



April 17, 2019

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Submitted via regulations.gov

The Honorable Andrew Wheeler  
Administrator  
U.S. Environmental Protection Agency  
1200 Pennsylvania Ave, NW  
Washington, D.C. 20460

Re: Docket No. EPA-HQ-OAR-2018-0794-0001

Dear Administrator Wheeler:

**Advisory Council**

Patricia Bauman  
Frances Beinecke  
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Sally Greenberg  
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Thank you for the opportunity to comment on the Environmental Protection Agency's (EPA) Proposed Rulemaking on "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" (RIN: 2060-AT99) [hereinafter "Proposal"]. We the undersigned are Member Scholars and Staff with the Center for Progressive Reform (CPR), a nonprofit research and educational organization with a network of Member Scholars working to protect health, safety, and the environment through analysis and commentary. Collectively, we have expertise in environmental and administrative law and regulatory policy, and have written on the topic of cost-benefit analysis and its application to environmental regulation in the form of dozens of books, journal articles, reports, op-eds, and speeches, testimony, and other public presentations. We are supported in these comments by research from the Environmental Law Clinic at the University of Maryland Francis King Carey School of Law.

As we explain in these comments, we have several concerns with the legal and policy basis for the Proposal, particularly its treatment of the so-called "co-benefits" and the non-monetizable benefits of hazardous air pollutant (HAP) emissions reductions that arise from the EPA's 2011 Mercury and Air Toxic Standards (MATS) rule. When taken together, the legal and policy problems we identify suggest that the Proposal provides only a thin rationalization for what may have been a preordained conclusion to reverse the EPA's earlier determination that

it was “appropriate and necessary” to regulate hazardous air pollutant emissions from electric utilities pursuant to section 112 of the Clean Air Act. As such, the Proposal appears to be part of the EPA’s broader effort to skew its cost-benefit analysis methodologies so that they are more systematically skewed against effective environmental and public health protections.

### **The Proposal’s Revised “Appropriate and Necessary” Analysis Unreasonably and Arbitrarily Distorts the Impacts of the MATS Rule, and Thus Exceeds the EPA’s Authority Under the Clean Air Act for Conducting This Analysis**

The EPA frames the Proposal as a response to the U.S. Supreme Court’s decision in *Michigan v. EPA*, 135 S.Ct. 2699 (2015), which held that EPA failed to satisfy section 112(n)(1)(A) of the Clean Air Act because in making the determination that regulations limiting HAP emissions from electric utilities were “appropriate and necessary” it neglected to consider the costs of those regulations. The agency offers the Proposal to “correct[] flaws” that it now perceives in the Obama administration’s original attempt to address the Court’s decision through a 2016 supplemental “appropriate and necessary” finding, which concluded that the statutory threshold for regulating HAP emissions from electric utilities was still satisfied even when accounting for the costs of those regulations.<sup>1</sup> The main flaw that the EPA now identifies is that the 2016 supplemental finding “improperly considered co-benefits from non-HAP emissions reductions” related to particulate matter pollution.

The timing of this attempt to re-revise the “appropriate and necessary” analysis is worth emphasizing. It comes roughly seven years after the MATS rule first went into effect in 2011. In that time, *actual experience* with the MATS rule has demonstrated that its requirements have been “appropriate and necessary,” confirming the *predictions* that were made in previous versions of the “appropriate and necessary” analysis. Over its lifetime, the MATS rule has contributed to significant reductions in emissions of several HAPs. Once the single largest source of mercury air pollution, fossil-fueled power plants saw their emissions of mercury decline by over 81 percent between 2011 and 2018.<sup>2</sup> This means the rule has already nearly achieved the goal of reducing such emissions by about the 90 percent that the EPA projected upon its issuance. The EPA also projected that the rule would reduce acid gas emissions by 88 percent and sulfur dioxide emissions by 41 percent (beyond the reductions achieved through the EPA’s Cross State Air Pollution rule).<sup>3</sup> As detailed below, we now know that these benefits have been achieved at less than a third of the annual cost originally predicted by the EPA.

This Proposal also comes despite nearly uniform opposition by the electric utility industry, which is regulated by the MATS rule. In July 2018, leaders of that industry joined in a letter urging the EPA not to pursue a measure like the Proposal. As they explained, they have

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<sup>1</sup> *Michigan*, 135 S.Ct. at 2672.

<sup>2</sup> Sally Hardin & Angelica Lujan, Trump’s EPA Poised to Undo Progress on Mercury Pollution Reduction, Ctr. for Am. Progress, Dec. 18, 2018, <https://www.americanprogress.org/issues/green/reports/2018/12/18/464269/trumps-epa-poised-undo-progress-mercury-pollution-reduction/> (last visited Apr. 17, 2019).

<sup>3</sup> U.S. Env’tl. Protection Agency, Mercury and Air Toxics: Cleaner Power Plants, <https://www.epa.gov/mats/cleaner-power-plants> (last visited Apr. 17, 2019).

already largely incurred most of the costs of complying with the rule.<sup>4</sup> If the EPA were to take any actions that could lead to the rule’s revocation, that could potentially jeopardize their ability to recoup those costs through future rate settings. More recently, in March 2019, these same industry leaders sent the EPA another letter reiterating their calls for the agency to abandon the proposal.<sup>5</sup>

The only stakeholder that seems to support the Proposal is the coal mining industry, and particularly one coal mining company that has been notable for its documented close ties to the White House. Some might see the rollback of the MATS rule as a potential lifeline for the future of coal in the U.S. economy. Rather than the MATS rule, or other environmental regulations, however, it is basic economic forces that have caused the electric utility industry to turn against coal. The competitive advantages enjoyed by natural gas and increasingly renewable energy sources have simply become too great.

