in the process and frustrates the public procedures guaranteed by

[366] *See* EPA, "Clean Air Act Section 112 Presidential Exemption Information," (updated April 14, 2025), (acknowledging that "EPA set up an electronic mailbox to allow the regulated community to request a Presidential Exemption under section 112(i)(4) of the Clean Air Act" and that "EPA requested that facilities and/or affected sources subject to the regulations below submit information about why their facility and/or affected source meets the requirements under Clean Air Act Section 112(i)(4) for a Presidential exemption while EPA reconsiders these rules").https://www.epa.gov/stationary-sources-air-pollution/clean-air-act-section-112-presidential-exemption-information (acknowledging that "EPA set up an electronic mailbox to allow the regulated community to request a Presidential Exemption under section 112(i)(4) of the Clean Air Act" and that "EPA requested that facilities and/or affected sources subject to the regulations below submit information about why their facility and/or affected source meets the requirements under Clean Air Act Section 112(i)(4) for a Presidential exemption while EPA reconsiders these rules").

statute. While the unlawful exemptions from the 2024 MATS Rule remain in place, this rulemaking cannot provide due process consistent with the requirements of the Clean Air Act and Administrative Procedure Act.

XI. THE EPA ARBITRARILY FAILS TO DISCLOSE THE EXTENT TO WHICH THE PROPOSAL IS BASED ON THE DIRECTIVES OF EXECUTIVE ORDERS 14,241; 14,303; 14,192; 14,262; 14,270; 14,179; AND 14,154, WHICH CANNOT JUSTIFY IT.

The heart of the Administrative Procedure Act's ("APA") requirements is reasoned agency decision-making. *Michigan v. Env't Prot. Agency*, 576 U.S. 743, 750 (2015) (quoting *Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29 (1983)). While agencies can change policies and practices, they must "provide a reasoned explanation for the change." *Food & Drug Admin. v. Wages & White Lion Invs., L.L.C.*, 145 S.Ct. 898, 917 (2025). An agency's action is arbitrary and capricious if it fails to "articulate a satisfactory explanation for its action . . . and [] choice[s] made." *Motor Vehicle Mfrs. Ass'n*, 463 U.S. at 43.

Additionally, agency action must be based on the "consideration of the *relevant* factors." *Dep't of Homeland Sec. v. Regents of the Univ. of Cali.*, 591 U.S. 1, 16 (2020) (emphasis added). The goal of these requirements is to ensure "genuine justifications" are provided so the "interested public" can scrutinize agency decisions. *Dep't of Com. v. New York*, 588 U.S. 752, 785 (2019). The Clean Air Act ("CAA") requirements are the same as the APA's. *Huntsman Petrochemical L.L.C. v. Env't Prot. Agency*, 114 F.4th 727, 735 (D.C. Cir. 2024) (citing 42 U.S.C. § 7607(d)(9)(A)). If the agency fails to meet these standards, or is not otherwise in accordance with the law, the action must be set aside. *Motor Vehicle Mfrs. Ass'n*, 463 U.S. at 41.

The EPA's proposed repeal of the 2024 Rule runs contrary to the requirements governing administrative decision-making in its passing yet determinative references to Executive Orders. The proposed repeal refers to six Executive Orders[367] ("EOs")[368] and yet fails to provide reasoned explanations of its reliance and consideration of the EOs' directives in this rulemaking. Considering that many of the directives in these EOs directly contradict statutory requirements, the lack of reasoned discussion of the EPA's reliance on them is particularly problematic.

Any existing reference to the EOs is superficial and can provide no basis for this action—and to the extent it is the directives of the EOs that are motivating this action, with the justification offered in the rest of the preamble merely pretense, the Proposal is arbitrary and

