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**Docket ID No. EPA–HQ–OAR–2018–0794; 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**

**COMMENTS OF THE COMPETITIVE ENTERPRISE INSTITUTE**

Thank you for the opportunity to comment on the Environmental Protection Agency’s (EPA) reconsideration of its 2016 Supplemental Finding regarding the agency’s justification for its 2012 Mercury Air Toxics Standards (MATS) rule.

The Competitive Enterprise Institute (CEI) strongly supports EPA’s proposed determination that regulating coal- and oil-fired power plants under Section 112 of the Clean Air Act is not appropriate.

This comment letter is organized as follows:

- Part I is an abstract of the comment letter.
- Part II provides an overview of the “appropriate and necessary” determination controversy. Responding to question C-2, it affirms EPA’s conclusion that the MATS rule is not an appropriate regulation.
- Part III discusses some of the proposal’s potential legal ramifications. Responding to questions C-1, C-3, C-8, and C-9, it concludes that EPA has the authority to rescind MATS or its regulatory standards but that the agency may not de-list power plants as hazardous air pollutant (HAP) source categories absent a determination that the most exposed individual’s cancer risk does not exceed one in 1 million. Responding to question C-10, Part II identifies a conflict between EPA’s proposed Affordable Clean Energy (ACE) rule and *New Jersey v. EPA*, which held that Section 111(d) of the Clean Air Act may not be used to regulate HAP source categories.
- Part IV provides a further reason, not discussed in the reconsideration proposal, that the MATS rule is an inappropriate regulation, namely, the purported benefits are illusory.
- Part V recaps the main conclusions.

## Part I: Abstract

The MATS rule is an inappropriate exercise of regulatory power under Section 112(n)(1)(A) of the Clean Air Act because its costs vastly exceed its benefits. Once EPA has finalized the proposal, and rescinded the MATS rule's statutory justification, it should rescind MATS itself or its standards. Terminating Section 112 regulation of power plants would allow EPA to regulate existing power plants under Section 111(d), as it proposes to do in the Clean Power Plan replacement rule. Leaving the MATS rule or its standards in place would make the Power Plan replacement rule unlawful under the plain text of the statute and *New Jersey v. EPA*. The MATS rule is even more unreasonable than EPA's current analysis suggests, because the rule's direct HAP reduction benefits are illusory and its indirect PM<sub>2.5</sub> co-benefits derive from an illegitimate methodology.

## Part II: Overview: An Inappropriate Regulation

EPA is proposing to rescind<sup>1</sup> the Obama EPA's justification for its 2012 Mercury Air Toxics Standards (MATS) rule.<sup>2</sup> MATS established first-ever maximum achievable control technology (MACT) standards for mercury and other hazardous air pollutant (HAP) emissions from coal- and oil-fueled power plants. MATS is among the most expensive regulations in the history of the Clean Air Act. The Edison Electric Institute, which supports the rule, estimates that since 2012, owners and operators of coal and oil power plants have spent more than \$18 billion to comply.<sup>3</sup>

EPA is not proposing to remove power plants from the list of stationary sources subject to MACT standards, nor to rescind the MATS rule or its emission standards. Rather, EPA proposes to revoke its determination, first made in 2000 and later affirmed in 2012 and 2016, that MACT regulation of power plants is "appropriate and necessary." EPA now believes such regulation is not "appropriate" because the costs are out of all proportion to the benefits.

The MATS rule itself estimated that, in 2016 alone, industry would spend \$9.6 billion to comply, yet the required reductions in hazardous air pollutants would provide only \$4 million to \$6 million in quantifiable health benefits.<sup>4</sup> Costs exceed benefits by 1,600 to 1 or even 2,400 to 1. That hardly seems "appropriate."