The Proposal also comes at a time when the EPA is undertaking a separate rulemaking that aims to overhaul the agency’s cost-benefit analyses practices and methodologies more broadly. While its details remain spare, the overall goal of the Advanced Notice of Proposed Rulemaking on “Increasing Consistency and Transparency in Considering Costs and Benefits in the Rulemaking Process” (RIN: 2010-AA12) [hereinafter “Cost-Benefit Analysis Rulemaking”] appears to be to make it easier for the EPA to manipulate its analyses as the agency seems to have done in the Proposal.<sup>6</sup> Most significantly, the EPA has signaled its intent to use the Cost-Benefit Analysis Rulemaking to exclude consideration of co-benefits as part of the cost-benefit analyses for its future rules. In this way, the Cost-Benefit Analysis Rulemaking would work in tandem with the Proposal to establish a blanket agency-wide policy that limits the consideration of regulatory co-benefits.

### **Contrary to the Claims of the Proposal, the 2016 Supplemental “Appropriate and Necessary” Finding’s Consideration of Co-Benefits is Consistent with the *Michigan v. EPA* Decision and Prevailing Economic Practice**

The Proposal’s newly announced legal rule barring consideration of the non-HAP co-benefits that accrue from its regulation of HAP emissions as part of the section 112(n)(1)(A) “appropriate and necessary” determination finds no basis in the *Michigan v. EPA* decision. To the contrary, the majority in *Michigan v. EPA* granted the EPA considerable discretion in how it could account for costs in making this determination, and the consideration of non-HAP co-benefits falls well within that range of discretion. Specifically, the majority offered the EPA the following guidance in how to respond to its holding:

We need not and do not hold that the law unambiguously required the Agency, when making this preliminary estimate, to conduct a formal cost-benefit

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<sup>4</sup> Sean Reilly, *In About-Face, Utilities Urge EPA to Keep Mercury Rule*, GREENWIRE, July 11, 2018, <https://www.eenews.net/greenwire/stories/1060088801/> (last visited Apr. 17, 2019).

<sup>5</sup> Sean Reilly, Letter to EPA: Don’t Jeopardize Mercury Control Investments, GREENWIRE, Mar. 27, 2019, <https://www.eenews.net/greenwire/2019/03/27/stories/1060131115> (last visited Apr. 17, 2019).

<sup>6</sup> James Goodwin, *Scott Pruitt Wants to Pick Winners and Losers by Cooking the Books at EPA*, CPRBLOG, June 28, 2018 (Updated July 2, 2018), <http://www.progressivereform.org/CPRBlog.cfm?idBlog=9223F488-D405-795B-845443E5E91AED30> (last visited Apr. 17, 2019).

analysis in which each advantage and disadvantage is assigned a monetary value. It will be up to the Agency to decide (as always, within the limits of reasonable interpretation) how to account for cost.<sup>7</sup>

It was well within the limits of reasonable interpretation for the EPA to consider co-benefits as part of its 2016 supplemental “appropriate and necessary” finding. There is no practical reason to reconsider the agency’s rationale yet again, given that the agency does not even contemplate repealing the MATS rule. Both long-standing practice in the federal government and economic theory strongly support, if not require, the consideration of co-benefits as part of such regulatory economic analyses:

- *The EPA’s decades-long practice has been to include consideration of co-benefits when performing economic impact analyses on its pending regulations.* For example, during the Reagan administration, the EPA included in the analysis of its 1985 rule to further reduce the lead content of gasoline an accounting of the monetized co-benefits the rule would achieve in reducing ozone pollution. Prior to the rule, continued consumer misuse of leaded gasoline was causing automobile catalytic converters, which serve to prevent emissions of ozone precursors, to malfunction. The rule was thus projected to have the ancillary benefit of preventing this phenomenon by further limiting the sale of leaded gasoline.<sup>8</sup>
- *The tenets of welfare economics that undergird practice of cost-benefit analysis in general, and the EPA’s use of the methodology in particular, require consideration of co-benefits.* According to its defenders, cost-benefit analysis is a vital tool for helping to ensure that our country’s limited resources are put to the most efficient and optimal use – provided that it is practiced in good faith. More specifically, cost-benefit analysis helps agency decision-makers design regulations so that their impacts serve to maximize social welfare. In theory, it is impossible to evaluate a regulatory decision in these terms unless all of its impacts are fully accounted for. Consequently, the consideration of all regulatory benefits – including co-benefits – is essential to the effective (and good faith) use of cost-benefit analysis in regulatory decision-making, while the conscious disregard of co-benefits defeats its successful use. The EPA grounds its conduct of regulatory cost-benefit analysis in this economic theory, as it explains in its own *Guidelines for Preparing Economic Analyses*. There, the agency explains the welfare economics basis of the methodology in the following terms: “BCA can be thought of as an accounting framework of the overall social welfare of a program, which illuminates the trade-offs involved in making different social investments . . . . An efficient regulation is one that yields the maximum net benefit . . . .”<sup>9</sup> Significantly, these Guidelines go on to explain that meaningful cost-benefit analysis requires consideration of all the impacts of a regulation: “To estimate the *total* costs and benefits to society of an activity or program, the costs and benefits in each affected market, as well as any non-market costs or benefits, are added up. This is done through [cost-benefit analysis].”<sup>10</sup>

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<sup>7</sup> *Michigan*, 135 S.Ct. at 2711.

