

April 11, 2022

VIA ELECTRONIC SUBMISSION

To: Environmental Protection Agency
Subject: Comments on “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; Notice of Proposed Rulemaking,” 87 Fed. Reg. 7624 (February 9, 2022)
Docket ID: Docket No. EPA-HQ-OAR-2018-0794

The Institute for Policy Integrity (Policy Integrity) at New York University School of Law¹ respectfully submits the following comments to the Environmental Protection Agency (EPA) on its proposal (2022 Proposal or Proposed Rule) to revoke a May 22, 2020 finding that it is not appropriate and necessary to regulate coal- and oil-fired electric utility steam generating units (EGUs) under Clean Air Act (CAA) Section 112 (2020 Action), and to reaffirm the Agency's April 25, 2016 finding that it remains appropriate and necessary to regulate hazardous air pollutant (HAP) emissions from EGUs after considering cost (2016 Supplemental Finding).² Policy Integrity is a non-partisan think tank dedicated to improving the quality of government decisionmaking through advocacy and scholarship in the fields of administrative law, economics, and public policy.

These comments make three primary arguments. **First, EPA appropriately proposes to revoke the Trump Administration’s 2020 Action.³ That action arbitrarily ignored the co-benefits of reducing particulate matter and treated these indirect benefits differently from indirect costs. It also failed to adequately consider updated information on direct unquantified benefits submitted to the record or justify the Agency’s change in position.** These flaws violate the Administrative Procedure Act, frustrate the statutory goals of Section 112 of the Clean Air Act, and create an unsupportable litigation risk.

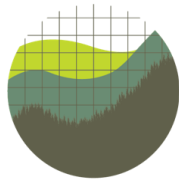
Second, the Proposed Rule lawfully restores the 2016 Supplemental Finding that the standards are appropriate and necessary after considering cost.⁴ EPA appropriately

¹ This document does not purport to present New York University School of Law’s views, if any.

² 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; Notice of Proposed Rulemaking, 87 Fed. Reg. 7624 (proposed Feb. 9, 2022) (to be codified at 40 C.F.R. pt. 63) [hereinafter 2020 Proposal].

³ National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units - Reconsideration of Supplemental Finding and Residual Risk and Technology Review, 85 Fed. Reg. 31,286 (May 22, 2020) [hereinafter 2020 Action].

⁴ Supplemental Finding that it Is Appropriate and Necessary to Regulate Hazardous Air Pollutants from Coal- and Oil-Fired Electric Utility Steam Generating Units, 81 Fed. Reg. 24,420, 24,420 (Apr. 25, 2016) [hereinafter 2016 Supplemental Finding].



considers both the direct unquantified benefits of hazardous air pollution and the co-benefits of reducing particulate matter—as is consistent with sound economic analysis, executive guidance, and long-standing agency practice.

In the 2022 Proposal, EPA justifies its finding that regulation is appropriate and necessary on its preferred “totality-of-the-circumstances” approach and an alternative cost-benefit analysis approach. EPA has full discretion to include a formal cost-benefit analysis as an alternative approach to further support its “appropriate-and-necessary” finding. **EPA should include the formal cost-benefit analysis in the final rule to more comprehensively bolster support for its finding and remove its statements suggesting that cost-benefit analysis is inconsistent with robust consideration of unquantified effects and distributional effects.**

Third, EPA should revise the Residual Risk and Technology Review⁵ in its 2020 Action (2020 RTR) to cure its defects and better analyze how residual risk will be distributed across the most vulnerable and overburdened populations, including communities of color, low-income communities, and indigenous communities. The 2020 RTR failed to provide a satisfactory explanation for the findings of its technology review or consider the benefits of incremental risk reductions for its residual risk review. Further, when revising the 2020 RTR, EPA should analyze how residual risk is distributed across the population in light of President Biden’s commitment to prioritize environmental justice⁶ and call for “procedures that take into account the distributional consequences of regulations, including as part of any quantitative or qualitative analysis of the costs and benefits of regulations, to ensure that regulatory initiatives appropriately benefit and do not inappropriately burden disadvantaged, vulnerable, or marginalized communities.”⁷

Policy Integrity has consistently participated in the rulemakings and litigation related to national hazardous-air-pollutants standards for power plants. For further support, please see the prior comments and other attachments referenced throughout this document.

⁵ The 2020 RTR was finalized in the same rulemaking which reconsidered the appropriate-and-necessary finding, *see* 2020 Action, 85 Fed. Reg. 31,286.

⁶ *See* Exec. Order No. 13,990, § 1, 86 Fed. Reg. 7037, 7037 (Jan. 25, 2021) (stating that it is the policy of the new administration to “prioritize . . . environmental justice”); Exec. Order No. 14,008, § 219, 86 Fed. Reg. 7619, 7629 (Feb. 1, 2021) (stating that it is the administration’s policy to “secure environmental justice and spur economic opportunity for disadvantaged communities that have been historically marginalized and overburdened by pollution and underinvestment in housing, transportation, water and wastewater infrastructure, and health care”).

⁷ Modernizing Regulatory Review: Memorandum for the Heads of Executive Departments and Agencies, § 2(b)(ii), 86 Fed. Reg. 7223, 7223 (Jan. 26, 2021) (reporting the memorandum issued on January 20, 2021). The memorandum calls on the Office of Management and Budget (OMB) to develop the procedures in consultations agencies and Executive departments, but EPA can demonstrate alignment with this goal and leadership in advancing it by advancing its consideration of distributional effects.

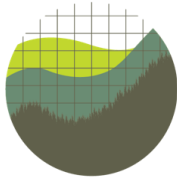
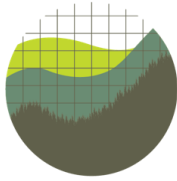
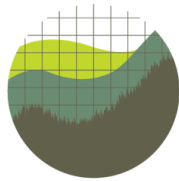


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I. Background on the “Appropriate-and-Necessary” Finding Under the Clean Air Act

Section 112(c) of the Clean Air Act requires the Administrator to publish “a list of all categories and subcategories of major sources and area sources . . . of the air pollutants listed” in Section 112(b) of the act—also known as hazardous air pollutants, or HAPs.⁸ Once a source category is listed, the Administrator must set HAP emission standards for the category pursuant to Section 112(d).⁹

EGUs, however, are subject to a special listing threshold. Section 112(n) instructs the EPA Administrator to study “the hazards to public health reasonably anticipated to occur as a result of” HAP emissions from EGUs.¹⁰ EPA must proceed to set emission standards for EGUs under Section 112(d) only if the Administrator finds that “such regulation is appropriate and necessary after considering the results of the study.”¹¹

In 2012, EPA finalized a finding that it was appropriate and necessary to regulate HAP emissions from EGUs and, at the same time, issued emission standards pursuant to Section 112(d) (the Mercury and Air Toxics Standards or MATS).¹² The Supreme Court subsequently remanded the appropriate-and-necessary finding on the grounds that EPA failed to consider costs before making it.¹³ (EPA had, in fact, conducted a formal cost-benefit analysis for MATS, but the agency had not relied on that analysis as a basis for the threshold appropriate-and-necessary finding.¹⁴) The Court left it “up to the Agency to decide [on remand] (as always, within the limits of *reasonable* interpretation) how to account for cost.”¹⁵

In 2016, EPA reaffirmed its 2012 appropriate-and-necessary finding after taking costs into account in two different ways in its 2016 Supplemental Finding.¹⁶ In its “preferred approach,” EPA analyzed the cost reasonableness of MATS under several metrics and determined that each of these metrics “support[ed] a conclusion that the cost of MATS is reasonable.”¹⁷

⁸ 42 U.S.C. § 7412(c)(1). Major sources are those that emit or have the potential to emit at least 10 tons per year of any HAP or at least 25 tons per year of any combination of HAPs.⁸ Area sources are all other stationary sources of HAPs. *Id.* § 7412(a)(1).

⁹ *Id.* § 7412(d)(1).

¹⁰ *Id.* § 7412(n)(1)(A).

¹¹ *Id.*

¹² National Emission Standards for Hazardous Air Pollutants from Coal- and Oil-Fired Electric Utility Steam Generating Units and Standards of Performance for Fossil-Fuel-Fired Electric Utility, Industrial-Commercial-Institutional, and Small Industrial-Commercial-Institutional Steam Generating Units, 77 Fed. Reg. 9303 (Feb. 16, 2012) [hereinafter MATS Rule].

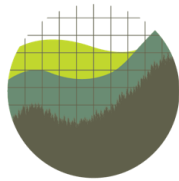
¹³ *Michigan v. EPA*, 135 S. Ct. 2699, 2712 (2015).

¹⁴ *Id.* at 2711.

¹⁵ *Id.* (emphasis added).

¹⁶ 2016 Supplemental Finding, 81 Fed. Reg. at 24,420.

¹⁷ *Id.* at 24,427.



As an alternative basis for the 2016 Finding, EPA relied on the conclusions of the formal cost-benefit analysis contained in the Regulatory Impact Analysis for MATS (MATS RIA).¹⁸ That analysis projected that MATS would impose \$9.6 billion per year in compliance costs but yield between \$37 and \$90 billion per year in quantifiable benefits, in addition to many other positive health and environmental effects that could not be quantified.¹⁹ The “great majority” of these quantified benefits were “attributable to co-benefits from reductions in [particulate matter]-related mortality.”²⁰ These particulate matter reductions would occur as a direct consequence of the steps that EPA assumed EGUs would take to reduce HAP emissions. In other words, the very controls that EPA assumed EGUs would install to reduce HAP emissions would also reduce emissions of particulate matter and particulate matter precursors like sulfur dioxide.²¹ EPA nevertheless referred to particulate matter reductions as “co-benefits” because they were “not the primary objective” of MATS.²²

Because EPA’s formal cost-benefit analysis showed that MATS’s benefits would “exceed the costs by 3 to 9 times,” the agency found that it “provide[d] an independent basis to support the finding that a consideration of cost does not cause the agency to alter its [2012 appropriate-and-necessary] determination.”²³

In 2020, EPA reversed the 2016 Supplemental Finding.²⁴ EPA justified this course of action by rejecting both its prior cost-reasonableness analysis and its formal cost-benefit analysis as inconsistent with the requirements of Section 112(n), as interpreted by *Michigan v. EPA*.²⁵ With respect to the formal cost-benefit analysis, EPA suggested that focusing “primarily” on HAP benefits—as opposed to particulate matter co-benefits—may be the “only permissible approach” under Section 112(n).²⁶ Alternatively, EPA argued that its refusal to consider co-benefits is a “reasonable approach . . . to considering costs in response to *Michigan*.”²⁷ In other words, according to the 2020 EPA, even if Section 112(n) does not unambiguously preclude the full consideration of co-benefits, the agency has discretion to fully or partially disregard such benefits.

¹⁸ *Id.*

¹⁹ *Id.* at 24,425.

²⁰ MATS Rule, 77 Fed. Reg. at 9305.

²¹ 2016 Supplemental Finding, 81 Fed. Reg. at 24,438 (“[I]n installing control technologies and implementing the compliance strategies necessary to reduce the HAP emissions directly regulated by the MATS rule also results in concomitant (co-benefit) reductions in the emissions of other pollutants such as directly emitted PM_{2.5} and SO₂. While reductions of PM_{2.5} and SO₂ are not the objective of the MATS rule, these emission reductions are a direct consequence of regulating the HAP emissions from EGUs.”).

²² MATS Rule, 77 Fed. Reg. at 9305.

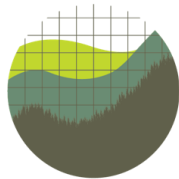
²³ 2016 Supplemental Finding, 81 Fed. Reg. at 24,428.

²⁴ 2020 Action, 85 Fed. Reg. 31,286.

²⁵ National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units - Reconsideration of Supplemental Finding and Residual Risk and Technology Review, 84 Fed. Reg. 2670, 2674–76 (proposed Feb. 7, 2019) [hereinafter 2019 Proposal].

²⁶ *Id.* at 2676.

²⁷ *Id.*



In accord with these conclusions, the 2020 Action purported to take a new three-part approach to making the appropriate and necessary determination: “First, the EPA compare[d] the monetized costs of regulation against the subset of HAP benefits that could be monetized. . . . Second, the EPA consider[ed] whether unquantified HAP benefits may alter that outcome. . . . Third, the EPA consider[ed] whether it is appropriate, notwithstanding the above, to determine that it is “appropriate and necessary” to regulate EGUs under CAA Section 112(n)(1)(A) out of consideration for the PM co-benefits that result from such regulation.”²⁸ In addition to giving the co-benefits inadequate consideration, this approach inappropriately undervalued the unquantified HAP benefits. EPA subsequently finalized its conclusion “that it is not ‘appropriate and necessary’ to regulate HAP emissions from coal- and oil-fired EGUs”²⁹ “because the costs of such regulation grossly outweigh the [direct] HAP benefits”³⁰ and its determination that it is not appropriate to change this finding out of consideration for the co-benefits since they compose such a significant share of the benefits.³¹

On February 9, 2022, EPA proposed to revoke the 2020 Action’s finding that it is not “appropriate and necessary” to regulate HAP emissions from coal- and oil-fired EGUs.³² “[T]he Agency proposes to find that the decisional framework for making the appropriate and necessary determination under CAA Section 112(n)(1)(A) that was applied in the 2020 Final Action was unsuitable because it failed to adequately account for statutorily relevant factors.”³³ EPA further proposes to reaffirm the Agency’s 2016 Supplemental finding that it remains appropriate and necessary to regulate hazardous air pollutant (HAP) emissions from EGUs after considering cost.

II. EPA Rightly Revokes the Trump Administration’s Unlawful and Inappropriate 2020 Finding That the Regulation of EGU’s Under Section 112 of the Clean Air Act Is Not Appropriate and Necessary

As the Agency now acknowledges in the 2022 Proposal, the 2020 Action inappropriately “gave secondary weight to the vast majority of the benefits of regulating HAP emissions from stationary sources that cannot be quantified, and completely ignored the non-HAP monetized benefits directly attributable to the MATS rule.”³⁴ Nothing in Section 112(n) or *Michigan v. EPA* required EPA to undervalue the co-benefits of particulate matter reductions or the unquantified direct benefits of HAP reductions.

The 2020 Action attempted to obscure its arbitrary disregard of the co-benefits by arguing that EPA previously “erred in the 2016 Supplemental Finding’s benefit-cost analysis in giving *equal weight* to the air quality co-benefits projected to occur as a result of the reductions

²⁸ 2020 Action, 85 Fed. Reg. 31,302.

²⁹ *Id.* at 31,286.

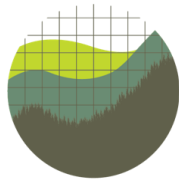
³⁰ 2019 Proposal, 84 Fed. Reg. at 2676.

³¹ *See, e.g.*, 2020 Action, 85 Fed. Reg. at 31,302–03.

³² 2022 Proposal, 87 Fed. Reg. 7624.

³³ *Id.* at 7626.