[367] Unleashing Prosperity Through Deregulation , Exec. Order No. 14,192, 90 Fed. Reg. 9065 (Feb. 6, 2025); Unleashing American Energy, Exec. Order No. 14154, 90 Fed. Reg. 8353 (Jan. 29, 2025); Reinvigorating America's Beautiful Clean Coal Industry and Amending Executive Order 14,241, Exec. Order No. 14,261, 90 Fed. Reg. 15517, April 14, 2025; Removing Barriers to American Leadership in Artificial Intelligence, Exec. Order 14,179, 90 Fed. Reg. 8741 (Jan. 31, 2025); Executive Order 14,192, "Unleashing Prosperity Through Deregulation, Exec. Order No. 14,192, 90 Fed. Reg. 9065 (Feb. 6, 2025); Executive Order 14,262, "Strengthening the Reliability and Security of the United States Electric Grid, Exec. Order No. 14,262, 90 Fed. Reg. 15521 (April 14, 2025); Zero-based Regulatory Budgeting to Unleash American Energy, Exec. Order 14,270, 90 Fed. Reg. 15643 (April 15, 2025).
[368] 90 Fed. Reg. 25,535, 25,538, 25,540 (June 17, 2025). Only Executive Order 14,154; 14,192; and 14,241 are cited in the main text of the proposed rule. 90 Fed. Reg. at 25,538. The rest are only cited in footnote 7. 90 Fed. Reg. at 25,540.

capricious and it would be unlawful to finalize. First, the EPA briefly summarizes Executive Order 14,192[369] noting that it was directed to "suspend, revise, or rescind all agency actions identified as unduly burdensome." 90 Fed. Reg. 25,535, 25,540 (June 17, 2025). Next, it notes that this rulemaking was in response to "other recent Presidential Actions" and in accordance with Executive Orders 14,192; 14,154; and 14,241, *id.* at 25,538, 25,540 n.7,[370] that signal major federal policy shifts—a handful of sentences. Yet, the EPA references the influence of these EOs elsewhere in public announcements.[371] The EPA also fails to explain how these directives are weighed against the substantive requirements of the CAA or are in accordance with the law.[372] As a result, the influence of the EOs on the proposed repeal is unclear to the interested public, obscuring what should be a transparent process.

Another critical component of agency rulemaking is "consideration of relevant factors." *Regents of the Univ. Of Cali.*, 591 U.S. at 16. As discussed more in depth below, it is unclear how several of these EOs even apply to the 2024 MATS Rule or this area of regulation. Thus, it is even more critical that the EPA provide thorough explanations as to its use and consideration of the EOs in the 2025 proposal. Additionally, the EOs that on their face could apply to this rulemaking, are directly at odds with the statutory requirements of the CAA. The EPA's reliance on these EOs violates the CAA, and the EPA cannot avoid scrutiny by simply avoiding a discussion of this in the proposal. EPA must withdraw the proposal to the extent it relies on improper considerations dictated by these EOs. At the very least, EPA must explain how it relied on or carried out the mandates of the EOs in drafting the proposed rule. EPA must also provide an explanation of any other EOs it might have relied on but not cited.

To the extent the EPA relied on the Executive Order directives, it must withdraw the proposal because these directives are contrary to the Clean Air Act and Executive Orders cannot supersede statutory authority. Executive branch policies cannot be used by the EPA to overcome statutory requirements, *cf. Chamber of Com. v. Reich*, 74 F.3d 1322, 1339 (D.C. Cir. 1996), and

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[369] "Executive Order 14,154, "Unleashing American Energy" (90 FR 8353, January 29, 2025), specified that it is the policy of the United States to "protect the United States's economic and national security and military preparedness by ensuring that an abundant supply of reliable energy is readily accessible in every State and territory of the Nation" and "to ensure that all regulatory requirements related to energy are grounded in clearly applicable law" (among others). The Executive order directed the heads of all agencies to review all existing regulations to identify agency actions that impose an undue burden on the identification, development, or use of domestic energy resource, with particular attention to oil, natural gas, coal, hydropower, biofuels, critical mineral, and nuclear energy resources. Agencies were directed to suspend, revise, or rescind all agency actions identified as unduly burdensome." 90 Fed. Reg. at 25,540.

[370] "These proposed amendments are in accordance with Executive Order 14,192, ''Unleashing Prosperity Through Deregulation'' (90 FR 9065, February 6, 2025), Executive Order 14,154, ''Unleashing American Energy'' (90 FR 8353, January 29, 2025), and Executive Order 14,261, ''Reinvigorating America's Beautiful Clean Coal Industry and Amending Executive Order 14,241'' (90 FR 15517, April 14, 2025), among other recent Presidential actions." 90 Fed. Reg. at 25,538.