<sup>8</sup> Jason Perkins, *The Case for Co-Benefits: Regulatory Impact Analyses, Michigan v. EPA, and the Environmental Protection Agency’s Mercury and Air Toxics Standards* 11-12 (Stanford L. School, 2016), available at <https://www-cdn.law.stanford.edu/wp-content/uploads/2016/09/The-Case-for-Co-Benefits-Regulatory-Impact-Analyses-Michigan-v.-EPA-and-the-Environmental-Protection-Agency’s-Mercury-and-Air-Toxics-Standards.pdf>.

<sup>9</sup> U.S. ENVTL. PROTECTION AGENCY, GUIDELINES FOR PREPARING ECONOMIC ANALYSES, A-6 (app. A) (2010, updated 2014), available at <https://www.epa.gov/sites/production/files/2017-08/documents/ee-0568-50.pdf>.

<sup>10</sup> *Id.* (emphasis original).

- *Consideration of co-benefits has been a key principle of executive branch regulatory policy for over 25 years.* Since it was first issued by President Bill Clinton in 1993, Executive Order 12866 has provided the definitive statement of the executive branch's regulatory policy. The order's statement of "Regulatory Philosophy" declares that "In deciding whether and how to regulate, agencies should assess *all* costs and benefits of available regulatory alternatives, including the alternative of not regulating."<sup>11</sup> Apparently based on the social welfare theory of regulation noted above, this declaration unambiguously permits no distinction between or exclusion of any kinds of regulatory benefits, including co-benefits. To be sure, executive orders cannot supersede agencies' existing statutory authorities, but there is nothing in the Clean Air Act that precludes the EPA from considering co-benefits as part of making the section 112(n)(1)(A) "appropriate and necessary" determination.
- *Consideration of co-benefits is consisted with Office of Management and Budget guidance on cost-benefit analysis practices.* Executive Order 12866 charged the White House Office of Management and Budget (OMB) with the task of overseeing agency compliance with the order's provisions, including the conduct of cost-benefit analysis for their pending regulations. To help fulfill this mandate, OMB in 2003 issued Circular A-4, a comprehensive guidance document for executive branch agencies defining best practices for conducting cost-benefit analysis on their pending regulations. Significantly, Circular A-4 directs agencies to "look beyond the direct benefits and direct costs of your rulemaking and *consider any important ancillary benefits* and countervailing risks." The document defines the term "ancillary benefits," which it uses in lieu of the term "co-benefits," as "a favorable impact of the rule that is typically unrelated or secondary to the statutory purpose of the rulemaking (e.g., reduced refinery emissions due to more stringent fuel economy standards for light trucks)."<sup>12</sup> The particulate matter reductions achieved through the MATS rule undoubtedly qualify as "ancillary benefits" under this definition.

### **The Proposal's Myopic Focus on the Monetizable Benefits of Hazardous Air Pollutant Reductions in Conducting the Appropriate and Necessary Analysis is Unreasonable and Thus is Contrary to the Court's Instructions in *Michigan v. EPA***

While the majority in *Michigan v. EPA* appears to grant the EPA significant discretion in how it accounts for costs and benefits in making the "appropriate and necessary" determination, this discretion is not unlimited. Specifically, the majority told the EPA that its analytical approach would be bounded by "the limits of reasonable interpretation." As explained above, the Proposal's new rule barring consideration of co-benefits seems to exceed the discretion afforded to the EPA by the *Michigan* majority. It appears that the agency acted unreasonably in disregarding these benefits, given that both long-standing practice and economic theory weighed heavily in favor of their inclusion.

Similarly, the Proposal's approach to considering the non-monetizable benefits of reductions in electric utilities' HAP emissions – in contrast to the monetizable benefits of these emissions reductions – was also unreasonable, and thus contrary to the discretion granted to it in *Michigan v. EPA*. As a general matter, it would be plainly unreasonable for the agency to

<sup>11</sup> Exec. Order No. 12866 §1(a), 58 Fed. Reg. 51735 (Oct. 4, 1993), available at <https://www.archives.gov/files/federal-register/executive-orders/pdf/12866.pdf>.

<sup>12</sup> OFFICE OF MGMT. & BUDGET, EXEC. OFFICE OF THE PRESIDENT, CIRCULAR A-4, 26 (Sept. 17, 2003), available at <https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/circulars/A4/a-4.pdf>.

consciously ignore entire categories of regulatory impacts if it knew that doing so could substantially affect the outcome of its analysis. Yet, the EPA knew at the time of its 2016 supplemental finding and still knows today that the non-monetizable benefits of HAP emissions reductions from electric utilities are so significant that they could materially affect the outcome of the revised “appropriate and necessary” analysis that is the subject of the Proposal. Consequently, to the extent that the agency’s approach to considering these benefits serves to categorically disregard them, then this approach would exceed the bounds of reasonableness established in *Michigan v. EPA*.