³⁴ *Id.* at 7660.



in HAP.” (emphasis added).³⁵ But the 2020 Action provided no evidence that it gave *any weight* to these co-benefits. As laid out above below, nothing in the case law, statute, executive directives, agency practice, or sound economic analysis suggest the Agency should give co-benefits a lesser weight than direct benefits, much less, no weight.³⁶

Similarly, while the 2020 Action paid lip service to EPA’s responsibility to account for direct unquantified benefits, the agency’s treatment of these benefits was impermissibly dismissive, as discussed in detail below. The 2020 Action arbitrarily concluded that direct unquantified benefits are insufficient to bridge the difference between the subset of monetized HAP-related benefits and the full costs of the rule without giving adequate consideration of the scope of the unquantified HAP benefits. The 2020 Action failed to adequately respond to record evidence that HAP-related benefits could be on the same order of magnitude as the total costs.

The 2020 Action’s treatment of co-benefits and direct unquantified benefits was arbitrary and capricious. In finalizing it, EPA strayed beyond “the limits of reasonable interpretation” on “how to account for cost” under Section 112(n).³⁷ The 2020 Action’s inadequate consideration of information submitted to the record and failure to justify EPA’s change in position further requires its revocation.

A. The 2020 Action’s Interpretation of Section 112(n) Arbitrarily Ignored Co-benefits and Was an Unreasonable Exercise of EPA’s Discretion

EPA exceeded its discretion by unreasonably interpreting Section 112(n) to justify the 2020 Action’s choice to ignore co-benefits. Nothing in the Clean Air Act or *Michigan v. EPA* required this interpretation or provide any defense for the unlawful results of this interpretation. The 2020 Action’s arbitrarily treated indirect benefits different than indirect costs and contradicted executive directives, principles of sound economic analysis, case law, and past agency practice.

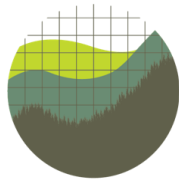
1. Neither Section 112(n) nor Michigan v. EPA Require EPA To Ignore Co-Benefits in Making an Appropriate-and-Necessary Finding

Section 112(n)(1)(A), by its terms, does not address how EPA should take costs or benefits into account in making the appropriate-and-necessary finding. Instead, it merely directs the Administrator to “regulate electric utility steam generating units under [Section 112], if the

³⁵ 2020 Action, 85 Fed. Reg. at 31,299.

³⁶ *See id.* at 31,303 (“Had the HAP-specific benefits of MATS been closer to the costs of regulation, a different question might have arisen as to whether the Administrator could find that co-benefits legally form part of the justification for determination that regulation of EGUs under CAA section 112(d) is appropriate and necessary. The EPA does not need to, and does not, determine whether that additional step would be appropriate in this factual scenario given that the monetized and unquantified HAP-specific benefits do not come close to a level that would support the prior determination.”).

³⁷ *Michigan*, 135 S. Ct. at 2711 (“It will be up the Agency to decide (as always, within the limits of reasonable interpretation) how to account for cost.”).



Administrator finds such regulation is appropriate and necessary after considering the results of the study required by this subparagraph.”³⁸ In *Michigan v. EPA*, the Supreme Court held the EPA must consider costs in making the appropriate-and-necessary finding but acknowledged that “‘appropriate’ is ‘the classic broad and all-encompassing term that naturally and traditionally includes consideration of *all the relevant factors*.’”³⁹

When EPA proposed the 2020 Action (2019 Proposal), the Agency argued that the text of Section 112(n) supports “focusing the ‘appropriate and necessary’ determination on HAP-specific benefits and costs” because the section specifically directs EPA to conduct a study on “the hazards to public health that will reasonably occur as a result of HAP emissions, not harmful emissions in general.”⁴⁰ Because the study encompasses only HAP emissions, EPA argued that the benefits of reducing other emissions cannot be considered as part of the appropriate-and-necessary finding. The Supreme Court, however, already rejected a similar reading of Section 112(n) in *Michigan*.

In *Michigan*, EPA argued that it did not need to consider costs in making the appropriate-and-necessary finding because the study mandated by Section 112(n)(1)(A) focuses exclusively on public health and does not mention costs.⁴¹ The Court disagreed, pointing out that if the scope of the study prevented EPA from considering costs, then it would also prevent EPA from considering nonhealth benefits such as environmental effects.⁴² The Court accused EPA of “keep[ing] parts of statutory context it like[d] while throwing away parts it [did] not.”⁴³

The 2020 Action performed the same “interpretive gerrymander[.]” the Court criticized in *Michigan*.⁴⁴ *Michigan* made clear that Section 112(n)(1)(A)’s “broad reference to appropriateness encompasses *multiple* relevant factors,” which “include but are not limited to cost.”⁴⁵ That Congress explicitly required EPA to consider the health risks of HAP emissions does not mean that EPA must consider *only* these health effects. Instead, EPA must consider the health risks of HAP emissions in light of Congress’s overarching “comprehensive criterion”—that is, whether regulating would be “appropriate and necessary.”⁴⁶ This “expansive standard” allows EPA to consider the effects of its regulation beyond HAP emission reductions.⁴⁷

Indeed, the *Michigan* Court made a point of emphasizing EPA’s discretion in the realm of economic analysis, noting that it would be “up to [EPA] to decide (as always, within the limits

³⁸ 42 U.S.C. § 7412(n)(1)(A).

³⁹ *Michigan*, 135 S. Ct. at 2707 (quoting *White Stallion Energy Ctr., LLC*, 748 F.3d 1223, 1266 (D.C. Cir. 2014) (Kavanaugh, J., dissenting) (emphasis added)).

⁴⁰ 2019 Proposal, 84 Fed. Reg. at 2677; *see also* 2020 Action, 85 Fed. Reg. 31,300 (repeating the same argument in the response to comments).

⁴¹ *Michigan*, 135 S. Ct. at 2708.

⁴² *Id.*

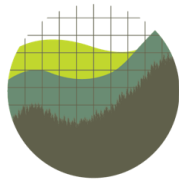
⁴³ *Id.*

⁴⁴ *Id.*

⁴⁵ *Id.* at 2709.

⁴⁶ *Id.*

⁴⁷ *Id.*



of reasonable interpretation) how to account for cost.”⁴⁸ In making that pronouncement, the Court expressly declined to address the issue of co-benefits and whether and how they should be weighed against costs.⁴⁹ The Court held *only* that it was unreasonable for EPA to have deemed costs entirely irrelevant to its appropriate-and-necessary finding.⁵⁰

Thus, neither Section 112(n) itself nor the Supreme Court’s decision in *Michigan* contain any text that could fairly be read to preclude EPA from considering co-benefits as part of its appropriate-and-necessary finding. And in the absence of an express prohibition, case law suggests that EPA has discretion to take such benefits into account. In *U.S. Sugar Corp. v. EPA*, the U.S. Court of Appeals for the D.C. Circuit held that EPA properly exercised discretion to consider potential non-HAP co-benefits when setting standards for hydrogen chloride emissions from boilers under Section 112(d)(4).⁵¹ The Court noted that the “text [of section 112(d)(4)] does not foreclose the Agency from considering co-benefits” and that considering such benefits “is consistent with the [Clean Air Act]’s purpose—to reduce the health and environmental impacts of hazardous air pollutants.”⁵²

The same logic applies here. Nothing in the text of Section 112(n) or in the Supreme Court’s opinion in *Michigan* expressly precludes EPA from considering co-benefits in making its appropriate-and-necessary finding, and considering such benefits is consistent with the Clean Air Act’s purpose. Accordingly, EPA properly exercised its discretion to consider co-benefits when making the 2016 Supplemental Finding and EPA did not need to revise it.

2. *Interpreting Section 112(n) to Preclude Consideration of Co-Benefits Was an Unreasonable Exercise of EPA’s Discretion*

Agency interpretations of ambiguous statutes are governed by the two-step framework set forth in *Chevron U.S.A., Inc. v. Natural Resources Defense Council*.⁵³ If “Congress has directly spoken to the precise question at issue . . . that is the end of the matter.”⁵⁴ If, instead, “the statute is silent or ambiguous with respect to the specific issue, the question . . . is whether the agency’s answer is based on a permissible construction of the statute.”⁵⁵ In order for an agency’s construction of a statute to be permissible, it “must operate ‘within the bounds of reasonable interpretation.’”⁵⁶ The agency’s reasonable statutory interpretation “must account for both ‘the

⁴⁸ *Id.* at 2711.

⁴⁹ *Id.*

⁵⁰ *Id.* at 2712.

⁵¹ 830 F.3d 579, 625–26 (D.C. Cir. 2016).

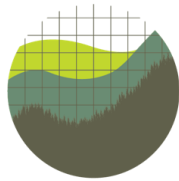
⁵² *Id.*

⁵³ 467 U.S. 837, 842–43 (1984); *see Michigan*, 135 S. Ct. at 2706–07.

⁵⁴ *Chevron*, 467 U.S. at 842.

⁵⁵ *Id.* at 843.

⁵⁶ *Util. Air Regul. Grp. v. EPA*, 573 U.S. 302, 321 (2014) (quoting *City of Arlington v. FCC*, 133 S. Ct. 1863, 1868 (2013)).



specific context in which . . . language is used’ and ‘the broader context of the statute as a whole.’”⁵⁷

As explained above, neither Section 112 nor *Michigan* precisely answers *how* EPA must consider costs in making the appropriate-and-necessary finding. EPA, therefore, had discretion to make that determination, but its interpretive choice still needed to be reasonable. In deciding whether it was appropriate and necessary to regulate EGUs’ HAP emissions, EPA could not reasonably ignore particulate matter co-benefits that are the unavoidable result of the HAP control strategies the agency assumes EGUs will adopt. Ignoring such co-benefits is inconsistent with relevant case law, longstanding executive guidance, decades of administrative practice, and basic principles of economics.

i. Case Law Requires Agencies To Consider the Indirect Consequences of Their Actions

In requiring EPA to consider costs when determining whether regulation is “appropriate and necessary” under Section 112(n)(1)(A), the Supreme Court in *Michigan* was concerned not only with direct regulatory compliance costs but also with indirect costs that might result from regulation.⁵⁸ Responding to a hypothetical example at oral argument, EPA had conceded that, under a cost-blind interpretation, the agency would still deem regulation appropriate even if “the technologies needed to eliminate [HAP emissions would] do even more damage to human health” than the HAPs themselves.⁵⁹ According to the Court, such an interpretation must be wrong because “[n]o regulation is ‘appropriate’ if it does significantly more harm than good.”⁶⁰ The *Michigan* Court, therefore, was concerned with the appropriateness of issuing a regulation without accounting for its indirect effects.

Michigan is hardly the first judicial opinion to suggest that indirect effects are essential to reasoned decisionmaking. Courts have repeatedly required agencies to take indirect costs into account when making regulatory decisions. For example, the D.C. Circuit required EPA to consider indirect costs when setting ambient standards for ozone under the Clean Air Act.⁶¹ The D.C. Circuit also struck down a National Highway Traffic Safety Administration fuel-efficiency rule for failing to consider indirect costs in the form of vehicle safety risks.⁶² Similarly, when EPA attempted to ban asbestos-containing brakes under the Toxic Substances Control Act, the

⁵⁷ *Id.* (quoting *Robinson v. Shell Oil Co.*, 519 U.S. 337, 341 (1997)).

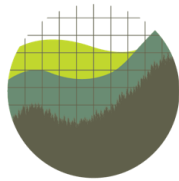
⁵⁸ *Michigan*, 135 S. Ct. at 2707 (noting that a cost-blind approach to the “appropriate and necessary” determination would irrationally preclude consideration of indirect costs in the form of “harms that regulation might do to human health or the environment”).

⁵⁹ *Id.*

⁶⁰ *Id.*

⁶¹ *Am. Trucking Ass’ns v. EPA*, 175 F.3d 1027, 1051–52 (D.C. Cir. 1999), rev’d on other grounds sub nom. *Whitman v. Am. Trucking Ass’ns*, 531 U.S. 457 (2001).

⁶² *Competitive Enter. Inst. v. Nat’l Highway Traffic Safety Admin.*, 856 F.2d 321, 326–27 (D.C. Cir. 1992); see also *U.S. Telecomm. Ass’n v. FCC*, 290 F.3d 415, 424–25 (D.C. Cir. 2002) (remanding a rule for failure to consider indirect costs).



U.S. Court of Appeals for the Fifth Circuit held that the agency had to consider the indirect safety harm that would accompany forcing cars to use substitute, non-asbestos brakes.⁶³

While these precedents focus on the consideration of indirect costs, there is no logical reason for agencies to treat indirect benefits differently than indirect costs. Indirect benefits “are simply mirror images” of indirect costs.⁶⁴ The terms “benefit” and “cost” are merely convenient labels for positive effects versus negative effects and do not reflect any distinction warranting different analytical treatment. For example, EPA’s analysis of its greenhouse gas standards for passenger cars counted consumers’ fuel savings “as negative costs (i.e., positive benefits).”⁶⁵ In other words, EPA itself has recognized, using the terms “negative costs” and “positive benefits,” that costs and benefits are fully interchangeable. The same quantity of fuel savings could appear in the “cost” column with a negative sign, or in the “benefit” column with a positive sign. The choice would have no effect on the estimated *net* impact of the regulation being analyzed.

Ultimately, there are “no legal, political, or intellectual . . . impediments to treating ancillary benefits and countervailing risks equally in cost-benefit analysis,” according to Judge Douglas Ginsburg of the D.C. Circuit and Christopher DeMuth (former President of the American Enterprise Institute), both of whom are former Republican administrators of the Office of Information and Regulatory Affairs.⁶⁶ Indeed, as discussed below, relevant case law *requires* agencies to give equal consideration to regulatory effects on both sides of the ledger.

ii. It Is Arbitrary and Capricious to Treat Indirect Benefits Differently than Indirect Costs, as EPA Did in the 2020 Action

Courts have repeatedly held that agencies must treat costs and benefits alike and consider each with comparable analysis. An agency may not “put a thumb on the scale by undervaluing the benefits and overvaluing the costs.”⁶⁷ Nor can it “inconsistently and opportunistically frame[]” a rule’s advantages and disadvantages.⁶⁸ In the 2020 Action, EPA does just that—disregarding MATS’s indirect benefits even as it relies on compliance cost estimates that include indirect costs.

EPA’s peer-reviewed Guidelines for Preparing Economic Analyses (EPA’s Economic Guidelines) define direct costs as “those costs that fall directly on regulated entities as the result

⁶³ *Corrosion Proof Fittings v. EPA*, 947 F.2d 1201, 1225 (5th Cir. 1991).

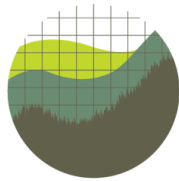
⁶⁴ Samuel J. Rascoff & Richard L. Revesz, *The Biases of Risk Tradeoff Analysis: Towards Parity in Environmental and Health-and-Safety Regulation*, 69 U. CHI. L. REV. 1763, 1793 (2002).

⁶⁵ EPA, DRAFT REGULATORY IMPACT ANALYSIS: PROPOSED RULEMAKING TO ESTABLISH LIGHT-DUTY VEHICLE GREENHOUSE GAS EMISSION STANDARDS AND CORPORATE AVERAGE FUEL ECONOMY STANDARDS xii (2009).