[371] *See* Env't Prot. Agency, Fact Sheet: Proposal to Repeal Revisions to the Mercury and Air Toxics Standards for Power Plants (2025) [hereinafter 2025 Proposed Repeal Fact Sheet] ("this proposed action would . . . remov[e] undue burdens on coal-fired EUGs"); *see also EPA Launches Biggest Deregulatory Action in the U.S. History*, Env't Prot. Agency (Mar. 12, 2025) [hereinafter *Deregulatory Press Release*] (announcing deregulatory actions to "fulfil[] President Trump's promise to unleash American energy").

[372] Michael Phillis et al., *A Breakdown of Major EPA Deregulatory Moves Around Water, Air, Climate*, AP News (Mar. 12, 2025), https://apnews.com/article/epa-zeldin-deregulation-plans-list-actions-5fb7fc1d24f54f193d585643c8fba79f.

yet the EPA appears to do just that. The directives of the EOs, discussed below, charge the EPA with considering factors that are impermissible under the CAA. As such, the EPA's action is not in accordance with the law and EPA must withdraw the proposal.

A. The EPA cannot rely on Executive Order 14,261, Reinvigorating America's Beautiful Clean Coal Industry, because its standards for regulatory repeal are not in accordance with section 112's requirements.

Executive Order 14,261 directs agency's to "remov[e] Federal regulatory barriers that undermine coal production" and to ensure that "Federal policy does not discriminate against . . . coal-fired electricity generation." Exec. Order No. 14,261 § 2. It then directs the EPA to identify "any . . . regulations . . . that seek to transition the Nation away from coal production and electricity generation." Exec. Order No. 14,261 § 6. While obscuring the EO's impacts in the preamble of the 2025 proposal, the EPA made it clear elsewhere that the repeal was intended to "remov[e] undue burdens" on coal power plants.[373] Again, the EPA cannot seek to avoid public scrutiny during rulemaking by avoiding discussion of the EO's directives while readily referencing and relying on them in other contexts.

There are two salient concerns about the EPA's reference to this EO. First, the EPA does not explain how the 2024 MATS rule can be classified as discriminating against coal-fired electricity or how it seeks to transition the nation away from coal. The only mention of this EO is in a footnote string citation, noting that the EPA undertook this review "[i]n response to these and other recent Presidential Actions." 90 Fed. Reg. at 25,540, 25,540 n.7. That is the extent of the EPA's discussion, which far from allowing the interested public to "scrutinize agency decisions," instead obscures the agency's motivations and considerations from the public. *See Dep't of Com. v. New York*, 588 U.S. at 785. And yet, outside of the docket, the EPA highlights the influence of these EO directives on its decision-making.[374] The EPA appears to now believe the 2024 MATS rule was "discriminating" against coal without any support for that assertion in the record of this rulemaking, or the 2024 rulemaking.

For example, the EPA fails to address how the 2024 MATS rule could be construed as seeking a transition from coal when the 2024 Regulatory Impact Analysis ("RIA") repeatedly noted that the new standards would not result in early retirements, decreases in coal capacity, or significant decreases in energy generation levels (noting only small changes in coal use of less than 0.1% in all regions).[375] The 2024 RIA does discuss that there has been a natural, market-based transition away from coal which indicates, if anything, that it is the market, and not the EPA, that is discriminating against coal.[376] In contrast, the RIA for the 2025 proposal makes no mention of retirements or energy transition, and the proposed rule also does not discuss

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[373] EPA, Fact Sheet: Proposal to Repeal Revisions to the Mercury and Air Toxics Standards for Power Plants (2025) [hereinafter 2025 Proposed Repeal Fact Sheet] ("this proposed action would . . . remov[e] undue burdens on coal-fired EUGs"); *see also EPA Launches Biggest Deregulatory Action in the U.S. History*, Env't Prot. Agency (Mar. 12, 2025) [hereinafter *Deregulatory Press Release*] https://www.epa.gov/newsreleases/epa-launches-biggest-deregulatory-action-us-history (announcing deregulatory actions to "fulfil[] President Trump's promise to unleash American energy").

[374] *See* 2025 Proposed Repeal Fact Sheet; *Deregulatory Press Release*.

[375] 2024 RIA at ES-10, 3-17, 3-22.

[376] *Id.* at 2-4.

retirements or energy transitions.[377] Thus, any assumption that the 2024 MATS Rule imposed a burden on coal-powered production or was linked to early plant retirement is factually unsupported on this record.