At the time that the Obama administration EPA made the 2016 supplemental “appropriate and necessary” finding, it was aware that many of the categories of benefits of HAP emissions reductions resisted monetization, such as certain types of health benefits, while others, such as protecting Native American culture, defied monetization altogether. For example, there the agency acknowledged public comments it received stating that “the quantified and monetized mercury benefits in the MATS RIA vastly understated the full benefits from reducing mercury emissions and that there are many categories of unquantified HAP benefits.”<sup>13</sup> The EPA conceded that it “could only quantify and monetize a small subset of the health and environmental benefits attributable to reducing mercury and none of the health and environmental benefits attributable to reductions in other HAP.”<sup>14</sup> A separate commenter representing Indian tribes made the agency aware of “how methylmercury contamination threatens longstanding Indian cultural traditions and critical social practices of fishing and fish consumption that are central to many tribes’ cultural identity” – all impacts that are by definition “impossible to monetize.”<sup>15</sup> In response, the EPA noted that it shared those concerns and acknowledged “that it was unable to monetize many of the benefits of MATS and recognizes the difficulty in attempting to quantify or monetize impacts to American Indian culture.”<sup>16</sup>

Significantly, the 2016 supplemental “appropriate and necessary” analysis undertook two approaches to considering the MATS rule’s costs, neither of which involved an unreasonable disregard of the rule’s non-monetizable HAP emissions-related benefits. For the first approach, the EPA compared the predicted costs of the rule against various historical economic performance indicators for the electric utility sector, such as annual revenues. For the second approach, the EPA employed a traditional cost-benefit analysis that directly compares costs with benefits. In both cases, the agency found that the monetizable benefits of the rule – including the monetizable co-benefits – were so large relative to the rule’s costs in absolute terms and in comparison to the industry’s historical economic performance indicators that a detailed assessment of the non-monetizable benefits was unnecessary since it would only have reinforced, rather than cut against, its conclusion that regulation electric utilities’ HAP emissions was “appropriate and necessary.”

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<sup>13</sup> 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. 24420, 24441 (Apr. 25, 2016) (to be codified at 40 C.F.R. pt. 63), available at <https://www.govinfo.gov/content/pkg/FR-2016-04-25/pdf/2016-09429.pdf>.

<sup>14</sup> *Id.*

<sup>15</sup> *Id.* at 24442

<sup>16</sup> *Id.*

The Proposal now makes clear that the EPA remains aware of the significant non-monetized and un-monetizable benefits attributable to HAP emissions reductions. The Proposal concedes that the 2016 supplemental finding was only able to account for one monetizable HAP-related benefit – namely, the incidence of reductions in lifetime earnings arising from IQ loss caused by neurological damage due to environmental mercury pollution exposure occurring in utero as experienced by an extremely narrow subset of the U.S. population representing certain recreational fishers that consume unusually large amounts of freshwater fish caught in U.S. waters. It recognized the significant categories of HAP-related benefits that were not monetizable, including “impacts of [mercury] on human health (including neurologic, cardiovascular, genotoxic, and immunotoxic effects), a variety of adverse health effects associated with exposure to certain [non-mercury] HAP (including cancer, and chronic and acute health disorders that implicate multiple organ systems such as the lungs and kidneys), and effects on wildlife and ecosystems.”<sup>17</sup>

In addition, the EPA also ought to be aware now of intervening scientific studies that have made some progress on reliably quantifying or monetizing some of these benefits categories, providing a fuller picture of the benefits of HAP emissions reductions that did not exist at the time of the 2016 supplemental finding. For example, a 2017 study estimated that the neurocognitive damage caused by mercury pollution costs the United States as much as \$4.8 billion ever year.<sup>18</sup> This is a significantly larger figure than the \$4 to \$6 million that the 2016 supplemental finding was able to estimate for the value of preventing IQ loss related to mercury pollution. Similarly, recent research has found stronger epidemiological evidence connecting exposures to several non-mercury HAP metals, such as arsenic, lead, and cadmium, to an increased risk of cardiovascular disease.<sup>19</sup>

Yet, despite this awareness, the Proposal adopts an analytical approach that allows it to categorically disregard all of the non-monetizable benefits of the HAP emissions reductions that would be achieved by the MATS rule. The structure of this analytical approach largely tracks that of the second approach used in the 2016 supplemental “appropriate and necessary” analysis in that it involves a traditional cost-benefit analysis that purports to directly compare the rule’s costs against its benefits. But there is one important difference. Because the Proposal excludes consideration of the MATS rule’s non-HAP-related co-benefits, it makes consideration of the non-monetizable HAP-related benefits essential to the outcome of the Proposal’s revised “appropriate and necessary” analysis. Whereas the consideration of those benefits simply reinforced the 2016 supplemental “appropriate and necessary” analysis’s finding, in the Proposal the consideration of those benefits would have a direct and potentially pivotal influence on the revised analysis’s outcome (*i.e.*, by “reducing”

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<sup>17</sup> 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, 2677 (proposed Feb. 7, 2019) (to be codified at 40 C.F.R. pt. 63), *available at* <https://www.govinfo.gov/content/pkg/FR-2019-02-07/pdf/2019-00936.pdf>.