⁶⁶ Christopher C. DeMuth & Douglas H. Ginsburg, *Rationalism in Regulation*, 108 MICH. L. REV. 877, 888 (2010).

⁶⁷ *Ctr. for Biological Diversity v. Nat’l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1198 (9th Cir. 2008).

⁶⁸ *Bus. Roundtable v. SEC*, 647 F.3d 1144, 1148–49 (D.C. Cir. 2011); *see also* *Sierra Club v. Sigler*, 695 F.2d 957, 979 (5th Cir. 1983) (holding that if an agency “trumpet[s]” economic benefits, it must also disclose costs); *Mont. Env’t. Info. Ctr. v. Off. of Surface Mining*, 274 F. Supp. 3d 1074, 1098 (D. Mont. 2017) (finding it “arbitrary and capricious” to “quantify socioeconomic benefits while failing to quantify costs”).



of the imposition of a regulation.”⁶⁹ Indirect costs, meanwhile, are “those incurred in related markets or experienced by consumers or government agencies not under the direct scope of the regulation.”⁷⁰ As EPA acknowledged in the 2016 Finding, the agency’s \$9.6 billion annual compliance cost estimate includes costs in this latter category—that is, it includes costs “beyond the costs borne by owners of coal- and oil-fired units regulated by MATS.”⁷¹

By relying on a cost estimate that includes indirect costs but declining to give equal consideration to co-benefits, the 2020 Action engaged in exactly the sort of lopsided, opportunistically framed economic analysis that courts have deemed arbitrary and capricious in other contexts.

iii. Ignoring Indirect Benefits Is Inconsistent with Longstanding Executive Guidance, Basic Economic Principles, and Decades of Administrative Practice

In *Michigan*, the Supreme Court expressly recognized the relevance of “established administrative practice” to interpreting the meaning of the phrase “appropriate and necessary” in Section 112(n)(1)(A).⁷² The Court cited agencies’ longstanding recognition that “reasonable regulation ordinarily requires paying attention to the advantages and the disadvantages of [their] decisions” as evidence that “appropriate and necessary” implies a consideration of costs.⁷³ By that same logic, “appropriate and necessary” also implies that EPA should take into account indirect benefits when making a Section 112(n)(1)(A) finding, because agencies have for decades considered both direct and indirect effects of their actions.

The executive orders governing regulatory review call for agencies to accurately measure the “actual results of regulatory requirements,” thereby implicitly requiring analysis of both direct and indirect costs and benefits.⁷⁴ Additionally, Circular A-4, a guidance document on regulatory analysis issued by the Office of Management and Budget under President George W. Bush, explicitly requires the consideration of indirect benefits.⁷⁵ In particular, the Circular instructs agencies to consider important indirect benefits, which include any “favorable impact . . . secondary to the statutory purpose of the rulemaking.”⁷⁶ Circular A-4 stresses that “[t]he same

⁶⁹ EPA, GUIDELINES FOR PREPARING ECONOMIC ANALYSES 8-7 (2010), <https://www.epa.gov/environmental-economics/guidelines-preparing-economic-analyses> [hereinafter EPA ECONOMIC GUIDELINES].

⁷⁰ *Id.* at 8-7 to -8.

⁷¹ 2016 Supplemental Finding, 81 Fed. Reg. at 24,440.

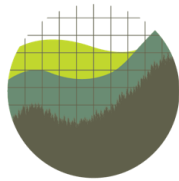
⁷² *Michigan*, 135 S. Ct. at 2708.

⁷³ *Id.* at 2707.

⁷⁴ Exec. Order No. 13,563, § 1, 76 Fed. Reg. 3821, 3821 (Jan. 21, 2011) (affirming Exec. Order No. 12,866); *accord* Exec. Order No. 12,866, § 6(a)(3)(C), 58 Fed. Reg. 51,735, 51,741 (Oct. 4, 1993) (detailing requirements for cost-benefit analysis).

⁷⁵ See OFF. OF MGMT. & BUDGET, EXEC. OFF. OF THE PRESIDENT, CIRCULAR A-4, REGULATORY ANALYSIS 26 (2003) [hereinafter CIRCULAR A-4].

⁷⁶ *Id.*



standards of information and analysis quality that apply to direct benefits and costs should be applied to ancillary benefits and countervailing risks.”⁷⁷

EPA’s Economic Guidelines likewise instruct the agency to assess “all identifiable costs and benefits,” including direct effects “as well as ancillary [indirect] benefits and costs.”⁷⁸ The assessment of both direct and indirect effects is needed “to inform decision making” and allow meaningful comparisons between policy alternatives.⁷⁹

These directives to take into account *all* anticipated regulatory effects are in keeping with fundamental principles of economic analysis. As EPA’s Economic Guidelines explain, the categorization of costs as direct or indirect (and, by logical extension, the categorization of benefits as primary or ancillary) is “only descriptive” and is not “derived from economic theory.”⁸⁰ The fundamental goal of cost-benefit analysis is “to consider all of the costs and benefits to society as a whole” that will result from a policy and thus determine whether that policy has “net social benefits.”⁸¹ In making this determination, it is irrelevant whether policymakers *intended* to confer a particular benefit or impose a particular cost. What matters is the policy’s ultimate impact on social welfare.⁸²

Accordingly, EPA—under presidents of both parties and across three decades—has consistently taken indirect benefits into account when evaluating Clean Air Act regulations. For example, in 1987, EPA under President Reagan discussed the importance of considering the indirect benefits that would result from its regulation of toxic emissions from municipal waste combustors.⁸³ And in 1991, EPA under President George H.W. Bush justified performance standards for landfill gases partly by reference to “the ancillary benefit of reducing global loadings of methane.”⁸⁴ Later, when establishing standards to address hazardous air pollutant emissions from pulp and paper producers, EPA under President Clinton analyzed indirect

⁷⁷ *Id.*

⁷⁸ EPA ECONOMIC GUIDELINES, *supra* note 69, at 11-2.

⁷⁹ *Id.* at 7-1.

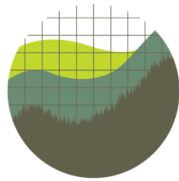
⁸⁰ *Id.* at 8-7.

⁸¹ ANTHONY E. BOARDMAN ET AL., COST-BENEFIT ANALYSIS: CONCEPTS AND PRACTICE 2 (4th ed. 2018) (emphases omitted).

⁸² See INST. FOR POL’Y INTEGRITY, STRENGTHENING REGULATORY REVIEW: RECOMMENDATIONS FOR THE TRUMP ADMINISTRATION FROM FORMER OIRA LEADERS 6 (2016), https://policyintegrity.org/documents/RegulatoryReview_Nov2016.pdf (“[T]he goal of cost-benefit analysis is to maximize net benefits for society, which requires . . . consideration of all reasonable regulatory alternatives and all significant social welfare effects, including any indirect or difficult-to-quantify costs or benefits.”).

⁸³ See Assessment of Municipal Waste Combustor Emissions Under the Clean Air Act, 52 Fed. Reg. 25,399, 25,406 (proposed July 7, 1987).

⁸⁴ Standards of Performance for New Stationary Sources and Guidelines for Control of Existing Sources: Municipal Solid Waste Landfills, 56 Fed. Reg. 24,468, 24,469 (proposed May 30, 1991).



benefits from reductions in co-pollutants like volatile organic compounds, particulate matter, and carbon monoxide.⁸⁵

EPA under President George W. Bush acknowledged that its Clean Air Interstate Rule, though designed to control particulate matter and ozone, would also reduce mercury emissions,⁸⁶ and included these indirect health and welfare benefits in its cost-benefit analysis justifying the rule.⁸⁷ In addition, in promulgating a rule on mobile source air toxics, EPA noted that “[a]lthough ozone and [fine particulate matter] are considered criteria pollutants rather than ‘air toxics,’ reductions in ozone and [fine particulate matter] are nevertheless important co-benefits of this proposal.”⁸⁸ Finally, EPA under President Obama considered the indirect benefits from reducing carbon monoxide, volatile organic compounds, and nitrogen oxides in its analysis of regulating hazardous air pollutant emissions from combustion engines.⁸⁹

Thus, in addition to being inconsistent with case law and basic economic principles, the 2020 Action’s refusal to consider co-benefits broke with three decades of administrative practice.

B. The 2020 Action Gave Direct Unquantified Benefits Unreasonably Little Consideration and Inadequately Considered Updated Information on Direct Unquantified Benefits Submitted to the Record

The 2020 Action also gave direct unquantified benefits unreasonably little consideration—in conflict with Section 112, case law, long-standing executive guidance, basic economic principles, and agency practice on assessing regulatory costs and benefits. As the 2022 Proposal recognizes, the 2020 Action inappropriately ignored statutory priorities and put undue primacy on quantified benefits.⁹⁰

The 2020 Action arbitrarily compared the total costs of MATS to a very small subset of HAP benefits that could be monetized and concluded that the costs outweigh the benefits. Though EPA acknowledged that “there are unquantified HAP benefits... associated with MATS,” the Agency still “concluded that the identification of these benefits is not sufficient, in light of the gross imbalance of monetized costs and HAP benefits, to support a finding that it is appropriate and necessary to regulate EGUs under CAA Section 112.” But in reaching this

⁸⁵ See National Emissions Standards for Hazardous Air Pollutants for Source Category: Pulp and Paper Production; Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards: Pulp, Paper, and Paperboard Category, 63 Fed. Reg. 18,504, 18,585–86 (Apr. 15, 1998).

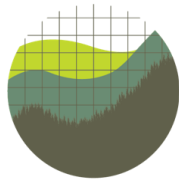
⁸⁶ See Rule to Reduce Interstate Transport of Fine Particulate Matter and Ozone (Clean Air Interstate Rule); Revisions to Acid Rain Program; Revisions to NO_x Sip Call, 70 Fed. Reg. 25,162, 25,170 (May 12, 2005).

⁸⁷ See EPA, REGULATORY IMPACT ANALYSIS FOR THE FINAL CLEAN AIR INTERSTATE RULE 1-10 (2005).

⁸⁸ Control of Hazardous Air Pollutants from Mobile Sources, 72 Fed. Reg. 8428, 8430 (Feb. 26, 2007).

⁸⁹ See National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines, 75 Fed. Reg. 51,570, 51,578 (Aug. 20, 2010).

⁹⁰ 2022 Proposal, 87 Fed. Reg. at 7660.



conclusion, EPA failed to provide a reasonable consideration of direct unquantified benefits as consistent with case law, executive directives, agency practice, and sound economic analysis.⁹¹

More specifically, the 2020 Action did not adequately grapple with the Agency's previous recognition in the MATS Rule and the 2016 Supplemental Finding that the MATS RIA monetized only a "small subset of the benefits of reducing [mercury] emissions,"⁹² and did not include any monetized estimates of the benefits of reducing other HAP.⁹³ The 2020 Action failed to provide adequate analysis of the scope of the vast majority of benefits and without such analysis, EPA could not reasonably conclude that the benefits were insufficient to close the gap between the monetized benefits and costs of the rule. The difficulty in monetizing these benefits does not indicate that they are of little value,⁹⁴ nor excuse legal obligations to consider the benefits of agency action.⁹⁵

In fact, EPA received detailed information from commenters on the 2019 Proposal explaining why the MATS RIA vastly understated the benefits of reducing mercury emissions. For example, comments submitted by Harvard's Emmett Environmental Law & Policy Clinic on behalf of scientific experts,⁹⁶ clarify that the MATS RIA monetized the benefits of reducing mercury for only a small portion of the affected population through exposure pathways responsible for a minority of methylmercury intake in the United States and considered only some of the health benefits of these reductions.⁹⁷ The comments explain that recent studies suggest that the mercury-related benefits of the MATS Rule could be "orders of magnitude" higher than what was monetized in the RIA.⁹⁸ One 2016 study indicated that the benefits of the rule could exceed \$43 billion⁹⁹ and another "2017 study estimated that the total economic costs from methylmercury exposure in the United States are \$4.8 billion per year."¹⁰⁰ Commenters provided further information relevant to the calculation of benefits, including on the unquantified

⁹¹ See *infra* Part III.A.1.

⁹² MATS Rule, 77 Fed. Reg. at 9428.

⁹³ See *id.* at 9323, 9363, 9426–28; see also 80 Fed. Reg. at 75,040 (noting the limited nature of the MATS rulemaking IQ-loss benefit analysis, and that the EPA did not consider ocean or estuarine waterbodies or commercially caught fish as part of its analysis).

⁹⁴ Substantial categories of monetized benefits of environmental regulation were once considered unquantifiable. See Richard L. Revesz, *Quantifying Environmental Benefits*, 102 CAL. L. REV. 1423, 1436 (2014).

⁹⁵ See *infra*, Part III.A.1, notes 121-123 and associated text.

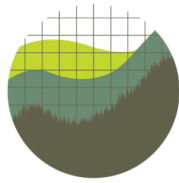
⁹⁶ These experts are scientists with considerable expertise in the fields of atmospheric transport, ecosystem fate and effects, bioaccumulation, human exposures, and health outcomes associated with environmental mercury contamination.

⁹⁷ Harvard's Emmett Environmental Law & Pol'y Clinic, Comments on the National Emission Standards for Hazardous Air Pollutants: Coal-Oil-Fired Electric Utility Steam Generating Units—Reconsideration of Supplemental Finding and Residual Risk and Technology Review (Apr. 17, 2019), <https://www.regulations.gov/comment/EPA-HQ-OAR-2018-0794-1665> [hereinafter Harvard Comments].

⁹⁸ *Id.* at 12.

⁹⁹ *Id.*

¹⁰⁰ *Id.*



environmental benefits of reducing mercury emissions and how the RIA’s underestimated the contribution of coal-fired power plants to local mercury deposition.¹⁰¹

As the Supreme Court explained in *Michigan*, “[f]ederal administrative agencies are required to engage in reasoned decision-making. Not only must an agency’s decreed result be within the scope of its lawful authority, but the process by which it reaches that result must be logical and rational.”¹⁰² It is a quintessential violation of this duty when an agency “entirely fail[s] to consider an important aspect of the problem” or “offer[s] an explanation for its decision that runs counter to the evidence before the agency.”¹⁰³ With regard to consideration of direct unquantified benefits, the 2020 Action failed both requirements.

The evidence presented by commenters on the scope of direct unquantified benefits is an important aspect of the problem which EPA failed to sufficiently address in the final rule and its response to comments. The Agency first inappropriately concluded that the unquantified effects of mercury exposure were small because they were primarily morbidity rather than mortality effects¹⁰⁴ without adequately responding to commenters’ evidence that the morbidity costs of mercury exposure were much more costly than previous estimates and the mortality impacts were likely larger than previously estimated. Additionally, the Agency’s explanation that it could not model or otherwise rely on existing research to determine additional health end-points for mercury exposure and impacts of exposure for a wider population,¹⁰⁵ is contradicted by the 2022’s Proposal’s consideration of these very same issues.¹⁰⁶ The 2020 Action could not ignore these impacts merely because they were difficult to characterize. It is particularly irrational for EPA to conclude that the total “direct unquantified benefits of MATS are not sufficient to overcome the significant difference between the monetized benefits and costs of this rule”

¹⁰¹ *Id.* at 7, 11–12.