Second, the EPA ignores how the directives of this EO are incompatible with the CAA. The 2024 MATS Rule was adopted pursuant to the CAA's requirement to "review, and revise as necessary (taking into account developments in practices, processes, and control technologies), emission standards under this section no less often than every 8 years." 42 U.S.C. § 7412(d)(6). This review is a mandated, cyclical process protected from other political considerations. 88 Fed. Reg. 24854, 24856 (April 24, 2023). The CAA does require the consideration of factors such as "cost" and "non-air quality health and environmental impacts" when determining the "maximum degree of reduction in emissions of" HAPs. 42 U.S.C. §7412(d)(2). However, the discretion granted to the EPA to consider such factors does not extend to allowing the EPA to consider factors such as "discrimination" against industries—an undefined and vague standard—or allow the agency to loosen standards as part of a mission to remove regulatory barriers to a particular industry. In sum, to the extent the EPA is using EO 14,261 as a basis for the 2025 proposal, it is not in accordance with the law.

B. The EPA cannot rely on Executive order 14,192, Unleashing Prosperity Through Deregulation, because CAA requirements cannot be overridden by ideological concerns regarding overregulation.

Executive Order 14,192 is concerned with a purported "ever-expanding morass of complicated Federal regulation impos[ing] massive costs on the lives of millions of Americans, creat[ing] a substantial restraint on our economic growth and ability to build and innovate, and hamper[ing] our global competitiveness." Exec. Order No. 14,192 § 1. Because of this, it requires "an executive department or agency" to "identify at least 10 existing regulations to be repealed" when it "proposes for notice and comment or otherwise promulgates a new regulation." Exec. Order No. 14,192 § 3. The goal of the EO is for the "total incremental cost of all regulations…[to] be significantly less than zero." Exec. Order No. 14,192 § 3(b). The extent of the EPA's discussion of this policy in the proposed repeal of the 2024 Rule is noting that the action is an "Executive Order 14,192 deregulatory action," 90 Fed. Reg. at 25,545, and conducting the required cost analysis of savings gained by this proposed repeal. *Id.* This cursory mention again obscures the fact that the EO's directives conflict with the statute.

To start, nothing in the CAA allows for the rescission of standards because the Executive Branch believes there are too many regulations. CAA emissions standards cannot be revoked or revised based on an arbitrary "ten for every one" policy. The EPA also fails to note what new regulation it promulgated that required it to review ten other regulations, why the 2024 MATS rule was selected for rescission, or if this action was done in accordance with the EO policy.

Next, while EPA must consider the "cost of achieving" the "maximum degree of reduction in emissions," the CAA does not permit consideration of overarching regulatory costs

[377] *See* 2025 RIA; 90 Fed. Reg. 25,535.

across the portfolio of EPA's regulations.[378] This would be contrary to the purpose of the CAA, 42 U.S.C. § 7401, and the plain text of section 112 that enumerates specific factors for EPA to consider, and does not anticipate or allow for such arbitrary consideration of cumulative regulatory costs. *See* 42 U.S.C. § 7412(d)(6). Moreover, there is no place for acontextual concern about how "complicated" a regulation may be under the CAA without corresponding consideration of the benefits achieved—saving lives with pollution abatement may be complicated, but that does not mean it is no longer necessary.

In sum, if the EPA relied on this EO for the 2025 proposed repeal, it must withdraw its proposal.

C. The directives in Executive Order 14,154, "Unleashing American Energy" are contrary to substantive CAA requirements and do not justify the repeal.

This Executive Order directs all agencies to conduct a review of all regulations "that impose an undue burden on the . . . use of domestic energy resources" and highlights coal as an energy source of particular concern. Exec. Order 14,154 § 3. As noted throughout this comment, while the EPA must consider multiple factors in updating emissions standards, it cannot repeal standards solely based on burden to industry. The EPA is required to review and revise standards as necessary every eight years, accounting for "developments in practices, processes, and control technologies." 42 U.S.C. § 7412(d)(6). However, the Section 112(d)(6) and 112(d)(2) factors do not allow the EPA to repeal or weaken standards based solely on a political bias in favor of reducing costs for a particular industry. As the record makes clear, EPA carefully considered the impacts of the 2024 MATS Rule on the regulated industry to the extent required and permitted by the Clean Air Act and found no significant burden.[379] EPA properly updated emissions standards in the 2024 Rule because there have been substantial technological "developments" since 2012 that made such revisions necessary. 89 Fed. Reg. at 38530. The criteria in the Executive Order cannot override the statutory requirements nor justify this repeal.