<sup>18</sup> Philippe Grandjean & Martine Bellanger, *Calculation of the Disease Burden Associated with Environmental Chemical Exposures: Application of Toxicological Information in Health Economic Estimation*, 16 ENVTL. HEALTH 123 (2017), *available at* <https://ehjournal.biomedcentral.com/articles/10.1186/s12940-017-0340-3>.

<sup>19</sup> Rajiv Chowdhury et al., *Environmental Toxic Metal Contaminants and Risk of Cardiovascular Disease: Systematic Review and Meta-Analysis*. 362 BMJ k3310 (2018), *available at* <https://www.bmj.com/content/362/bmj.k3310>.

the gap between the rule's costs and the rule's comparatively smaller monetizable HAP-related benefits).

The Proposal acknowledges this fundamentally different role that non-monetizable HAP-related benefits will play in its revised analysis by announcing a new "test" for how it will account for those benefits. This test, which has no basis in law or policy, holds that the non-monetizable benefits of HAP emissions reductions must be "sufficient to overcome the significant difference between the monetized benefits and costs of this rule." After noting "the existence [and] importance of the unquantified benefits of reducing HAP emissions," the Proposal nevertheless summarily concludes that the bar set by its novel test has not been cleared.

As a preliminary matter, the Proposal's novel test is clearly at odds with the majority opinion in *Michigan v. EPA*. In contrast to the Proposal's test, to the extent that the majority had anything at all to say about the relationship between the costs and benefits in making the "appropriate and necessary" determination, they were quite clear that they were not calling for a demonstration that the benefits *exceed* the costs. Rather, the majority sets a relatively low threshold for adjudging whether a regulation is "appropriate" by casting this determination in terms of ensuring that the costs are not grossly disproportionate to benefits. As the majority opinion puts it, "One would not say that it is even rational, never mind 'appropriate,' to impose billions of dollars in economic costs in return for a few dollars in health or environmental benefits."<sup>20</sup>

In practice, the effect of the Proposal's test for accounting for non-monetizable benefits, if not its conscious design, is to treat these benefits as analytically irrelevant. In adopting this test, the Proposal uses the large discrepancy between the MATS rule's estimated costs and the tiny fraction of its benefits that were monetizable as an excuse to avoid undertaking anything resembling a reasoned analysis of the rule's non-monetizable benefits of HAP emissions reductions. Put differently, this test is designed to be "unpassable." The benefits of the MATS could never be sufficient to prevail because so many of them either have not been or cannot be monetized. Furthermore, this approach is unreasonable because it has things entirely backwards. If anything, the circumstances at issue – the large cost-benefit discrepancy and the significant categories of non-monetizable benefits – are precisely when an agency should most seriously grapple with the nature and scope of a rule's non-monetizable benefits. The EPA's decision to do otherwise relegates the non-monetizable benefits to a secondary status that is inconsistent with the majority's reasoning in *Michigan v. EPA*.

The "black box" nature of the Proposal's application of its test for accounting for non-monetizable benefits further suggests a conscious intent to exclude those benefits from consideration in the revised "appropriate and necessary" determination. Nowhere does the Proposal provide an explanation of what the scale and scope of the rule's non-monetizable benefits would have to be in order to be "sufficient" to tip the balance in favor an "appropriate and necessary" determination. Nor does it give any indication of why the MATS rule's non-monetizable benefits fell short or by how far they fell short. Other indicia of serious consideration of non-monetizable benefits that one might expect to see are also

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<sup>20</sup> *Michigan*, 135 S.Ct. at 2707.

conspicuously absent. For example, the Proposal does not identify the types of non-monetizable benefits that it would grant particular weight to, such as benefits that accrue to “sensitive populations,” which section 112(n)(1) of the Clean Air Act singles out for special consideration as part of addressing HAP emissions from electric utilities.<sup>21</sup> Nor does the Proposal’s analysis attempt to grapple with other substantive policy issues that are uniquely relevant to the effective implementation of section 112(n)(1), such as whether the non-monetizable benefits accrue to children or whether the benefits address irreversible impacts as opposed to reversible ones.

In sum, the Proposal’s approach to considering the non-monetizable HAP-related benefits achieved by the MATS rule must be understood as a conscious choice by the agency to exclude these entire categories of benefits from its “appropriate and necessary” analysis. Because the agency is aware that these benefits are significant and potentially affect the outcome of its analysis, this choice is unreasonable and therefore exceeds the EPA’s discretion in conducting this analysis as set out in *Michigan v. EPA*.

### **The Proposal Unreasonably Distorts the MATS Rule’s Impacts by Relying on Flawed or Outdated Data That is Consistently Biased Against Supporting the “Appropriate and Necessary” Finding**

Despite the EPA’s portrayal of the Proposal as intended to correct flaws in the Obama administration’s 2016 supplemental “appropriate and necessary” finding, the Proposal conspicuously fails to address several of that finding’s most glaring flaws, including by incorporating better or more updated information regarding the MATS rule’s impacts.<sup>22</sup> Significantly, in each case, leaving the flaw unaddressed had the effect of undermining a finding that the MATS rule was “appropriate and necessary,” either by inappropriately hiding the full value of the benefits or by exaggerating the costs. Conversely, it is more likely that that the EPA would have concluded that the rule was “appropriate and necessary” had these flaws been addressed. Accordingly, it was arbitrary and unreasonable, as suggested by the majority in *Michigan v. EPA*, for the EPA to continue to rely on flawed or outdated data in its revised analysis, given that the agency was aware of the problems with these data, and given that it was aware of the potential impact these data would have on the outcome of its revised analysis if left unaddressed.