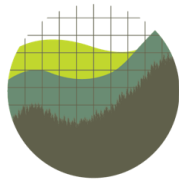
¹⁰² *Michigan*, 135 S. Ct. at 2706.

¹⁰³ *Motor Vehicle Mfrs. Ass’n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 44 (1983).

¹⁰⁴ *See, e.g.*, 2020 Action, 85 Fed. Reg. 31, 296 (“The Agency explained in its 2019 Proposal that the neurobehavioral effects of mercury exposure identified by the SAB as more “potentially significant” are morbidity, not mortality, outcomes. In the EPA’s experience, the economic value of avoided morbidity effects (e.g., impaired cognitive development, problems with language, abnormal social development, etc.) per incident is a small fraction of the monetizable value of avoided premature deaths. Further, when estimating the economic value of avoided cases of air pollution-related effects, the Agency has generally found that the aggregate value of the avoided illnesses (e.g., hospital admissions, emergency department visits, cases of aggravated asthma, etc.) is small as compared to the total value of avoided deaths.”)

¹⁰⁵ 2022 Proposal, 87 Fed. Reg. at 7671 (explaining that in the 2020 Action, “[t]he Agency did not, at this second step, grapple with the existing risk analyses, including those stemming from the statutorily mandated studies in CAA Section 112(n)(1). Those analyses demonstrated substantial public health and environmental hazards, even if the hazards were not translated into post-control monetized benefits.”); *see also* 2020 Action, 85 Fed. Reg. at 31,308–31,311 (describing limitations in quantifying and modeling these impacts).

¹⁰⁶ *See, e.g.*, EPA, TECHNICAL SUPPORT DOCUMENT: NATIONAL-SCALE MERCURY RISK ESTIMATES FOR CARDIOVASCULAR AND NEURODEVELOPMENTAL OUTCOMES FOR THE 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; NOTICE OF PROPOSED RULEMAKING (Sept. 2, 2021), <https://www.regulations.gov/document/EPA-HQ-OAR-2018-0794-4605> [hereinafter 2022 RISK TSD].



without adequately grappling with the record evidence to the contrary or conducting the necessary analysis to better understand their extent.

Additionally, the 2020 Action made no effort to account for distribution of effects and inappropriately stated that cost-benefit analysis is not concerned with the distribution of benefits. The 2020 Action acknowledged that commenters had submitted information regarding how “[t]he distribution of potential health effects may indicate more risk to some individuals than to others or more impacts to some groups like tribes than others.”¹⁰⁷ Instead of analyzing those effects, EPA claimed that because “in a cost-benefit comparison, the overall amount of the benefits stays the same no matter what the distribution of those benefits is... [I]t is reasonable to conclude that those factors to which the EPA previously gave significant weight—including qualitative benefits, and distributional concerns and impacts on minorities—will not be given the same weight in a comparison of benefits and costs for this action under CAA Section 112(n)(1)(A).”¹⁰⁸ This is a problematic mischaracterization of the proper goals of a well-done cost-benefit analysis.

As explained in more detail later in these comments, cost-benefit analysis is properly concerned with the distribution of effects. Moreover, the 2020 Action provided no evidence of giving these equity considerations *any* weight—even though EPA did not disavow their relevance to an appropriate-and-necessary determination. EPA’s treatment of these equity considerations is especially arbitrary in light of its recognition that Section 112 “clearly places great value on protecting even the most vulnerable members of the population, by instructing the EPA, when evaluating risk in the context of a determination of whether regulation is warranted, to focus on risk to the most exposed and most sensitive members of the population.”¹⁰⁹ Here again, the 2020 Action unlawfully ignored an important aspect of the problem, failed the standards of rational agency decisionmaking, and inadequately responded to comments in the record.¹¹⁰

C. The 2020 Action Failed to Justify EPA’s Change in Policy

Prior to the 2020 Action, EPA had determined that regulation of HAPs from EGU’s was appropriate and necessary under Section 112 of the Clean Air Act in 2000, 2012, and 2016.¹¹¹ The 2020 Action not only reversed course on this determination, but deviated from the agency’s previous policies regarding how to weigh the co-benefits and direct unquantified benefits. Further, “[i]n the 2020 rulemaking, the EPA did not explain its rationale for its decision to anchor the appropriate and necessary determination at step one as a comparison between the

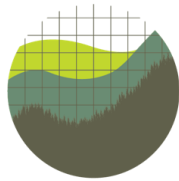
¹⁰⁷ 2020 Action, 85 Fed. Reg. at 31,297.

¹⁰⁸ *Id.*

¹⁰⁹ 2020 Proposal, 87 Fed. Reg. 7645 (citing CAA sections 112(c)(9)(B), 112(f)(2)(B), and 112(n)(1)(C)).

¹¹⁰ *State Farm*, 463 U.S. at 57.

¹¹¹ The 2012 appropriate-and-necessary finding updated the EPA’s initial 2020 finding. *See* Regulatory Finding on the Emissions of Hazardous Air Pollutants from Electric Utility Steam Generating Units, 65 Fed. Reg. 79,825 (Dec. 20, 2000).



monetized costs of regulation and monetized HAP specific benefits.”¹¹² While an agency has general discretion to change its “view of what is in the public interest,” it still “must examine the relevant data and articulate a satisfactory explanation for its action including a ‘rational connection between the facts found and the choice made.’”¹¹³ As discussed above, the 2020 Action’s treatment of co-benefits and direct unquantified benefits was arbitrary, unlawful, and contrary to case law, executive guidance, sound economic analysis, and longstanding agency practice. The 2020 Action failed to meet the “reasoned explanation” standard.¹¹⁴ Moreover, EPA’s change in policy arguably required a “more detailed justification” given the “serious reliance interests” of states, the public, and industry in maintaining the MATS Rule.¹¹⁵

III. The 2022 Affirmation of the Appropriate-and-Necessary Finding Is Lawful and Consistent with Sound Economic Analysis

In addition to reversing the 2020 Action, the 2022 Proposal also reaffirms the Agency’s earlier determinations—made in 2000, 2012, and 2016—“that it is appropriate and necessary to regulate coal- and oil-fired EGUs under section 112 of the CAA.”¹¹⁶ As it did in 2016, EPA applies a preferred, totality-of-the-circumstances approach and conducts a cost-benefit analysis as its alternative approach. It also restores its longstanding and lawful practice to consider the co-benefits and direct unquantified benefits of its action, including equity. These comments support the 2022 Proposal’s (1) consideration of direct unquantified benefits, (2) consideration of co-benefits, (3) justification of the finding on the basis of both the original record and new evidence, and (4) inclusion of a cost-benefit analysis. These comments additionally note that any criticisms of the use of the Social Cost of Carbon to calculate the co-benefits of reducing greenhouse gas emissions are not relevant because the finding is justified without their consideration.

A. The 2022 Proposal’s Analysis Properly Considers the Direct Unquantified Benefits of Reducing Hazardous Air Pollutants When the Agency Concludes That HAP Benefits Alone Justify the Affirmation.

The 2022 Proposal restores the focus of the appropriate-and-necessary determination on the public health advantages of reducing HAP emissions. This approach is fully consistent with CAA Section 112(n)(1)(A), which specifically directed the EPA to regulate EGUs under CAA Section 112 after considering the results of the “study of hazards to public health reasonably anticipated to occur as a result of emissions” by EGUs. The EPA further acknowledges that, “the clear goal in CAA section 112(n)(1)(C) and elsewhere to consider risks to the most exposed and susceptible populations supports our decision to place significant weight on reducing the risks of HAP emissions from EGUs to the most sensitive members of the population.”¹¹⁷

¹¹² 2022 Proposal, 87 Fed. Reg. at 7660.

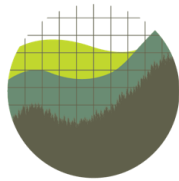
¹¹³ *State Farm*, 463 U.S. at 43.

¹¹⁴ *FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 515 (2009).

¹¹⁵ *Id.*; see also *Encino Motorcars, LLC v. Navarro*, 136 S. Ct. 2117 (2016).

¹¹⁶ 2020 Proposal, 87 Fed. Reg. at 7626.

¹¹⁷ *Id.* at 7662.



EPA properly notes that “the vast majority of the post-control benefits of reducing HAP cannot be quantified or monetized with sufficient quality to inform regulatory decisions due to data gaps, particularly with respect to sensitive populations” and “that does not mean that these benefits are small, insignificant, or nonexistent.”¹¹⁸ It is fully lawful and consistent with case law, executive guidance, sound economic analysis, and past agency practice for EPA to consider direct unquantified benefits when evaluating these public health, equity, and any other relevant considerations.

1. *Consideration of Direct Unquantified Benefits Is Consistent with Michigan and Other Case Law*

Nothing in *Michigan* precludes EPA from considering direct unquantified benefits when deciding whether regulation is “appropriate and necessary” under Section 112(n)(1)(A). On the contrary, the Supreme Court expressly declined to require that EPA conduct an “analysis in which each advantage and disadvantage is assigned a monetary value.”¹¹⁹ Furthermore, the Supreme Court emphasized that it would be “up to the Agency to decide (as always, within the limits of reasonable interpretation) how to account for cost.”¹²⁰ At the very least, then, EPA has *discretion* to take into account direct unquantified benefits.

In fact, case law suggests that agencies have an *obligation* to consider reasonably foreseeable but difficult to quantify regulatory effects.¹²¹ In recent years, courts have continued to not only uphold actions that rely on direct unquantified benefits but they have struck down agency decisions for ignoring direct unquantified benefits.¹²² Agencies are expected to weigh unquantified effects against monetized costs and benefits in accordance with their judgment and expertise.¹²³

2. *Executive Guidance and Basic Economic Principles*

It is widely recognized that a cost-benefit analysis should give “due consideration to factors that defy quantification but are thought to be important.”¹²⁴ The mere fact that a benefit

¹¹⁸ *Id.* at 7644.

¹¹⁹ *Michigan*, 135 S. Ct. at 2711.

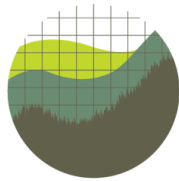
¹²⁰ *Id.*

¹²¹ See, e.g., *Public Citizen v. Fed. Motor Carrier Safety Admin.*, 374 F.3d 1209, 1219 (D.C. Cir. 2004) (“The mere fact that the magnitude of [an effect] is uncertain is no justification for disregarding the effect entirely.”); *Am. Trucking Ass’ns v. EPA*, 175 F.3d at 1052 (rejecting the idea that EPA could ignore health effects that are “difficult, if not impossible, to quantify reliably”).

¹²² See Richard L. Revesz, *Destabilizing Environmental Regulation: The Trump Administration Concerted Attack on Regulatory Analysis*, 47 *ECOLOGICAL L.Q.* 887, 899–901 (2020).

¹²³ See *Entergy Corp. v. Riverkeeper, Inc.*, 556 U.S. 208, 235 (2009) (Breyer, J., concurring in part and dissenting in part) (writing approvingly of EPA’s ability to “describe environmental benefits in non-monetized terms and to evaluate both costs and benefits in accordance with its expert judgment and scientific knowledge”).

¹²⁴ KENNETH J. ARROW ET AL., *AM. ENTER. INST., ANNAPOLIS CTR & RES. FOR THE FUTURE, BENEFIT-COST ANALYSIS IN ENVIRONMENTAL, HEALTH, AND SAFETY REGULATION: A STATEMENT OF PRINCIPLES* 8 (1996).



cannot *currently* be quantified says little about its magnitude. In fact, some of the most substantial categories of monetized benefits of environmental regulation were once considered unquantifiable.¹²⁵

Recognizing the potential significance of unquantified effects, executive orders governing regulatory impact analysis explicitly instruct agencies to consider such effects when analyzing proposed rules.¹²⁶ Similarly, Circular A-4 cautions agencies against ignoring the potential magnitude of direct unquantified benefits, because the most efficient rule may not have the “largest quantified and monetized . . . estimate.”¹²⁷

Thus, EPA’s consideration of direct unquantified benefits is consistent both with economic best practices and with executive guidance on regulatory review.

3. *Consideration of Direct Unquantified Benefits Is Consistent with EPA’s Past Practices*

For almost three decades, under administrations of both political parties, EPA has consistently recognized the importance of considering direct unquantified benefits. In response to criticism of its benzene regulations under Section 112, EPA under President George H.W. Bush “reject[ed] the position that only quantified information can be considered in the decisions.”¹²⁸ EPA under President Clinton considered the “real, but unquantifiable benefits” of emissions standards for hazardous waste combustors.¹²⁹ EPA under President George W. Bush evaluated a rule restricting emissions from nonroad diesel engines based on “consideration of all benefits and costs expected to result from the new standards, not just those benefits and costs which could be expressed here in dollar terms.”¹³⁰

Thus, EPA’s decision to consider direct unquantified benefits in its cost-benefit analysis is not only permissible under *Michigan* but also consistent with decades of case law, executive guidance, economic scholarship, and regulatory practice.

¹²⁵ See Richard L. Revesz, *Quantifying Environmental Benefits*, 102 CAL. L. REV. 1423, 1436 (2014).

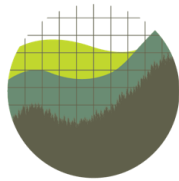
¹²⁶ See Exec. Order No. 13,563, *supra* note 74, § 1, 76 Fed. Reg. at 3821 (affirming Exec. Order No. 12,866); *accord* Exec. Order No. 12,866, *supra* note 74, § 1(a), 58 Fed. Reg. at 51,735 (“Costs and benefits shall be understood to include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but nevertheless essential to consider.”).

¹²⁷ CIRCULAR A-4, *supra* note 75, at 2.

¹²⁸ National Emission Standards for Hazardous Air Pollutants; Benzene Emissions From Chemical Manufacturing Process Vents, Industrial Solvent Use, Benzene Waste Operations, Benzene Transfer Operations, and Gasoline Marketing System, 55 Fed. Reg. 8292, 8302 (Mar. 7, 1990).

¹²⁹ NESHAPS: Final Standards for Hazardous Air Pollutants for Hazardous Waste Combustors, 64 Fed. Reg. 52,828, 53,023 (Sept. 30, 1999).

¹³⁰ Control of Emissions of Air Pollution from Nonroad Diesel Engines and Fuel, 69 Fed. Reg. 38,958, 39,138 (June 29, 2004).