In fact, some of the directives in this EO run contrary to this proposed repeal. It directs agencies to use "rigorous, peer-reviewed scientific analysis." Exec. Order 14,154 § 2(h). The 2024 Rule was grounded in those rigorous scientific standards.[380] Contrastingly, the Proposal is grounded in ideological concerns and prioritization of the coal industry without due regard to

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[378] 42 U.S.C. § 7412(d)(2) ("Emissions standards promulgated under this subsection…shall require the maximum degree of reduction in emissions…that the Administrator, taking into consideration the cost of achieving *such emission reduction, …*determines is achievable.") (emphasis added).

[379] *See* 2024 RIA at 3-21 to 3-31; 2025 RIAat 2-7 ("The changes to retail electricity prices and indicators for coal and natural gas were each estimated to be approximately zero percent in all run years under the 2024 MATS RTR"); *see also id* at 4-2 ("the EPA concludes that the estimated compliance cost savings under the proposed [repeal] will not have a significant economic impact on a substantial number of small entities ."); *see also* 89 Fed. Reg. 3850838524-25 (May 7, 2024) ("[M]any regulated facilities are electing to retire due to factors independent of the EPA's regulations").

[380] S*ee generally* 2024 RIA (a 268-page analysis that cites to hundreds of studies, addresses uncertainties, and explains methods in detail); *see* 89 Fed. Reg. at 38553 (noting the EPA used "state-of-the-art, peer-reviewed . . ." models in emission quantifications); *see also* 89 Fed. Reg. at 38557 (referencing a "peer-reviewed approach for selecting and quantifying adverse effects attributable to air pollution").

public health.[381] The EPA cannot cherry-pick directives to follow such that it uses some sections to justify a repeal, and ignores other sections because it would make it difficult to justify said repeal.

Moreover, this EO also directs agencies to provide opportunities for public comment.[382] Inherent in this directive is that the EPA must also provide reasoned responses to public comment. Applied here, the EPA must acknowledge the deficiencies noted in the public comment period above and remedy them before concluding any rulemaking as well as acknowledge the many public commenters who have strongly urged the EPA to not roll back the 2024 Rule.

D. The CAA does not allow the EPA to prioritize AI as directed in Executive Order 14,179, "Removing Barriers to American Leadership in Artificial Intelligence" over its substantive requirements and the EPA should be transparent about any AI action plans it created pursuant to this EO.

EO 14,179 has a stated purpose to revoke policies and directives that "act as barriers to American AI innovation" to "retain [United States] global leadership in artificial intelligence." Exec. Order 14,179 § 1. It directs the Assistant to the President for Science and Technology ("APST"), the Special Advisor for AI and Crypto, and the Assistant to the President for National Security Affairs ("APNSA") to coordinate with other presidential staff, the Director of the Office of Management and Budget and "the heads of such . . . agencies as the APST and APNSA deem relevant" to create an action policy that will "sustain and enhance America's global AI dominance." Exec. Order 14,179 § 4, 2. This EO, like others, was simply mentioned in a footnote in the 2025 proposed repeal. 90 Fed. Reg. at 25,540 n.7.

It is impermissible for EPA to base its withdrawal of the MATS update rule on this EO because it conflicts with the requirements of the CAA by dictating consideration of extra-statutory factors. Additionally, it is unclear how this EO applies to and affects the EPA which makes it difficult for the public to meaningfully participate. This EO directs certain officials to develop "AI action plans" in coordination with agencies they "deem relevant." Exec. Order 14,179 § 4. Thus, if the EPA is undertaking this action in relation to any such AI action plan or overall policy related to AI, it must explain that basis and place relevant materials and documents in the docket for informed review by the public. 42 U.S.C. § 7607(d). As of this comment submission, nothing in the rulemaking docket illustrates how or whether this action relates to the Administration's policies on AI aside from this reference to the EO.

If EPA is basing the Proposal on some kind of AI policy or action plan EPA cannot avoid scrutiny of whether such basis is compatible with the Clean Air Act's requirements by obscuring such justification. And it would be impermissible for EPA to undo a Section 112(d)(6) revision of standards based on unsubstantiated, unsupported ideas that AI innovation is incompatible with

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[381] *See EPA Launches Biggest Deregulatory Action in the U.S. History*, Env't Prot. Agency (Mar. 12, 2025), https://www.epa.gov/newsreleases/epa-launches-biggest-deregulatory-action-us-history ("We are driving a dagger straight into the heart of the *climate change religion* . . ."); 2025 Proposed Repeal Fact Sheet.