By failing to address the following flawed or outdated sources of data, the Proposal’s “appropriate and necessary” analysis arbitrarily inflates the costs of the MATS rule:

- As noted above, the monetized HAP-related benefits are attributable to one narrow health-related endpoint: the incidence of reductions in lifetime earnings arising from IQ loss caused by neurological damage due to environmental mercury pollution exposure occurring in utero as experienced by an extremely narrow subset of the U.S.

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<sup>21</sup> Clean Air Act §112(n)(1)(C), 42 U.S.C. §7412.

<sup>22</sup> Significantly, there is precedent for incorporating new information as part of a review of an earlier “appropriate and necessary” analysis. The Obama administration incorporated new information into its 2011 review of the original 2000 “appropriate and necessary” analysis performed by the Clinton administration, which it conducted in conjunction with its proposed and final MATS rules. *See* National Emission Standards for Hazardous Air Pollutants From Coal- and Oil-Fired Electric Utility Steam Generating Units 77 Fed. Reg. 9304, 9310-11 (Feb. 16, 2012), (to be codified at 40 C.F.R. pts. 60 & 63), available at <https://www.govinfo.gov/content/pkg/FR-2012-02-16/pdf/2012-806.pdf>.

population representing certain recreational fishers that consume unusually large amounts of freshwater fish caught in U.S. waters. Even still, in the 2011 cost-benefit analysis for the MATS rule, EPA economists managed to reduce this value even further by deducting the costs of pursuing higher education that cognitively impaired children would forgo due to their cognitive impairment.<sup>23</sup> Put differently, the EPA's original analysis reflects the bizarre and even morally outrageous conclusion that the MATS rule imposes a "cost" on society by protecting the developing brains of children and enabling them to attend school for longer.<sup>24</sup> The EPA arbitrarily rejected the opportunity to make this aspect of its "appropriate and necessary" analysis more consistent with American values<sup>25</sup>, by eliminating this "higher IQ penalty" from its methodology.

- The electric utility industry notified the EPA in a 2018 letter regarding the Proposal that the actual compliance costs were significantly less than the estimates presented in the 2016 supplemental "appropriate and necessary" finding, which projected annual compliance costs as high as \$9.6 billion.<sup>26</sup> The letter noted that in the six years since the MATS rule became effective, the industry had spent a total of \$18 billion to comply, resulting in average annual compliance costs of about \$3 billion. In general, this discrepancy is consistent with many retrospective reviews of environmental regulations, which tend to find that actual costs of compliance are much smaller than the estimates provided in *ex ante* cost-benefit analyses.<sup>27</sup> Moreover, the observed average is likely to drop in the years to come as the compliance costs for the MATS rule were likely front-loaded to reflect the initial capital costs associated with installing new pollution control devices. These initial capital costs are likely much greater than the relatively smaller annual maintenance and operating costs associated with the ongoing use of those devices. The EPA arbitrarily rejected the opportunity to account for this updated cost information as part of its revised "appropriate and necessary" finding. By definition, this information is more accurate than the predictions that the EPA was forced to rely upon when it undertook the 2016 supplemental "appropriate and necessary" finding.

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<sup>23</sup> U.S. ENVTL. PROTECTION AGENCY, REGULATORY IMPACT ANALYSIS FOR THE FINAL MERCURY AND AIR TOXICS STANDARDS 4-46 – 4-47 (2011), available at <https://www.epa.gov/sites/production/files/2015-11/documents/matsriafinal.pdf> [hereinafter MATS RIA].

<sup>24</sup> RENA I. STEINZOR, MOTHER EARTH AND UNCLE SAM: HOW POLLUTION AND HOLLOW GOVERNMENT HURT OUR KIDS 122 (2008).

<sup>25</sup> Despite what some defenders of cost-benefit analysis claim, many ethical values are consciously or unconsciously baked into the practice of cost-benefit analysis, such as through the adoption of particular assumptions and defaults. Indeed, the theoretical foundation of cost-benefit analysis – the goal of maximizing social welfare – is itself a reflection of a particular ethical choice. See generally DOUGLAS A. KYSAR, REGULATING FROM NOWHERE: ENVIRONMENTAL LAW AND THE SEARCH FOR OBJECTIVITY (2010). Thus, there is nothing methodologically inappropriate about rejecting this kind of analytical practice even on purely ethical grounds.

<sup>26</sup> Letter from the Edison Electric Institute et al. to William L. Wehrum, Assistant Administrator, Office of Air and Radiation, U.S. Environmental Protection Agency (July 10, 2018), available at <http://src.bna.com/Ajk>.