4. *Equity Is Appropriately Considered Alongside Other Direct Unquantified Benefits*

For over twenty-five years, executive orders and related guidance documents, have directed EPA to consider distributional impacts in its regulatory decisionmaking. Executive Order 12,866, issued by President Clinton in 1994, instructs agencies to incorporate equity considerations into their cost-benefit analyses and regulatory decisions.¹³¹ It specifically recognizes that “distributional impacts” and “equity” are relevant to assessing net benefits.¹³² *Circular A-4*—the Office of Management and Budget’s principal guidance on cost-benefit analysis¹³³—further instructs agencies to “provide a separate description of distributional effects (i.e., how both benefits and costs are distributed among sub-populations of particular concern) so that decision makers can properly consider them along with the effects on economic efficiency,” and to describe distributional effects “quantitatively to the extent possible.”¹³⁴ In 2011, President Obama issued Executive Order 13,563, which reaffirmed Executive Order 12,866 and stated that agencies conducting cost-benefit analysis “may consider (and discuss qualitatively) values that are difficult or impossible to quantify, including equity, human dignity, fairness, and distributional impacts.”¹³⁵ Separate from these directives on cost-benefit analysis, EPA and other agencies have been further instructed to consider environmental justice considerations in their decisionmaking.¹³⁶ As already noted, President Biden has further reaffirmed commitments to prioritize environmental justice and the development of procedures to improve consideration of the distributional impacts of regulations.¹³⁷

Consistent with these directives, EPA should treat any desirable (or undesirable) distributional effects as an unquantified benefit (or cost) that it compares alongside other costs and benefits.¹³⁸ EPA can draw upon its extensive expertise and experience in analyzing other direct unquantified benefits to inform its consideration of distributional effects.

¹³¹ Exec. Order No. 12,866, *supra* note 74, § 1(a), 58 Fed. Reg. at 51,735 (“Further, in choosing among alternative regulatory approaches, agencies should select those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach.”).

¹³² *Id.* § 1(b)(5), 58 Fed. Reg. at 51,736.

¹³³ See CIRCULAR A-4, *supra* note 75.

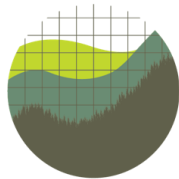
¹³⁴ *Id.* at 14.

¹³⁵ Exec. Order No. 13,563, *supra* note 74, § 1(c), 76 Fed. Reg. at 3821.

¹³⁶ Exec. Order No. 12,898 § 1-101, 59 Fed. Reg. 7629, 7629 (Feb. 16, 1994) (“To the greatest extent practicable and permitted by law, . . . each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations . . .”).

¹³⁷ See Exec. Order No. 13,990 § 1, *supra* note 6, 86 Fed. Reg. at 7037; Exec. Order No. 14,008 § 219, *supra* note 6, at 86 Fed. Reg. 7,629; Modernizing Regulatory Review: Memorandum for the Heads of Executive Departments and Agencies § 2(b)(ii), *supra* note 7, 86 Fed. Reg. at 7223.

¹³⁸ Richard L. Revesz & Samantha P. Yi, *Distributional Consequences and Regulatory Analysis*, 52 ENV’T L. 53, 96–97 (2022), <https://ssrn.com/abstract=3927277> (discussing why this approach should be preferred).



B. The 2022 Proposal Correctly Considers the Co-Benefits of Reducing Particulate Matter

The 2022 Proposal correctly considers the co-benefits associated with the MATS Rule, including the public health benefits associated with reduction of particulate matter. As discussed in detail in Part II.A, the consideration of co-benefits when making the appropriate and necessary determination is consistent with case law, executive guidance, principles of sound economic analysis, and long-standing agency practice.

As EPA explains in the 2022 Proposal: “installing control technologies and implementing the compliance strategies necessary to reduce the HAP emissions directly regulated by the MATS rule also results in reductions in the emissions of other pollutants such as directly emitted PM_{2.5} and SO₂ (a PM_{2.5} precursor).”¹³⁹ EPA further explains that a “particularly cost-effective control of emissions of particulate-bound mercury and non-mercury metal HAP is through the use of PM control devices that indiscriminately collect PM along with the metal HAP, which are predominately present as particles.”¹⁴⁰ While reducing PM emissions is not the primary goal of Section 112 regulation, the accompanying benefits are nevertheless appropriately considered in a cost-benefit analysis. Courts have repeatedly required agencies to take indirect costs into account when making regulatory decisions.¹⁴¹ There is no rational basis for EPA to distinguish between indirect costs, which are included in the total estimated cost of the rule, and indirect benefits. Indirect benefits “are simply mirror images” of indirect costs.¹⁴²

Further, for years, EPA has recognized health risks associated with particulate matter exposure at concentrations below the ambient standards.¹⁴³ Reducing these risks provides real, incremental health benefits that are relevant to a determination of whether regulating hazardous air pollutant emissions from power plants is “appropriate and necessary.”

In the 2022 Proposal, EPA also recognizes additional information on the benefits of particulate matter reductions that has become available since 2011 or was not otherwise included in the 2011 RIA.¹⁴⁴ It is reasonable for EPA to consider this information.¹⁴⁵

¹³⁹ 2022 Proposal, 87 Fed. Reg. at 7670.

¹⁴⁰ *Id.*

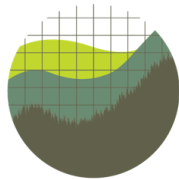
¹⁴¹ Brief of the Institute for Policy Integrity at NYU Law School as Amicus Curiae in Support of Respondents at 9-14, *Murray Energy Corporation v. EPA*, No. 16-1127 (D.C. Cir. filed Jan. 25, 2017).

¹⁴² Rascoff & Revesz, *supra* note 64, at 1793.

¹⁴³ For discussion of these benefits, EPA’s past practice regarding these benefits, and explanation of why EPA is not “double-counting” the benefits of further particulate matter reduction, see Kimberly M. Castle & Richard L. Revesz, *Environmental Standards, Thresholds, and the Next Battleground of Climate Change Regulations*, 103 MINN L. REV. 1349 (2019).

¹⁴⁴ See 2022 Proposal, 87 Fed. Reg. at 7669.

¹⁴⁵ *Infra* Part III.C.



C. The 2022 Proposal Appropriately Concludes That Regulation Is Appropriate and Necessary Based Either on the Baseline of the Original MATS Rule or After Considering Subsequent Developments

EPA’s proposed conclusion “that it remains appropriate and necessary to regulate EGUs for HAP” “[w]hether looking at only the information available at the time of our initial decision to regulate or at all currently available information” is reasonable.¹⁴⁶ EPA considered the weight of the evidence in the record before the Agency when it issued the MATS Rule in 2012—including that (1) the limited subset of benefits monetized in the RIA of \$33 to \$90 billion in health protections, lives saved, and environmental improvements outweighed, by as much as nine to one, its costs, as estimated in 2011, of \$9.6 billion,¹⁴⁷ and (2) the extensive unquantified public health benefits further supported the appropriateness of the MATS Rule.¹⁴⁸ EPA can rationally affirm it would have issued the MATS Rule in 2012 based on this information.

It is also reasonable for EPA to additionally consider new information and industry developments since the Agency issued the MATS Rule in 2012. More than a decade has passed since EPA issued the MATS Rule and the world has not stood still during that interval. EPA now has new information on market developments and industry’s actual implementation of the standards, to conclude it significantly overestimated the costs of the MATS Rule when it was issued.¹⁴⁹ Science has also advanced and increased EPA’s confidence in analyzing certain regulatory impacts. EPA has conducted further analysis of cardiovascular risks of exposure to methylmercury and the effects of exposure to methylmercury on a broader swathe of the U.S. population, which both clarify even more extensive benefits from reducing methylmercury.¹⁵⁰ These costs and benefits are an important part of the problem, and it is rational for EPA to consider information that clarifies its understanding of their extent.¹⁵¹

EPA’s new studies indicate decreased costs and increased benefits of the MATS Rule, relative to the findings of the MATS RIA. In other words, they indicate that the benefits of the MATS Rule now outweigh the costs by an even greater value. The use of these studies is consistent with EPA’s long-standing commitment to consider the “best available science.” EPA has issued guidelines clarifying this commitment applies to its dissemination of information on

¹⁴⁶ 2022 Proposal, 87 Fed. Reg. at 7672.

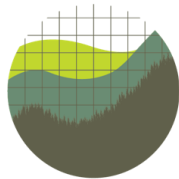
¹⁴⁷ EPA, REGULATORY IMPACT ANALYSIS FOR THE FINAL MERCURY AND AIR TOXICS STANDARDS, EPA-453/R-11-011 ES-1 to ES-2 (December 2011) [hereinafter MATS RIA]; *see also* 87 Fed. Reg. at 7671. This estimation of benefits is based on a 3% discount rate.

¹⁴⁸ *Id.* at ES-9 to ES-13.

¹⁴⁹ EPA, TECHNICAL SUPPORT DOCUMENT: SUPPLEMENTAL DATA AND ANALYSIS FOR THE 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; NOTICE OF PROPOSED RULEMAKING (Sept. 21, 2021), <https://www.regulations.gov/document/EPA-HQ-OAR-2018-0794-4586> [hereinafter 2022 COST TSD].

¹⁵⁰ 2022 RISK TSD, *supra* note 106.

¹⁵¹ *See State Farm*, 463 U.S. at 44.



human health, safety, and risk assessments.¹⁵² In these guidelines EPA acknowledges that “best available” usually pertains to what is available at the time of the relevant assessment, but that sometimes information will need to be updated over time.¹⁵³

EPA’s acknowledgment of new information is also reasonable in light of past practice under 112(n). When promulgating the MATS Rule in 2011, EPA conducted additional analyses that built upon the basis for its 2000 appropriate-and-necessary conclusion¹⁵⁴—even though it recognized that reevaluation was not required.¹⁵⁵ Accordingly, it is consistent for EPA to conclude that it is appropriate and necessary to regulate EGUs for HAP after considering updated information.

Since EPA is considering post-2012 information, it should be sure to consider additional relevant studies submitted to the record by commenters. In particular, EPA may wish to take notice of studies summarized by Harvard Law School’s Emmett Environmental Law & Policy Clinic in comments on the 2019 Proposal¹⁵⁶ and updated analysis on mercury science and the benefits of reduced mercury exposure from subject matter experts at Harvard University.¹⁵⁷

D. EPA Should Provide a Cost-Benefit Analysis in Its Final Rule

EPA seeks comment on whether it should include a cost-benefit analysis in the final rule¹⁵⁸ and on the appropriateness of using cost-benefit analysis to make a determination under Section 112(n)(1)(A) given the importance of direct unquantified benefits and distributional effects for this rule.¹⁵⁹ EPA has repeatedly asserted that Section 112(n)(1) does not require the agency to perform a formal cost-benefit analysis prior to finding that it is “appropriate and necessary” to regulate hazardous air pollutants from steam EGUs.¹⁶⁰ It is reasonable for EPA to

¹⁵² See, e.g., EPA, GUIDELINES FOR ENSURING AND MAXIMIZING THE QUALITY, OBJECTIVITY, UTILITY, AND INTEGRITY OF INFORMATION DISSEMINATED BY THE ENVIRONMENTAL PROTECTION AGENCY 21-22 (2005).

¹⁵³ *Id.* at 23 (“In applying these principles, “best available” usually refers to the availability at the time an assessment is made. However, EPA also recognizes that scientific knowledge about risk is rapidly changing and that risk information may need to be updated over time. When deciding which influential risk assessment should be updated and when to update it, the Agency will take into account its statutes and the extent to which the updated risk assessment will have a clear and substantial impact on important public policies or private sector decisions.”).

¹⁵⁴ MATS Rule, 77 Fed. Reg. at 9301.

¹⁵⁵ *Id.* at 9337.

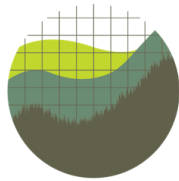
¹⁵⁶ See Part II.B, n. 96-101 and associated text.

¹⁵⁷ ELISE SUNDERLAND ET AL., MERCURY SCIENCE AND THE BENEFITS OF MERCURY REGULATION, HARVARD UNIVERSITY 24–25 (Dec. 16, 2021), https://cdn1.sph.harvard.edu/wp-content/uploads/sites/2343/2021/12/Mercury_WhitePaper_121621.pdf [hereinafter Harvard White Paper].

¹⁵⁸ 2022 Proposal, 87 Fed. Reg. at 7670 (“However, we recognize that there are significant reasons to question whether a formal BCA is the best way to interpret the Agency’s mandate in CAA Section 112(n)(1)(A), and we take comment on whether the Agency should continue to rely on this alternative basis for making its determination.”).

¹⁵⁹ *Id.* at 7671 (“We take comment on whether a BCA, on its own, is an appropriate tool to make a determination of whether to regulate under CAA section 112(n)(1)(A), given that it may not meaningfully capture all the societal interests the statute intends the EPA to consider.”).

¹⁶⁰ *Id.* at 7670.



conclude that a formal cost-benefit analysis is not required by Section 112(n)(1). As the Supreme Court explained in *Michigan v. EPA*, it is “up to the Agency to decide (as always, within the limits of reasonable interpretation) how to account for cost.”¹⁶¹

However, EPA can also reasonably choose to perform a formal cost-benefit analysis, and the agency has, in fact, already prepared one in connection with the MATS RIA and integrated those findings into its 2022 Proposal.¹⁶² And there are good reasons for EPA to do so. A cost-benefit analysis provides robust and independent support for EPA’s “appropriate and necessary” finding, separate from the agency’s evaluation of the “reasonableness” of costs. Further, in the absence of a cost-benefit analysis critics might inappropriately argue that the regulation does “more harm than good.”¹⁶³ Accordingly, EPA should include a cost-benefit analysis in its final rule as an alternative approach—as it already does in the proposal—and finalize its finding that that regulation is appropriate and necessary on the basis of the benefit-cost analysis as well.¹⁶⁴ Further, in the final rule, EPA should recognize that a formal cost-benefit analysis can properly include direct unquantified benefits and discussion of distributional impacts.

1. *The Cost-Benefit Analysis Provides Additional, Independent Support for the Agency’s “Appropriate and Necessary” Finding*

The cost-benefit analysis conducted for MATS demonstrates that regulating HAP from steam EGUs is massively net-beneficial to society. In fact, EPA determined that the rule’s annual monetized benefits of \$33 to \$90 billion in health protections, lives saved, and environmental improvements outweighed, by as much as nine to one, its costs, as estimated in 2011, of \$9.6 billion.¹⁶⁵ Additional unquantified health and environmental gains further bolster the rule’s strong economic justification.¹⁶⁶ The 2022 Proposal and technical support documents indicate that the 2011 RIA significantly overestimated costs¹⁶⁷ and acknowledge that the 2011 RIA monetized only a small portion of the rule’s many benefits.¹⁶⁸ EPA reasonably concludes that the cost-benefit analysis justified conducted in 2011 justifies the MATS Rule and that new information only further confirms that finding.¹⁶⁹ The information in the cost-benefit analysis

¹⁶¹ *Michigan*, 135 S. Ct. at 2711.

¹⁶² 2022 Proposal, 87 Fed. Reg. at 7669–72.

¹⁶³ *Michigan*, 135 S. Ct. at 2707.

¹⁶⁴ 2022 Proposal, 87 Fed. Reg. at 7671 (“We continue to think that the BCA approach independently supports the conclusion that regulation of HAP emissions from EGUs is appropriate.”).

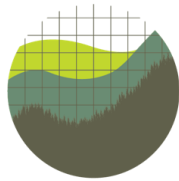
¹⁶⁵ MATS RIA, *supra* note 147, at ES-1 to ES-2; *see also* 87 Fed. Reg. at 7671. This estimation of benefits is based on a 3% discount rate. In the 2022 Proposal, EPA explains that the costs were significantly overestimated in 2011 and that the unquantified benefits were likely greater than an

¹⁶⁶ MATS RIA, *supra* note 147, at ES-9 to ES-13; *see also* 87 Fed. Reg. at 7671.