[382] Exec. Order 14,154 § 2(h) ("It is the policy of the United States to guarantee that all [agencies] provide opportunity for public comment and rigorous, peer-review scientific analysis").

commonsense public health safeguards on coal-fired generation. Nowhere in this rulemaking does the EPA discuss any barriers the 2024 Rule posed to AI or how the Proposal would advance it. Thus, reliance on this EO is not in accordance with the law.

Lastly, this EO directs agency heads to review and possibly revoke all actions and policies taken pursuant to the "revoked Executive Order 14,110 of October 30, 2023 (Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence). EO 14,179, § 5. The 2024 Rule cannot reasonably be construed as a policy taken pursuant to the 2023 EO on artificial intelligence. Regardless, EO 14,179 does not provide authority to support EPA's repeal of the 2024 Rule; rather, EPA must abide by the considerations provided under the CAA.

E. Executive Order 14,270, "Zero-based Regulatory Budgeting to Unleash American Energy" cannot be a basis for this action because its rule sunset requirements are impermissible under the CAA and the CAA requires the type of review and innovation the EO seeks to promote.

EO 14,270 directs agencies to "issue [] sunset rule[s]" for regulations. Exec. Order 14,270 § 4. The EPA appears to rely on this directive in its action, sunsetting the 2024 MATS Rule. *See* 90 Fed. Reg. at 25,540 n.7 (citing only to the EO in a footnote with no further discussion). However, nothing in section 112 allows for the EPA to set arbitrary timelines to sunset emissions standards. There are already statutory timelines for review and updates that cannot be overridden by the Executive Branch.[383] If the EPA relied on this directive and is using it to justify sunsetting the 2024 MATS Rule, it is arbitrary and capricious and not in accordance with the CAA.

Sunsetting a regulation after one year, for no other reason than that it has been one year, has no basis in the record or the law; it is arbitrary. EPA already struggles to conduct the regulatory reviews required by the CAA by their statutory deadlines, so it is untenable to imagine how the EPA, with a massively reduced staff, could keep up with additional, arbitrary requirements to review and sunset every one of its rules, including those, as here, that already have a statutorily mandated review schedule.[384]

Contributing absurdity is that if the EPA actually relied on this EO, it should keep and not repeal the 2024 MATS rule. The EO stresses that "innovation is critical" in the energy sector and that regulations have "result[ed] [in] an energy landscape perpetually trapped in the 1970s." Exec. Order 14,270 § 1. The EO directs agencies to "rescind[] outdated regulations that serve as a drag on progress." Exec. Order 14,270 § 1. Based on these directives, the EPA would not be proposing to repeal an *updated rule* that encouraged the use of *updated technologies* to spur innovation. The 2024 MATS rule was only finalized on May 7, 2024, 89 Fed. Reg. 38508, and

[383] *See* 42 U.S.C. § 7412(d)(6) ("The Administrator shall review . . . emission standards . . . no less often than every 8 years.").
[384] *See* Richard K. Lattanzio, Cong. Rsch. Serv., RL30853, Clean Air Act: A Summary of the Act and Its Major Requirements (2022); *see also* Matthew Daly, *EPA Eliminates Research and Development Office, Begins Layoffs,* AP News (July 19, 2025), https://apnews.com/article/epa-zeldin-trump-reorganization-science-research-acf0ad3a649f940e138b2a917169405f.

was adopted due to a record of technological updates and developments.[385] Moreover, as noted multiple times above, rulemaking under the CAA is a precise process guided by statutory provisions. It already requires regular review of standards and rules to ensure that emissions standards align with current technological achievements — in other words, the CAA promotes innovation and review such that standards are *not* stuck in the 1970s.

F. The EPA appears to rely on Executive Order 14,303, "Restoring Gold Standard Science," without citing to it or acknowledging the CAA's existing robust scientific standards.