<sup>27</sup> See PUTNAM, HAYES, & BARTLETT INC., COMPARISONS OF ESTIMATED AND ACTUAL POLLUTION EXPENDITURES FOR SELECTED INDUSTRIES (Report prepared for the Office of Planning & Evaluation, Env'tl. Protection Agency, 1980); OFFICE OF TECHNOLOGY ASSESSMENT, GAUGING CONTROL TECHNOLOGY AND REGULATORY IMPACTS IN OCCUPATIONAL SAFETY AND HEALTH: AN APPRAISAL OF OSHA'S ANALYTICAL APPROACH 58 (1995); Eban Goodstein & Hart Hodges, *Polluted Data: Overestimating Environmental Costs*, 8 AM. PROSPECT 64 (Nov./Dec. 1997); Winston Harrington, Richard D. Morgenstern, & Peter Nelson, *On the Accuracy of Regulatory Cost Estimates* 14-15 (Resources for the Future, Discussion Paper 99-18, 1999), available at <http://www.rff.org/documents/RFF-DP-99-18.pdf>.

By failing to address the following flawed or outdated sources of data, the Proposal's "appropriate and necessary" analysis arbitrarily underestimates the benefits of the MATS rule:

- The EPA inappropriately circumscribed the exposed population: It counted only prenatally exposed individuals.<sup>28</sup> Missing are all those exposed during childhood and throughout their teen years, when individuals remain physiologically susceptible to developmental cognitive damage resulting from mercury consumption.<sup>29</sup> The EPA arbitrarily based its revised "appropriate and necessary" finding on exposure data that excluded relevant infants, children, and teenagers.
- The EPA's analysis also arbitrarily excludes populations<sup>30</sup> who might be exposed to mercury through consumption of fish that were caught commercially or that came from nonfreshwater sources.<sup>31</sup> The EPA arbitrarily based its revised "appropriate and necessary" finding on exposure data that excluded populations that are exposed to mercury-tainted fish from these other sources.
- The EPA's analysis dramatically underestimated exposure by adopting an unjustifiably low "fish consumption rate." The eight-grams-per-day rate the agency used<sup>32</sup> is less than half that of the general population rate of 22 grams per day according to its own most recent guidance from 2015, while the agency's own National Environmental Justice Advisory Council recommends even higher fish consumption rates to account for environmental justice communities whose members who rely on fish for subsistence or who look to fish for cultural reasons.<sup>33</sup> The EPA arbitrarily based its revised "appropriate and necessary" on a fish consumption rate that does not accurately reflect the actual dietary habits of Americans.
- The dose-response curve employed by the EPA to relate maternal mercury levels to IQ decrements is significantly less protective than those employed by other experts in the field. The EPA's analysis ultimately assumes a relationship of -0.18 IQ points for each per parts per million of maternal hair mercury,<sup>34</sup> which is about two-and-half times less conservative than the dose-response curve employed at the time by such leading pediatric medical experts as Dr. Leonardo Trasande and his colleagues (-0.465 IQ points for each parts per million of maternal hair mercury).<sup>35</sup> The EPA arbitrarily based its revised "appropriate and necessary" on an outdated dose-response curve.
- As noted above, several intervening scientific studies have made progress on reliably quantifying or monetizing some of the non-monetizable benefits of HAP emissions reductions. The results of these studies now offer a far better picture of those benefits than what had existed at the time of the 2016 supplemental finding. The EPA arbitrarily rejected the opportunity to include these new findings regarding the HAP-related benefits of the MATS rule.

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<sup>28</sup> MATS RIA, *supra* note 23, at 4-39.

<sup>29</sup> Catherine A. O'Neill, *The Mathematics of Mercury*, in REFORMING REGULATORY IMPACT ANALYSIS 108, 117 (Winston Harrington, Lisa Heinzerling, & Richard D. Morgenstern eds., Resources for the Future Report, April 2009), available at <https://www.rff.org/publications/reports/reforming-regulatory-impact-analysis/>.

<sup>30</sup> MATS RIA, *supra* note 23, at 4-39.

<sup>31</sup> O'Neill, *supra* note 29, at 117.

<sup>32</sup> MATS RIA, *supra* note 23, at 4-44.

<sup>33</sup> O'Neill, *supra* note 29, at 118.

<sup>34</sup> MATS RIA, *supra* note 23, at 4-34.

<sup>35</sup> O'Neill, *supra* note 29, at 118.

- The EPA also now has better information for constructing a more accurate model of the health impacts of environmental mercury pollution. For example, a 2012 report from Dr. Edward Groth, suggests that the 2016 supplemental “appropriate and necessary” finding relied upon an outdated and insufficiently protective reference dose of 0.1 micrograms of methylmercury per kilogram of body weight per day.<sup>36</sup> Instead, based upon its review of more recent research on the health harms of mercury pollution exposure, the 2012 report suggests that it would be more appropriate to set the reference dose at 0.025 micrograms of methylmercury per kilogram of body weight per day – one quarter of the level that EPA had used.<sup>37</sup> The EPA arbitrarily rejected the opportunity to construct an updated model for evaluating the health impacts of environmental mercury pollution that incorporates this updated reference dose.