¹⁶⁷ 2022 Proposal, 87 Fed. Reg. at 7656 (concluding that the 2011 RIA costs were overestimated); 2022 COST TSD, *supra* note 149.

¹⁶⁸ *See, e.g.*, 2022 Proposal, 87 Fed. Reg. at 7669 (“the 2011 RIA monetized only one post control benefit from regulating HAP emissions from EGUs because the Agency did not and does not have the information necessary to monetize the many other benefits associated with reducing HAP emissions from EGUs.”).

¹⁶⁹ *Id.* at 7671.



provides additional, persuasive evidence regarding the scope of the costs and benefits of the MATS Rule which further supports rational decision-making. Moreover, it clarifies that the costs are not only “reasonable,” but that the advantages of the rule outweigh the disadvantages of the rule.

2. *Cost-Benefit Analysis Is Consistent with Robust Consideration of Unquantified Effects and Distributional Effects*

EPA expresses concern that a cost-benefit analysis may not adequately account for certain societal impacts, including direct unquantified benefits and distributional effects of regulating hazardous air pollutants from steam EGUs.¹⁷⁰ These concerns can be addressed by using best practices to consider unquantified effects and distributional impacts as part of cost-benefit analysis.¹⁷¹ Formal cost-benefit analyses can and should include qualitative descriptions of direct unquantified benefits,¹⁷² as the MATS RIA already does. Such an approach is fully consistent with Executive Order 12,866 which requires agencies to assess “qualitative measures of costs and benefits that are difficult to quantify, but nevertheless essential to consider.”¹⁷³ Courts have even struck down agency decisions for ignoring direct unquantified benefits.¹⁷⁴

EPA previously expressed concern that “incomplete quantitative characterization of the positive consequences can underestimate the monetary value of net benefits.”¹⁷⁵ But the fact that some benefits are not monetized in the RIA does not mean that they will necessarily be undervalued by conducting a proper cost-benefit analysis. Instead, it is up to the agency to “exercise professional judgment in determining how important the non-quantified benefits or costs may be in the context of the overall analysis.”¹⁷⁶

In addition to calculating aggregate benefits and costs, agencies should conduct an analysis of how those benefits and costs are distributed. The relative distributional desirability of an alternative can then be added to its initial benefits total as an unquantified benefit.¹⁷⁷ EPA can draw upon its extensive experience integrating direct unquantified benefits into a cost-benefit analysis when similarly considering equity considerations.¹⁷⁸

¹⁷⁰ *Id.*

¹⁷¹ See Revesz & Yi, *supra* note 138, at 96–97.

¹⁷² See *Id.*

¹⁷³ Exec. Order No. 12,866, *supra* note 74, § 1(a), 58 Fed. Reg. at 51,735.

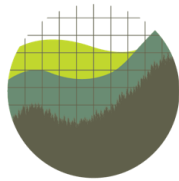
¹⁷⁴ See Richard L. Revesz, *Destabilizing Environmental Regulation*, *supra* note 122, at 899–901 (2020).

¹⁷⁵ 2022 Proposal, 87 Fed. Reg. at 7671 (80 Fed. Reg. at 75,039).

¹⁷⁶ CIRCULAR A-4, *supra* note 75, at 2. One way of exercising this judgment is conducting a “break-even” analysis—that is, determining how much a rule’s unquantified benefits would have to be worth in order for its total expected benefits to justify its total expected costs. *Id.*

¹⁷⁷ See Revesz & Yi, *supra* note 138, at 96–97.

¹⁷⁸ *Id.*



E. Any Criticisms That EPA Receives Related to the Social Cost of Greenhouse Gas Emissions Are Not Relevant Because the Rule Is Justified Without Any Climate Benefits

The 2011 RIA appropriately employed the social cost of carbon, developed by the Interagency Working Group on the Social Cost of Carbon (Working Group), to estimate climate co-benefits. The 2022 Proposal relies in part on this analysis.¹⁷⁹ “Health co-benefits comprise approximately 99% of . . . total monetized co-benefits” estimated in the RIA.¹⁸⁰ Given that the climate co-benefits are equal to less than 1% of the estimated co-benefits, EPA should also explicitly note that regulation under 112(n) is appropriate and necessary regardless of how it estimates climate impacts. Thus, even if EPA receives any critiques of its methods to estimate the climate benefits, such critiques are moot.

IV. Recommendations for Residual Risk and Technology Review

EPA is correctly reviewing the 2020 RTR and soliciting relevant information to improve its review. Policy Integrity submitted comments on the 2019 Proposal explaining why the technology and residual reviews included in the 2019 Proposal were inappropriate and should be redone.¹⁸¹ The final rule failed to remedy these defects. When EPA conducts its review of the RTR, it should take extra care to consider the distribution of effects.

A. Background: Residual Risk and Technology Review

The HAP emission standards in MATS were issued pursuant to Section 112(d), which instructs EPA to set emission standards for major sources that “require the maximum degree of reduction in [HAP] emissions’ . . . that the EPA determines are achievable, taking into account certain statutory factors.”¹⁸² These are commonly known as “maximum achievable control technology” or “MACT” standards.¹⁸³

No more than 8 years after a Section 112(d) standard is promulgated, subsection (d)(6) mandates that EPA conduct a review to determine whether the standard should be updated in

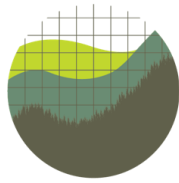
¹⁷⁹ 2022 Proposal, 87 Fed. Reg. at 7669 (explaining, as part of EPA’s totality-of-the-circumstances approach, that “we estimated the benefit of reductions in CO₂ emissions under MATS,” which supports an “appropriate and necessary” finding and was done using the social cost of carbon); *id.* at 7669 (explaining, as part of EPA’s cost-benefit-analysis approach, that EPA’s 2011 regulatory impact analysis “estimated that the final MATS would yield annual *net* monetized benefits . . . of between \$37 billion to [sic] \$90 billion using a 3-percent discount rate and \$33 billion to [sic] \$81 billion using a 7-percent discount rate”—figures that include the social cost of carbon as one of the monetized benefits). At the time of EPA’s 2011 MATS RIA, the Working Group was called the Interagency Working Group on the Social Cost of *Carbon*, but the modern iteration is called the Interagency Working Group on the Social Cost of *Greenhouse Gases*.

¹⁸⁰ MATS RIA, *supra* note 147, at 5-103.

¹⁸¹ Comments of the Inst. for Pol’y Integrity on the National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units—Reconsideration of Supplemental Finding and Residual Risk and Technology Review, (Apr. 17, 2019), <https://www.regulations.gov/comment/EPA-HQ-OAR-2018-0794-1167>.

¹⁸² MATS Rule, 77 Fed. Reg. at 9307 (quoting 42 U.S.C. § 7412(d)(2)).

¹⁸³ *Id.*



light of “developments in practices, processes, and control technologies” (the Technology Review).¹⁸⁴ Separately, Section 112(f)(2) requires EPA to conduct a review to determine if additional standards are needed to address any remaining risk associated with HAP emissions from the relevant source category (the Residual Risk Review).¹⁸⁵ Typically, these reviews are combined into a single proceeding and referred to as a “risk and technology review” (RTR).¹⁸⁶

In conducting Section 112(f) residual risk reviews, EPA follows the approach it first laid out in its 1989 National 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 (Benzene NESHAP).¹⁸⁷ The D.C. Circuit affirmed the reasonableness of the Benzene NESHAP in 2008.¹⁸⁸

Under the Benzene NESHAP approach, EPA uses a two-stage process to evaluate residual risk. First, EPA determines whether, under the MACT standard already in place, current risk levels are “acceptable,” a judgment for which there is no bright-line rule. Instead, EPA operates from the *presumption* that a maximum individual lifetime cancer risk (MIR) of 100 in 1 million is acceptable, where MIR is “the estimated risk that a person living near a plant would have if . . . exposed to the maximum pollutant concentrations for 70 years.”¹⁸⁹ In addition to MIR, EPA looks at various other health measures, including non-cancer risk metrics.¹⁹⁰ If EPA finds that the residual risks are unacceptable, then the agency cannot consider costs in determining the emission standards necessary to reduce risk to an acceptable level.¹⁹¹

Second, EPA determines whether the MACT standard provides an “ample margin of safety to protect public health.”¹⁹² As part of this analysis, EPA considers “the incremental risk reduction associated with standards more stringent than the MACT standard or a more stringent standard that the EPA has determined is necessary to ensure risk is acceptable,” as well as “costs and economic impacts of controls, technological feasibility, uncertainties, and any other relevant

¹⁸⁴ 42 U.S.C. § 7412(d)(6); *see also* 84 Fed. Reg. at 2680.

¹⁸⁵ 42 U.S.C. § 7412(f)(2); *see also* 84 Fed. Reg. at 2680.

¹⁸⁶ 2019 Proposal, 84 Fed. Reg. at 2680.

¹⁸⁷ National 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, 54 Fed. Reg. 38,044 (Sept. 14, 1989) [hereinafter Benzene NESHAP].

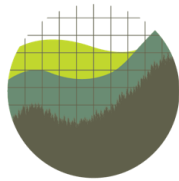
¹⁸⁸ *See* NRDC v. EPA, 529 F.3d 1077, 1080 (2008) (finding that EPA could interpret subsection 112(f)(2)(B) as incorporating by reference the Benzene NESHAP approach). EPA reaffirmed its commitment to the Benzene NESHAP approach in December 2017. EPA, CAA SECTION 112 RISK AND TECHNOLOGY REVIEWS: STATUTORY AUTHORITY AND METHODOLOGY (Dec. 14, 2017), <https://www.regulations.gov/document/EPA-HQ-OAR-2018-0794-0013> [hereinafter CAA SECTION 112 RTR METHODOLOGY].

¹⁸⁹ Benzene NESHAP, 54 Fed. Reg. at 38,045.

¹⁹⁰ *Id.* Other measures include “the overall incidence of cancer or other serious health effects within the exposed population, the numbers of persons exposed within each individual lifetime risk range and associated incidence within, typically, a 50 km exposure radius around facilities, the science policy assumptions and estimation uncertainties associated with the risk measures, weight of the scientific evidence for human health effects, other quantified or unquantified health effects, effects due to co-location of facilities, and co-emission of pollutants.” *Id.*

¹⁹¹ 2019 Proposal, 84 Fed. Reg. at 2681.

¹⁹² *Id.*



factors.”¹⁹³ In other words, EPA considers the benefits and costs of reducing risk beyond the maximally acceptable level.

In the 2020 Action, after purporting to conduct an RTR using the Benzene NESHAP approach, EPA concluded that more stringent emission standards were unnecessary for three reasons: there had been “no developments in practices, processes, or control technologies” for HAP emissions from EGUs since the issuance of MATS;¹⁹⁴ current health risks from EGU HAP emissions were acceptable;¹⁹⁵ and current emission standards provided an ample margin of safety for public health.¹⁹⁶ EPA has now “initiated a review of the RTR, taking into account the latest information available on the experience of EGUs in complying with MATS and implementing measures to reduce HAP emissions.”¹⁹⁷ EPA is further “soliciting information to allow for a more thorough review of the 2020 MATS RTR.”¹⁹⁸

B. The 2020 RTR Was Inappropriate and Unlawful and Should Be Redone

The 2020 technology and residual risk reviews arbitrarily ignored important aspects of the problem. The technology review further failed to adequately respond to comments. In light of these unlawful choices, the 2020 RTR should be redone.

1. EPA Failed to Provide a Satisfactory Explanation for the Proposed Findings of Its Technology Review and Failed to Remedy These Inadequacies in the Final Rule

As Policy Integrity explained in comments on the 2019 Proposal, EPA failed to provide a reasoned explanation for concluding that there had been no technological developments since MATS because it ignored relevant data. Specifically, the comments argued that EPA did not consider (1) whether the technologies that informed the MATS standards have become cheaper to an extent that justifies more aggressive deployment of those technologies and more stringent standards, (2) whether cost reductions have rendered feasible technologies that were deemed infeasible in the Regulatory Impact Analysis for MATS, or (3) whether any EGUs complied with MATS in ways that achieved greater emission reductions than were required by the rule and that could be deployed more broadly. For these reasons the 2020 technology assessment failed to meet the *State Farm* standard.¹⁹⁹

¹⁹³ CAA SECTION 112 RTR METHODOLOGY, *supra* note 188, at 6–7.

¹⁹⁴ 2019 Proposal, 84 Fed. Reg. at 2700.

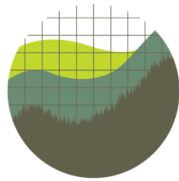
¹⁹⁵ *Id.*

¹⁹⁶ *Id.*

¹⁹⁷ 2022 Proposal, 87 Fed. Reg. at 7672.

¹⁹⁸ *Id.*

¹⁹⁹ *State Farm*, 463 U.S. at 43 (1983) (quoting *Burlington Truck Lines, Inc. v. United States*, 371 U.S. 156, 168 (1962)) (“[I]f the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise,” the challenged action fails hard look review.).



The final 2020 Action failed to remedy these defects. In the response to comments documents, EPA offered entirely inadequate responses to the concerns raised in Policy Integrity’s Comments.

First, Policy Integrity explained that, as EPA already acknowledged, relevant “developments” under Section 112(d)(6) include reductions in the cost of technologies that existed when the original standards for a source categories were promulgated.²⁰⁰ Industry, meanwhile, has reported that actual compliance costs for MATS were “significantly lower” than EPA projected in 2012, due in part to the fact that “technologies deployed for compliance” were “less expensive and more effective than originally assumed in EPA’s analysis.”²⁰¹ But in the 2019 Proposal, EPA did not appear to have assessed whether such cost reductions might justify imposing tighter standards based on an assumption of more aggressive deployment of those technologies.

EPA acknowledged the information raised in Policy Integrity’s comments and then summarily dismissed it as irrelevant: “EPA does not agree that the projected cost of a rule compared to the actual cost of a rule has any bearing on the technology review, and CAA Section 112 does not require such an evaluation when the EPA conducts technology reviews.”²⁰² This not only contradicts the EPA acknowledgment of the relevance of costs that Policy Integrity highlighted in its comments without explanation, but also contradicts the D.C. Circuit’s recognition that cost can be reasonably considered during 112(d)(6) review.²⁰³

Policy Integrity next explained that EPA did not consider whether technologies that existed when MATS was finalized but were deemed economically infeasible have since become significantly cheaper. The supporting document entitled “Technology Review for the Coal- and Oil-Fired EGU Source Category” highlighted specific control technologies that “continue to be explored for cost effectiveness and applicability,” but claimed they are “not a new development, as they were available at the time of the original [MATS rule] promulgation.”²⁰⁴ But again, improved cost-effectiveness qualifies as a development even if the technology existed at the time

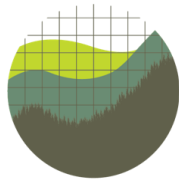
²⁰⁰ 2019 Proposal, 84 Fed. Reg. at 2787 (explaining that a “development” can include “[a]ny significant changes in the cost (including cost effectiveness) of applying controls (including controls the EPA considered during the development of the original MACT standards)”).