Based on tenuous claims, EO 14,303 sets forth standards for agency scientific analysis. This EO is not cited or referred to by the EPA in the 2025 proposal; however, due to its binding nature on EPA, we assume EPA implemented its directives in issuing this proposal. If the EPA requested a waiver pursuant to section 8, then it must disclose this request and include the waiver on the docket for public review. If the EPA did not request a waiver and was therefore mandated to follow the EO's directives, it must explain how it implemented those directives. Parts of the 2025 RIA focus on the possible "uncertainties" from the data used in the 2024 MATS rule, which is reflective of the EO's directives. *See* 2025 RIA 5-4 to 5-7 (2025); Exec. Order 14,303 § 1, 3, 4.

Therefore, assuming the EPA followed this EO, it must explain how the EO influenced its review of the data and analyses underlying the 2024 MATS rule and how it re-evaluated those data. Specifically, it must explain how it is in accord with statutory requirements. The CAA already has robust standards and systems to ensure that reviews and emission limits are set based on the latest, peer-reviewed science.[386] For decades, the CAA has set its own "gold standard science" with expert oversight, peer-review processes, and robust research. *See* 42 U.S.C. § 7403. The standards set forth in the EO cannot be used to bypass existing procedures in the statute or dictate an ideological outcome. Also, if the EPA is following this EO, it is unclear how it can meet its "gold-standard" requirements when it is laying off most of its research and science staff.[387] In sum, if the EPA used the EO to justify any changes to the 2024 MATS, it is not in accordance with the law.

Accordingly, the EOs that EPA bases this action on have multiple contradictions with the CAA and the EPA improperly obscures this from the public by briefly citing them without any further discussion. Relying on the directives of EOs that contravene the plain text of the CAA is improper and not in accordance with the law. As such, the EPA must withdraw this proposed repeal.

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[385] 89 Fed. Reg. at 38518 ("We determined there are developments in practices, processes, and control technologies that warrant revisions to the MACT standards."); *see also* Env't Prot. Agency, Fact Sheet: EPA's Final Rule to Strengthen and Update the Mercury and Air Toxics Standards for Power Plants (2024), https://www.epa.gov/system/files/documents/2024-04/fact-sheet_mats-rtr-final_rule_2024.pdf.

[386] *The Clean Air Act: Solving Air Pollution Problems with Science and Technology*, Env't Prot. Agency, https://www.epa.gov/clean-air-act-overview/clean-air-act-solving-air-pollution-problems-science-and-technology (last visited August 8, 2025).

[387] Matthew Daly, *EPA Eliminates Research and Development Office, Begins Layoffs,* AP News (July 19, 2025), https://apnews.com/article/epa-zeldin-trump-reorganization-science-research-acf0ad3a649f940e138b2a917169405f.

XII. EPA MUST WITHDRAW THE PROPOSAL BECAUSE ITS BASIS IS PRETEXTUAL.

The Administration has made a number of public statements and announcements in the lead up to this Proposal that—in addition to the contents of the Proposal itself—suggesting that EPA's proffered justification for the Proposal is pretextual and does not communicate the Administration's actual basis for this action. First, for all the reasons already explained, EPA's rationale for the Proposal is arbitrary, capricious and fails to draw a logical conclusion based on the record before the Agency. Taken against President Trump's clearly stated agenda to deregulate no matter the consequences and to "unleash" fossil fuel energy resources from lawfully enacted and statutorily-required human health safeguards, the strong implication is that the decision to repeal the standards preceded the invention of the justification for their repeal that EPA provides in the proposal. Because EPA fails to "offer genuine justifications for [the] important decisions" proposed, and rather provides only "contrived" reasoning, the Proposal cannot be finalized. *Dep't of Com. v. New York*, 588 U.S. 752, 785 (2019).

On March 12, 2025, a mere *52 days* after President Trump's inauguration, EPA Administrator Lee Zeldin announced that "the agency will undertake 31 historic actions in the greatest and most consequential day of deregulation in U.S. history, to advance President Trump's Day One executive orders and Power the Great American Comeback." In his own phrasing, he proclaimed "[w]e are driving a dagger straight into the heart of the climate change religion."[388] This language evinces hostility towards the regulations targeted in that announcement and a primary intent to deregulate for the sake of deregulation. One of these 31 actions announced was "[r]econsideration of Mercury and Air Toxics Standards that improperly targeted coal-fired power plants (MATS)".[389] In a press release focused on the Agency's announcement that it would reconsider the 2024 MATS Rule, Administrator Zeldin provided a statement that "EPA needs to pursue commonsense regulation to Power the Great American Comeback, not continue down the last administration's path of destruction and destitution."[390] An EPA newsletter proclaimed "Administrator Zeldin Proposes 2 Deregulatory Actions to protect Beautiful, Clean Coal and Unleash American Energy" referring to the proposal to repeal the 2024 MATS Rule.[391] The overarching message of this Administration, communicated also through the executive orders cited to by the Proposal and discussed above, is that all regulation (particularly environmental and public health regulation and particularly as applied to the power sector) is scorned by this Administration.