The EPA’s use of flawed census data in the original MATS rule analysis warrants special attention for its effect on underestimating the rule’s benefits. As with many cost-benefit analyses, the one for the MATS rule sought to characterize the exposed population by reference to population data provided by the United States Census Bureau. Census Data is often criticized for inaccuracies and for the prevalence of undercounts.<sup>38</sup> For ordinary recreational anglers, the EPA calculated how far individuals would be willing to travel by using survey data of recreational fishers and then matching those results to census data to generate estimates that varied by wealth and location.<sup>39</sup>

Separately, the EPA’s analysis also attempted to measure the exposure of “subsistence” and other “higher-risk” populations, including certain Great Lakes tribes, such as the Ojibwe, by following a similar census data-based approach. But, as part of this analysis, the EPA excluded census tracts that were further than 20 miles from away from certain targeted freshwater lakes for which there is fish tissue data documenting mercury contamination.<sup>40</sup> This exclusion may make sense in the context of ordinary recreational fishers, but it is inappropriate at least for tribal fishers like Ojibwe. The Ojibwe tribes, like many other fishing tribes, have treaty-secured fishing rights that cover vast geographical expanses. The extent is particular to each treaty, and so tribal members have and exercise rights to fish at lakes that are much further away than 20 miles.<sup>41</sup> As such, this exclusion likely has the effect of significantly undercounting the number of exposed subsistence tribal fishers.

Compounding this analytical flaw is the fact that census data tend to systematically undercount vulnerable and sensitive populations like Native American tribes. Many of the hardest to count census tracts throughout the country are inhabited by vulnerable populations; lower socioeconomic status, racial and ethnic minorities, and the elderly, are particularly difficult to count for accurate census data. Significantly, though, these hard-to-

<sup>36</sup> MATS RIA, *supra* note 23, at 4-34.

<sup>37</sup> EDWARD GROTH, AN OVERVIEW OF EPIDEMIOLOGICAL EVIDENCE ON THE EFFECTS OF METHYLMERCURY ON BRAIN DEVELOPMENT, AND A RATIONALE FOR A LOWER DEFINITION OF TOLERABLE EXPOSURE 6, 8 (Mercury Working Group, December 2012), *available at* [https://www.stonybrook.edu/commcms/gelfond/pdf/Groth\\_Report\\_zmwig\\_2012.pdf](https://www.stonybrook.edu/commcms/gelfond/pdf/Groth_Report_zmwig_2012.pdf).

<sup>38</sup> *See, e.g.*, The Census Project, <https://thecensusproject.org/> (last visited Apr. 17, 2019).

<sup>39</sup> MATS RIA, *supra* note 23, at 4-10 – 4-13, 4-39 – 4-45, 4-48 – 4-54.

<sup>40</sup> MATS RIA, *supra* note 23, at 4-60.

<sup>41</sup> NAT’L TRIBAL TOXICS COUNCIL, UNDERSTANDING TRIBAL EXPOSURES TO TOXICS 5-15 (2015), *available at* [http://www.zendergroup.org/docs/NTTC-Understanding\\_Tribal\\_Exposures\\_to\\_Toxics-2015-06-19.pdf](http://www.zendergroup.org/docs/NTTC-Understanding_Tribal_Exposures_to_Toxics-2015-06-19.pdf).

count populations are singled out for particular care by the Clean Air Act provision that authorizes the MATS rule, making it especially important that their exposure be accurately accounted for. As part of the required mercury threshold study, Section 112(n)(1) of the Clean Air Act directs the National Institute of Environmental Health Sciences to pay particular attention to “consumption by ‘sensitive populations’” of mercury-contaminated fish.<sup>42</sup> This special attention makes sense since such sensitive populations can include certain racial and ethnic groups that are more likely to consume fish, and thus are at greater risk for elevated blood mercury levels.<sup>43</sup> The EPA thus arbitrarily based its “appropriate and necessary” finding on systematically flawed census-based data that drastically underestimate the members of exposed sensitive populations like the Great Lakes tribes and others.

## Conclusion

As catalogued above, the EPA has faced several choices in connection with updating the “appropriate and necessary” finding; significantly, the Proposal has responded by invariably choosing whatever option has the effect of weakening the economic case for the MATS rule. It seems unlikely that a good faith effort to understand the rule’s likely impacts on public health, the environment, and the electric utility industry would so consistently resolve every issue against the validity of the “appropriate and necessary” finding. To review briefly, the Proposal’s anti-MATS rule decisions included the following:

- Eliminating consideration of the MATS rule’s non-HAP co-benefits;
- Categorically disregarding any non-monetizable benefits of HAP emissions reductions;
- Failing to address improper underestimates of benefits in the 2016 supplemental “appropriate and necessary” finding; and
- Failing to address improper overestimates of costs in the 2016 supplemental “appropriate and necessary” finding.

What makes the EPA’s choices in each of these instances even more noteworthy is that they all contradict or are otherwise inconsistent with the agency’s legal authorities and principles of sound policy analysis, as outlined above. Accordingly, we now call on the EPA to abandon the highly flawed Proposal, and instead re-affirm the conclusion of the 2016 supplemental “appropriate and necessary” finding.

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<sup>42</sup> Clean Air Act §112(n)(1)(C), 42 U.S.C. §7412.

<sup>43</sup> Steve Lundeberg, *Fish and Mercury: Detailed Consumption Advisories Would Better Serve Women in the U.S.*, OREGON ST. U. NEWSROOM, Mar. 8, 2017, <https://today.oregonstate.edu/archives/2017/mar/fish-and-mercury-detailed-consumption-advisories-would-better-serve-women-across-u> (last visited Apr. 17, 2019).

We appreciate your attention to these comments.

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