²⁰¹ Declaration of James E. Staudt, Ph.D., CFA ¶¶ 5-6, *White Stallion Energy Ctr., LLC v. EPA* (D.C. Cir. 2014), <https://www.regulations.gov/document/EPA-HQ-OAR-2009-0234-20549> (previously submitted in the docket for 2016 Supplemental Finding (Jan. 15, 2016)); Ex. 2 to Staudt Decl., *Andover Technologies Partners, Review and Analysis of the Actual Costs of Complying with MATS in Comparison to Predicted in EPA’s Regulatory Impact Analysis*, <https://www.regulations.gov/document/EPA-HQ-OAR-2009-0234-20549> (previously submitted in the docket for 2016 Supplemental Finding (Jan. 15, 2016)) (finding that “the true cost of the [MATS] rule” is “less than one-quarter of what EPA originally estimated”).

²⁰² EPA, FINAL SUPPLEMENTAL FINDING AND RISK AND TECHNOLOGY REVIEW FOR THE NESHAP FOR COAL- AND OIL-FIRED EGUS RESPONSE TO PUBLIC COMMENTS ON FEBRUARY 7, 2019 PROPOSAL 114 (Apr. 2020), <https://www.regulations.gov/document/EPA-HQ-OAR-2018-0794-4560> [hereinafter 2020 RTC].

²⁰³ See *Ass’n of Battery Recyclers, Inc. v. E.P.A.*, 716 F.3d 667, 673–74 (D.C. Cir. 2013).

²⁰⁴ EPA, TECHNOLOGY REVIEW FOR THE COAL- AND OIL-FIRED EGU SOURCE CATEGORY 6 (July 2018), <https://www.regulations.gov/document/EPA-HQ-OAR-2018-0794-0015> [hereinafter 2019 TECHNOLOGY REVIEW].



that the initial MACT rule was promulgated.²⁰⁵ Thus, EPA could not claim that no developments have occurred with respect to these technologies without first assessing whether and to what extent their costs have declined since 2012.

Finally, Policy Integrity explained that EPA did not appear to have considered whether any plants used innovative means to achieve MATS compliance that merit replication by other plants. Because MATS established performance standards, rather than design or process standards, it is unlikely that all EGUs emit HAPs at precisely the same rate. Put another way, though all currently operating EGUs are MATS-compliant, some likely pollute even less than required by the MATS rule. Accordingly, EPA could have identified the best-performing EGUs with respect to MATS HAP emissions and then determined whether the technologies or processes they use constitute a “development” for technology review purposes. The necessary data to perform such cross-plant comparisons is readily available to EPA because EGUs already report their HAP emission levels to the agency and the Technology Review memorandum already breaks down the compliance approaches taken by different EGUs.²⁰⁶

EPA acknowledged each of Policy Integrity’s other two arguments and dismissed them with a bare bones response that such concerns were irrelevant: “The EPA conducted the technology review for coal- and oil-fired EGUs consistent with its approach to conducting all technology reviews and the Agency does not believe it is necessary to revise that approach in response to this comment.”²⁰⁷ EPA made no further effort to explain why the cost information was irrelevant, nor did EPA deny that it had failed to evaluate whether any plants used innovative means to achieve MATS compliance that merit replication by other plants.²⁰⁸

Because EPA failed to conduct an assessment in line with its own expansive definition of “development,” and case law, it did not provide a reasoned explanation for concluding in the 2020 Action that that no relevant technological developments had occurred since MATS was promulgated in 2012. Additionally, EPA’s failure to adequately respond to comments was arbitrary and capricious.²⁰⁹

2. *EPA’s Residual Risk Review Impermissibly Failed to Consider the Incremental Risk Reductions and Costs Associated with More Stringent Standards*

Policy Integrity’s 2019 Comments further identified that EPA’s proposed residual risk analysis failed to consider the incremental risk reductions and costs associated with more

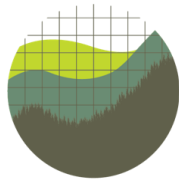
²⁰⁵ 2019 Proposal, 84 Fed. Reg. at 2687.

²⁰⁶ See, e.g., 2019 TECHNOLOGY REVIEW, *supra* note 204, at 7 tbl.2.

²⁰⁷ 2020 RTC, *supra* note 202, at 115.

²⁰⁸ *Id.* (claiming “[t]he statute does not require such a review.”)

²⁰⁹ See *Sierra Club v. EPA*, 863 F.3d 834, 835 (D.C. Cir. 2017); see also 5 U.S. Code §§ 553(c), 706.



stringent standards for two principal reasons discussed below. While EPA does not discuss these issues in detail in the final rule, it makes clear that neither error was remedied in the final rule.²¹⁰

First, the dearth of information provided by EPA in support of its technology review also undermines the agency’s residual risk review. Under the Benzene NESHAP approach to determining “ample margin of safety,” which EPA purported to be following in the Proposal, the agency assesses whether existing standards provide an ample margin of safety by calculating the expected costs and health risk reductions associated with “the next most effective level of control.”²¹¹ But here, the agency asserted, on the basis of its technology review, that there are “no additional measures . . . for reducing HAP emissions from affected sources in the Coal- and Oil-fired EGU source category.”²¹² In other words, according to the Agency, there was no next most effective level of control to consider.

But the veracity of this claim hinged entirely on the insufficiently supported conclusions of the technology review and therefore, like the technology-review findings, failed the *State Farm* requirement that EPA provide a “satisfactory explanation for its action, including a rational connection between the facts found and the choice made.”²¹³ See discussion in III.A of summarizing EPA’s failure to cure the defects in the technology review.

Second, EPA made inappropriate assumptions that low risks could not be economically justified. EPA contended that its “analysis indicate[s] the risks from the source category are low for both cancer and noncancer health effects, and, therefore, any risk reductions from further available control options would result in minimal health benefits.”²¹⁴ In other words, EPA suggested that, regardless of the availability of additional control options, current control technologies are “good enough” at reducing human health and environmental risks, rendering it unnecessary to consider a more stringent standard.

But even if it were true that existing risks levels are low, it would not necessarily follow that further reductions in those risks are not economically justified (taking into account the full benefits, quantified and unquantified, of those reductions). To make this determination, EPA must weigh the “incremental risks reduction” associated with more stringent standards against the costs of those more stringent standards, something the agency did in the Benzene NESHAP but failed to do in the 2020 Action, despite purporting to apply the Benzene NESHAP approach.²¹⁵

EPA claimed that, in following the Benzene NESHAP approach to residual risk reviews, it “strives to provide maximum feasible protection against risks to health from hazardous air

²¹⁰ See *infra* note 217.

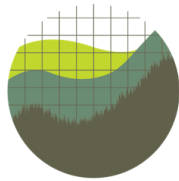
²¹¹ See Benzene NESHAP, 54 Fed. Reg. at 38,046–48.

²¹² 2019 Proposal, 84 Fed. Reg. at 2700.

²¹³ *State Farm*, 463 U.S. at 43 (quoting *Burlington Truck Lines*, 371 U.S. at 168).

²¹⁴ 2019 Proposal, 84 Fed. Reg. at 2700.

²¹⁵ See CAA SECTION 112 RTR METHODOLOGY, *supra* note 188, at 6-7.



pollutants.”²¹⁶ But the agency cannot possibly fulfill this pledge without assessing whether a tightening of HAP emission standards would result in further risk reductions that justify the associated costs. EPA confirms it made the same improper assumptions in the final rule.²¹⁷

C. EPA Should Consider Distributional Consequences When Conducting Its Residual Risk Review and Determining Whether Current Risks Levels Are Acceptable

EPA recently recommitted, in its Strategic Plan for 2022–2026, to prioritizing environmental justice.²¹⁸ In the 2022 Proposal, EPA further recognizes the importance of considering the distribution of public health impacts on minority and/or low-income populations, which include some of the most sensitive and exposed individuals, a set of individuals whom Section 112 designates to be of particular concern.²¹⁹ These concerns are not hypothetical. In the context of the appropriate-and-necessary finding, EPA has already acknowledged that the costs of mercury exposure may fall disproportionately on underserved communities. For example, EPA acknowledged that the dietary and nutritional vulnerabilities that make children more at risk from the neurotoxic effects of methylmercury are often “particularly pronounced in underserved communities with minority populations and low-income populations that have historically faced economic and environmental injustice and are overburdened by cumulative levels of pollution.”²²⁰ In its 2022 Risk TSD, EPA also found that the potential increased risk of mortality related to myocardial infarction due to U.S. EGU-sourced mercury in self-caught fish among low-income, Black subsistence fishers in the southeast²²¹ and to a lesser extent among certain other vulnerable groups. Such information should inform EPA’s considerations of residual risk and an ample margin of public safety as well as the appropriateness of regulation.

The Agency does not, however, specifically ask for information on the distribution of residual risks in its initial request for information relevant to reviewing the RTR—or otherwise indicate how the distribution of risks would factor into its review and potential revision of the

²¹⁶ *Id.* at 6 (quoting 54 Fed. Reg. at 38,044-38,045 (Sept. 14, 1989)).

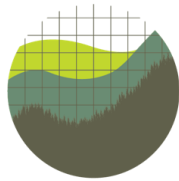
²¹⁷ See 2020 Action, 85 Fed. Reg. 31,317 (“The risk analysis indicated that the risks from the source category are low for both cancer and noncancer health effects, and, therefore, any risk reductions from further available control options would result in minimal health benefits. Moreover, no additional measures were identified for reducing HAP emissions from affected sources in the Coal- and Oil-Fired EGU source category. Thus, we proposed that the current MATS requirements provide an ample margin of safety to protect public health in accordance with CAA section 112.”).

²¹⁸ EPA, FY 2022-FY 2026 STRATEGIC PLAN (Mar. 28, 2022), <https://www.epa.gov/planandbudget/strategicplan>.

²¹⁹ 2022 Proposal, 87 Fed. Reg. at 7647 (“In assessing the adverse human health effects of HAP pollution from EGUs, we note that these effects are not borne equally across the population, and that some of the most exposed individuals and subpopulations—protection of whom is, as noted, of particular concern under CAA section 112—are minority and/or low-income populations.”); *Id.* at 7660 (“As noted above, in CAA section 112(n)(1)(C) Congress directed the EPA to establish threshold levels of exposure under which no adverse effect to human health would be expected to occur, even considering exposures of sensitive populations, and throughout CAA section 112, Congress placed special emphasis on regulating HAP from sources to levels that would be protective of those individuals most exposed to HAP emissions and most sensitive to those exposures.”).

²²⁰ 2022 Proposal, 87 Fed. Reg. 7638.

²²¹ 2022 RISK TSD, *supra* note 106, at 21–22.



RTR. Going forward, EPA should prioritize collection of such data and factor it into its residual risk analysis so that it can better fulfill its environmental justice goals. As it goes about this process, EPA may wish to take particular note of a recent Harvard University white paper on mercury science and the benefits of mercury regulation that includes a “Roadmap for Residual Risk and Environmental Justice Assessment” with further recommendations on identifying the distribution of residual risk after implementation of the MATS Rule.²²² It recommends:

First, the communities that are disproportionately impacted by utility emissions of HAP must be identified. In addition, communities that are vulnerable to high methylmercury exposures due to cultural seafood consumption practices must be considered. New data on high-end fish consumers and socioeconomic attributes of consumers should be considered in a revised analysis. Further, disproportionate exposures of indigenous people, Pacific Islanders, and others, indicated by CDC blood mercury monitoring data, should be addressed.²²³

The paper also identifies studies that indicate why the 2011 RIA likely underestimated methylmercury exposure and associated health risks.²²⁴

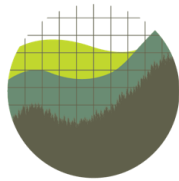
In order to accurately determine the residual risk to the most sensitive and exposed members of society, EPA must analyze this and other information on the distribution of residual risk following implementation of the MATS Rule and incremental risk reduction possible from more stringent standards. In addition to broadly considering the distribution of risk, during the second stage of the residual risk analysis, when EPA selects an ample margin of safety for public health, it can consider the distribution of cost and other non-mercury benefits. At this second stage of analysis, EPA can apply the best practices identified for consideration of distributional impacts during cost-benefit analysis. These practices include certain methodological considerations applicable even if EPA does not choose to do a formal benefit-cost analysis.

By considering the distribution of residual risk, and the other costs and benefits of more stringent standards during the second step of review, EPA can better ensure it sets standards with an adequate margin to protect public health, as consistent with the statutory priorities of Section 112 to account for the effects on the most exposed and sensitive populations, and EPA’s own goals to advance environmental justice. It can also make sure that it is fully accounting for the distribution of benefits and costs as consistent with principles of sound economic analysis. The remainder of these comments provide a high-level assessment of EPA’s legal authority to consider information on distributional impacts, best practices for analysis of distributional impacts, and how those practices may apply in the case of a residual risk analysis.

²²² See Harvard White Paper, *supra* note 157, at 24–25.

²²³ *Id.* at 3.

²²⁴ *Id.* at 24–25.



1. *A Review of the Distributional Impacts Is Consistent with Longstanding Executive Guidance and Basic Economic Principles*

As already explained in detail in Part III.A.4, for over twenty-five years, executive orders and related guidance documents, have directed EPA to consider distributional impacts in its regulatory decisionmaking. Executive Order 12,866, *Circular A-4*, Executive Order 13,563, all confirm that EPA must consider the distributional impacts of its actions. Separate from these directives on cost-benefit analysis, EPA and other agencies have been further instructed to consider environmental justice considerations in their decisionmaking. In 1994, President Clinton issued Executive Order 12,898, which requires agencies to identify and seek to address the adverse environmental and human-health impacts of all federal administrative programs (including regulations) on minority and low-income populations.²²⁵ The White House Council on Environmental Quality,²²⁶ and later the Interagency Working Group on Environmental Justice,²²⁷ provided subsequent guidance on identifying and assessing a broad range of potential disparate impacts in environmental justice analyses conducted under Executive Order 12,898.

President Biden has committed that advancing environmental justice will continue to be a priority for his administration.²²⁸ On his first day in office, President Biden again reaffirmed Executive Order 12,866 and called for OMB, in consultation with the agencies, to develop “procedures that take into account the distributional consequences of regulations, including as part of any quantitative or qualitative analysis of the costs and benefits of regulations, to ensure that regulatory initiatives appropriately benefit and do not inappropriately burden disadvantaged, vulnerable, or marginalized communities.”²²⁹ EPA’s consideration of the distributional impacts of its actions is consistent with advancing the Administration’s commitments.

In addition to Executive Directives, EPA has issued its own guidance documents on considering equity and environmental justice in cost-benefit analysis and plans for prioritizing advancing environmental justice, which can help guide this analysis. For example, EPA’s Guidelines for Preparing Economic Analyses includes a chapter on considering distributional

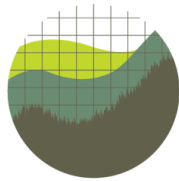
²²⁵ Exec. Order No. 12,898, *supra* note 136, § 1-101, 59 Fed. Reg. at 7629 (“To the greatest extent practicable and permitted by law, . . . each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations . . .”).