While every administration will have its own agenda and policy priorities that it will seek to implement, a policy priority to "deregulate" with no consideration of countervailing factors such as the benefits of regulation, statutory purposes and requirements, and public health and welfare needs, cannot sustain action under the Clean Air Act and the Administrative Procedure

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[388] EPA News Release, EPA Launches Biggest Deregulatory Action in U.S. History (Mar. 12, 2025) https://www.epa.gov/newsreleases/epa-launches-biggest-deregulatory-action-us-history.
[389] *Id*.
[390] EPA News Release, Trump EPA to Reconsider Biden-Harris MATS Regulation That Targeted Coal-Fired Power Plants to be Shut Down (Mar. 12, 2025), https://www.epa.gov/newsreleases/trump-epa-reconsider-biden-harris-mats-regulation-targeted-coal-fired-power-plants-be.
[391] EPA, "Call It A Comeback" Newsletter (June 12, 2025), https://content.govdelivery.com/accounts/USEPAAO/bulletins/3e5030f.

Act. And the Administration has otherwise failed to lawfully justify this proposal. The speed with which this proposal was issued and the fact that no new analysis or fact-finding supports it undermines the credibility of EPA's assertion that its complete reversal on the cost effectiveness of the revised fPM standard, the need for PM CEMS for compliance demonstration, and the achievability of the mercury lignite standard all follow directly from the administrative record itself (which is largely the same as the one supporting the 2024 MATS Rule). The better conclusion under these circumstances is that the proposal is based purely on the energy and deregulatory policy priorities of the Administration.

EPA's exchanges with the Office of Management and Budget during Executive Order 12,866 regulatory review further reveal that issues at the heart of the Proposal were not addressed or seemingly even considered by EPA until they were flagged by OMB. It was OMB that noted that EPA had previously opted to require PM CEMS because it could better assure that control technologies were working properly—and that EPA had failed to explain its reversal on this point.[392]

OMB also asked whether EPA had considered taking comment on alternatives to the Proposal. EPA stated "[g]iven the schedule of this proposal EPA did not consider other regulatory alternatives. We have added a solicitation of comment on regulatory alternatives to address this comment."[393] This reveals the rushed process EPA undertook to issue this Proposal. In that rush, EPA did not consider *any* alternatives which further suggests that EPA was not earnestly addressing problems with cost effectiveness and achievability of the standard as it claims, but fully and solely focused on repealing the rule. As we explain above, there are options other than a full repeal of the 2024 Standards that could reduce costs and technological requirements but that are still more stringent than the 2012 standards.

And, given that, the Proposal cannot be lawfully finalized. For the reasons explained above, none of President Trump's executive orders and the policies they enshrine, which arbitrarily favor coal as a fuel source and/or to reduce regulatory costs with no holistic consideration of the benefits of regulatory action or the purposes of the Clean Air Act, provide a proper basis for rescinding the 2024 MATS Rule. The Agency has not properly explained or justified the Proposal, and purely pretextual reasoning cannot support agency rulemaking. Therefore EPA must withdraw the Proposal.

CONCLUSION

EPA should withdraw the proposed repeal of the 2024 MATS Rule.

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[392] Redline strikeout documenting changes made to the preamble during OMB Review under EO 12,866 - Proposed Repeal of Amendments to MATS, Passback #1, Att. 2 to Doc. ID No. EPA-HQ-OAR-2018-0794-6982 at 27 (May 23, 2025), https://www.regulations.gov/document/EPA-HQ-OAR-2018-0794-6982 (Comment from OMB reviewer notes "This reviewer believes there's a missing link here. EPA previously argued that PM CEMS can better assure that control technologies are working properly. Suggest EPA explain why they no longer believe that justifies the use of PM CEMS. Moreover, suggest identifying incremental impacts between the two options.").

[393] *Id.* at 36 (see margin comment from OMB reviewer).

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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