²²⁶ COUNCIL ON ENV’T QUALITY, ENVIRONMENTAL JUSTICE: GUIDANCE UNDER THE NATIONAL ENVIRONMENTAL POLICY ACT (Dec. 10, 1997), https://www.epa.gov/sites/default/files/2015-02/documents/ej_guidance_nepa_ceq1297.pdf.

²²⁷ FED. INTERAGENCY WORKING GRP. ON ENV’T JUST., PROMISING PRACTICES FOR EJ METHODOLOGIES IN NEPA REVIEWS (2016), https://www.epa.gov/sites/default/files/2016-08/documents/nepa_promising_practices_document_2016.pdf.

²²⁸ See Exec. Order No. 13,990 § 1, *supra* note 6, 86 Fed. Reg. at 7037; Exec. Order No. 14,008 § 219, *supra* note 6, at 86 Fed. Reg. 7,629.

²²⁹ Modernizing Regulatory Review: Memorandum for the Heads of Executive Departments and Agencies § 2(b)(ii), *supra* note 7, 86 Fed. Reg. at 7223.



impacts.²³⁰ In 2016, EPA released technical guidance on “methods for analysts to use when assessing potential environmental-justice concerns in national rules.”²³¹

2. *A Review of the Distribution of Risk Is Consistent with How Residual Risk Analysis Has Been Done Under the Judicially-Upheld Benzene NESHAP*

As explained above, EPA uses a two-stage process to evaluate residual risk that was established by the judicially-upheld Benzene NESHAP. The Benzene NESHAP approach is fully compatible with consideration of distributional impacts as it is already structured to consider risks across different populations and as EPA acknowledges, “CAA section 112 more generally is drafted in order to be protective of small cohorts of highly exposed and susceptible populations.”²³² Such populations can overlap heavily with communities of color and indigenous, marginalized, and low-income populations.

During the first step of the residual risk review, EPA determines whether the current risk levels are acceptable based on, among other factors, the maximum individual lifetime cancer risk (MIR), which is “the estimate risk that a person *living near a plant* would have . . . if exposed to the maximum pollutant concentrations for 70 years.”²³³ Such an estimate already focuses on the population at greater risk of harm. Furthermore, in the Benzene NESHAP, EPA explains that it does not only consider the level of the MIR, but also “*the distribution of risks in the exposed population*” and other factors when making the acceptability judgment.²³⁴ By considering the demographic characteristics of the most highly exposed and susceptible populations, and other compounding risks to these populations resulting in higher cumulative risk, EPA can better understand the full risk to these populations and how the distributional impacts affect vulnerable and marginalized communities.

3. *Recommendations for a Proper Review of the Distribution of Risk and Other Impacts*

In addition to executive directives and EPA’s specific guidance, recent scholarship has identified key features of meaningful distributional analysis.²³⁵ Based on this literature, we make three key recommendations for the EPA’s two-step residual risk analysis. As discussed below, some of these recommendations are only applicable for a certain stage of the residual risk analysis.

²³⁰ EPA ECONOMIC GUIDELINES, *supra* note 69, at 10-1 to 10-24.

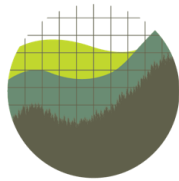
²³¹ EPA, TECHNICAL GUIDANCE FOR ASSESSING ENVIRONMENTAL JUSTICE IN REGULATORY ANALYSIS (2016), https://www.epa.gov/sites/production/files/2016-06/documents/ejtg_5_6_16_v5.1.pdf.

²³² 2022 Proposal, 87 Fed. Reg. at 7666; *see also* CAA Sections 112(c)(9)(B), 112(f)(2)(B), and 112(n)(1)(C).

²³³ Benzene NESHAP, 54 Fed. Reg. at 38,045.

²³⁴ *Id.*

²³⁵ *See, e.g.*, JACK LIENKE ET AL., INST. FOR POL’Y INTEGRITY, MAKING REGULATIONS FAIR: HOW COST-BENEFIT ANALYSIS CAN PROMOTE EQUITY AND ADVANCE ENVIRONMENTAL JUSTICE (2021); Revesz & Yi, *supra* note 138, at 82–97; Richard L. Revesz, *Regulation and Distribution*, 93 N.Y.U. L. REV. 1489, 1492 (2018).



During the first step of the residual risk review, EPA properly focuses on the acceptability of the residual risk following implementation of MATS without considering cost. While this is not a cost-benefit analysis, certain best practices on considering distributional impacts from cost-benefit analysis are nonetheless applicable at the stage, namely the selection of appropriate units for data analysis and practices regarding disaggregating data on race and ethnicity.

Should EPA find that the level of residual risk is unacceptable and move to the second stage of the risk analysis, when EPA determines whether the MACT standard provides an “ample margin of safety to protect public health,”²³⁶ it should then incorporate further best practices on considering distributional impacts. As discussed above, this margin-of-safety analysis considers “the incremental risk reduction” associated with more stringent standards as well as “costs and economic impacts of controls, technological feasibility, uncertainties, and any other relevant factors.”²³⁷ As EPA considers the distribution of these benefits and costs of reducing risk beyond the maximally acceptable level, it should go beyond a baseline analysis and instead analyze the distribution of costs and benefits at different levels of incremental risk reduction. As discussed above, EPA can then weigh the distributional impacts as an unquantified benefit should it use a formal cost-benefit analysis approach. Additionally, should EPA move forward with a new standard after completing the residual risk analysis, the proposal for the new standards should include a new or updated RIA with a formal cost-benefit analysis that includes consideration of distributional impacts across alternatives.

i. Select an Appropriate Unit of Analysis for the Risk

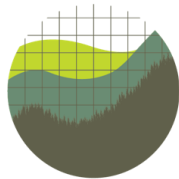
EPA should report all relevant impacts of risks analyzed at the level of geographic granularity necessary to capture impacts on disproportionately affected communities. When conducting a distributional analysis, the unit of analysis should match or correspond to the nature of the environmental problem. Assessing distributional consequences will necessarily require EPA to analyze regulatory impacts at a granular and disaggregated level.²³⁸ In general, EPA should prefer smaller units (e.g., census blocks) to larger units (e.g., census tracts).²³⁹ However, even using a granular analysis, mismatches between the unit of analysis and the nature of the problem can obscure or mask disparate impacts across communities when they occur radially along certain waterways or other pathways.

²³⁶ Benzene NESHAP, 54 Fed. Reg. at 38,045.

²³⁷ CAA SECTION 112 RTR METHODOLOGY, *supra* note 188, at 6–7.

²³⁸ See LIENKE ET AL., *supra* note 235, at 6–7 (“Measuring impacts at aggregate scales can hinder [identification of who is being affected by a regulation and to what degree].”).

²³⁹ *Id.* at 7; see also RACHEL NUWER, STUDY SHOWS HOW CITIES CAN CONSIDER RACE AND INCOME IN HOUSEHOLD ENERGY EFFICIENCY PROGRAMS, PRINCETON SCHOOL OF ENGINEERING AND APPLIED SCIENCE (June 7, 2021), <https://environment.princeton.edu/news/study-shows-how-cities-can-consider-race-and-income-in-household-energy-efficiency-programs/> (finding that energy use inequality is more visible in relatively smaller units of analysis).



When it conducted the MATS RIA in 2011, EPA evaluated demographic data at the census block level.²⁴⁰ EPA further observed the nuances of selecting the appropriate unit of analysis for particularities of measuring different HAP-related exposure harms. For example, when measuring the populations most affected by mercury exposure, EPA analyzed subsistence and other fish consumption and areas of heaviest mercury deposition from EGUs. EPA should again make sure to consider the selection of the appropriate units of data in any future analyses for a residual risk analysis. Selection of the appropriate unit of analysis will also be relevant when considering how to address the Harvard White Paper’s recommendation that “future residual risk analyses focus on the regions surrounding the 196 remaining EGUs in 2020 to determine if there are any adverse health effects, particularly for vulnerable groups proximate to these facilities.”²⁴¹

ii. Carefully Consider How Categorization and Aggregation Choices with Respect to Race and Ethnicity Will Affect the Analysis

EPA should carefully consider whether and how to aggregate data from minority populations in its analysis, as an unsuitable choice may obscure inequity. Categorization choices with respect to race and ethnicity can affect the visibility of distributional consequences (and are key to understanding how impacts are distributed).²⁴² For example, in a case where predominantly Black neighborhoods suffer from higher exposure to air pollution than predominantly white *or* Hispanic neighborhoods, aggregating data from the Black and (non-disproportionately-affected) Hispanic neighborhoods (for purposes of comparison with white neighborhoods) might dilute and thus mask the disproportionate harm faced by Black communities.²⁴³

The Harvard White Paper recommends identifying the individuals who are most highly exposed to mercury and estimating any residual risks following implementation of the MATS rule.²⁴⁴ It notes evidence that “U.S. individuals who identified their ethnicity as “other” (i.e., Asian, Pacific and Caribbean Islander, Native American, Alaska Native, multi-racial and unknown race) consistently have blood mercury levels that are higher than other demographic groups between 2001-2018 based on NHANES/CDC data.”²⁴⁵ Identifying such populations that may be disproportionately impacted will help determine appropriate aggregation choices.

EPA should explicitly report how it disaggregates demographic data. This disaggregation should be consistent with this rule’s context, with other agencies’ practices, and with applicable

²⁴⁰ See e.g., MATS RIA, *supra* note 147, at 7-35 to 7-36.

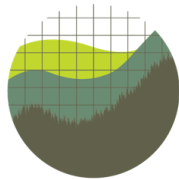
²⁴¹ Harvard White Paper, *supra* note 157, at 25.

²⁴² See also Revesz & Yi, *supra* note 138, at 86–90.

²⁴³ See *id.* at 87–88.

²⁴⁴ Harvard White Paper, *supra* note 157, at 24–25.

²⁴⁵ *Id.* at 25.



legal constraints, and EPA should take care to disaggregate in a way that does not mask impacts that accrue disproportionately to particular populations.²⁴⁶

iii. Consider the Distributional Effects When Determining the Incremental Risk Reduction of More Stringent Standards

EPA should consider the distributional effects of “the incremental risk reduction associated with standards more stringent than the MACT standard or a more stringent standard that the EPA has determined is necessary to ensure risk is acceptable,” when determining an “ample margin of safety to protect public health.”²⁴⁷ It is insufficient to merely analyze the baseline distribution of the pollutant at issue, e.g., exposure to HAP and conclude that the risk reduction must be particularly advantageous to the marginalized and vulnerable communities because those communities are disproportionately affected by HAP, or other pollution, and the rule will reduce such pollution.²⁴⁸

A disproportionate exposure to a pollutant for marginalized and vulnerable communities does not necessarily guarantee that a reduction of the pollutant will lead to greater benefits than costs for these communities. For this reason, EPA must carefully analyze how and where and the costs and benefits of incrementally stringent standards are most likely to accrue.

Without analyzing the distribution of residual risk among the exposed population, EPA cannot determine whether the distributional consequences (i.e., higher level of residual risk in environmental justice communities subject to other exposures that might increase cumulative risk²⁴⁹) is sufficient to require tightening the standards. Moreover, without a clear understanding of how the benefits and costs of different risk exposures and cumulative risks are distributed among different groups, EPA cannot rationally determine whether it is setting the MACT standard at an “ample margin of safety to protect public health,”²⁵⁰ and in a manner that is more beneficial than costly for the most vulnerable groups. During this second stage of its residual risk analysis EPA selects the most desirable policy after weighing cost and “other relevant factors.”²⁵¹ Under the principles of sound economic analysis this should include consideration of the distribution of the full scope of costs and benefits, including co-benefits.

If EPA identifies multiple possible levels of further risk reduction, it should be sure to analyze the distribution of costs and benefits for each of those alternatives. Such an approach is

²⁴⁶ See Revesz & Yi, *supra* note 138, at 86–90 (discussing such concerns in the contexts of race, ethnicity, and socioeconomic status).

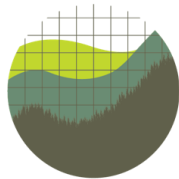
²⁴⁷ Benzene NESHAP, 54 Fed. Reg. at 38,046.

²⁴⁸ See Revesz & Yi, *supra* note 138, at 68.

²⁴⁹ For example, see Harvard White Paper, *supra* note 157, for a discussion of cumulative risk, *id.* at 21, and risks to environmental justice communities, *id.* at 24–25.

²⁵⁰ 2019 Proposal, 84 Fed. Reg. at 2681.

²⁵¹ Benzene NESHAP, 54 Fed. Reg. at 38,046 (explaining that EPA considers “Costs and economic impacts of controls, technological feasibility, uncertainties, and any other relevant factors.”).



consistent with the directive of Executive Order 12,866 that the benefits of a regulation should not only “justify” its costs,²⁵² but also that agencies “select those approaches that maximize net benefits,”²⁵³ which are benefits minus costs. Such an approach requires consideration of multiple alternatives. For example, if EPA looked at an Alternative A and found it resulted in \$10 million dollars of net benefits, the agency could reasonably select that alternative as net-beneficial. However, perhaps there also exists an Alternative B which would result in \$20 million dollars of net benefits for limited additional costs. Without considering other alternatives, the agency would not be in a position to know whether a policy maximizes net benefits. The consideration of alternatives is no less important for considering the distribution of costs and benefits.²⁵⁴

Having assessed the distribution of costs and benefits for its preferred level of risk reduction that provides an ample margin of public safety and, if applicable, any alternative levels considered, EPA should treat the distributional desirability (or undesirability) of each regulatory option as an unquantified benefit (or cost) that it compares alongside other costs and benefits.²⁵⁵ EPA has a long history of considering similarly unquantified effects.

Respectfully,

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Jack Lienke, Director of Regulatory Policy

Attached:

- 1) Kimberly M. Castle & Richard L. Revesz, *Environmental Standards, Thresholds, and the Next Battleground of Climate Change Regulations*, 103 MINN L. REV. 1349 (2019)
- 2) JACK LIENKE, ILIANA PAUL, MAX SARINSKY, BURÇIN ÜNEL, AND ANA VARELA., INST. FOR POL’Y INTEGRITY, *MAKING REGULATIONS FAIR: HOW COST-BENEFIT ANALYSIS CAN PROMOTE EQUITY AND ADVANCE ENVIRONMENTAL JUSTICE* (2021)
- 3) Richard L. Revesz & Samantha P. Yi, *Distributional Consequences and Regulatory Analysis*, 52 ENV’T L. 53 (2022)

²⁵² Exec. Order No. 12,866, *supra* note 74, § 1(b)(6), 58 Fed. Reg. at 51,736.

²⁵³ *Id.* § 1(a), 58 Fed. Reg. at 51.

²⁵⁴ See Revesz & Yi, *supra* note 138, at 91–93 (discussing why the consideration of alternatives is an important part of distributional analysis); see also Exec. Order No. 12,866, *supra* note 74 § 1(a), 58 Fed. Reg. at 51 (“Further, in choosing among alternative regulatory approaches, agencies should select those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach.”).

²⁵⁵ Revesz & Yi, *supra* note 138, 96–97 (discussing why this approach should be preferred).