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<sup>1</sup> EPA, 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; Proposed Rule, 84 FR 2670, February 7, 2019, <https://www.federalregister.gov/documents/2019/02/07/2019-00936/national-emission-standards-for-hazardous-air-pollutants-coal--and-oil-fired-electric-utility-steam>

<sup>2</sup> EPA, National Emission Standards for Hazardous Air Pollutants from Coal and Oil-Fired Electric Utility Steam Generating Units and Standards of Performance for Fossil-Fuel-Fired Electric Utility, Industrial-Commercial, Institutional, and Small Industrial-Commercial-Institutional Steam Generating Units, Final Rule, 77 FR 9304, February 16, 2012, <https://www.govinfo.gov/content/pkg/FR-2012-02-16/pdf/2012-806.pdf>

<sup>3</sup> Edison Electric Institute, American Public Power Association, National Rural Electric Cooperative Association, Clean Energy Group, Class of '85 Regulatory Response Group, International Brotherhood of Electrical Workers, International Brotherhood of Boilermakers, Iron Shipbuilders, Blacksmiths, Forgers & Helpers (hereafter EEI et al.) letter to EPA Air Administrator William Wehrum, July 10, 2018, [https://www.eenews.net/assets/2018/07/11/document\\_gw\\_04.pdf](https://www.eenews.net/assets/2018/07/11/document_gw_04.pdf)

<sup>4</sup> 77 FR 9306

### What's the Point?

Two questions leap to mind. First, if EPA believes MATS lacks a valid statutory justification, why does the agency propose to leave it in place? Second, if the current rulemaking will not accomplish any actual deregulation, what is the point?

EPA provides a partial answer to the first question. Section 112 of the Clean Air Act has a special provision for adding power plants to the list of MACT-regulated source categories and other provisions for removing categories from that list. To add power plants to the list, EPA had to determine, under Section 112(n)(1)(A), that such regulation is appropriate and necessary. In contrast, to remove any source category from the list, EPA must meet criteria specified in Section 112(c)(9)(B).

For example, before EPA may remove a source category that emits carcinogenic HAPs, it must determine that no source in the category poses a greater than 1-in-1 million lifetime cancer risk to the most exposed individual. As part of the current proceeding, EPA proposes to determine that power plant HAP emissions pose a cancer risk of 9-in-1 million to the most exposed individual.<sup>5</sup> Consequently, under the plain text of Section 112, EPA may not “de-list” power plants even if it concludes that MACT regulation is not appropriate and should not have been adopted in the first place.

As to the second question, the draft rule does not explain why the EPA seeks to rescind the MATS rule's statutory justification even though it is not proposing to relieve regulatory burdens by rescinding MATS or its regulatory standards. EPA's motivation may be “philosophical.” Revoking the “appropriate” determination will uphold the rule of law and repudiate the agency's previous use of the Clean Air Act as a weapon in the war on coal.

On the other hand, as discussed below, EPA invites comment on whether determining MATS to be inappropriate would authorize or obligate it to take deregulatory action.

### Litigation Background

In the MATS rule, EPA concluded that Section 112 regulation is “appropriate” because power plant HAP emissions pose significant health risks and effective control technology is available, and “necessary” because other Clean Air Act requirements do not eliminate those risks.<sup>6</sup> EPA also declined to consider costs in making the appropriate determination, arguing that it need not and should not do so.<sup>7</sup>

Industry petitioners challenged EPA's refusal to consider costs in the appropriate determination. In *White Stallion Energy Center v. EPA* (2014), the D.C. Circuit Court of Appeals upheld MATS by 2-1 and affirmed that Section 112(n)(1)(A) does not require EPA to consider costs.<sup>8</sup> However,

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<sup>5</sup> 84 FR 2679

<sup>6</sup> 77 FR 9311

<sup>7</sup> 77 FR 9327

<sup>8</sup> Decision available at <http://www.lawandenvironment.com/wp-content/uploads/sites/5/2014/04/12-1100-1488346.pdf>

then-Judge Brett Kavanaugh’s powerful dissent, arguing that EPA’s “cost-blind approach” is unreasonable, helped persuade the Supreme Court to review the case.

In *Michigan v. EPA* (2015), the Supreme Court ruled that EPA had “strayed far beyond [the] bounds” of reasonable interpretation when it excluded cost considerations from the appropriate-and-necessary finding.<sup>9</sup> Quoting Kavanaugh, the court held that “appropriate” is “the classic broad and all-encompassing term that naturally and traditionally includes consideration of all the relevant factors.” Although the term leaves agencies with flexibility, an agency may not “entirely fail to consider an important aspect of the problem” when determining whether regulation is appropriate, and “reasonable regulation ordinarily requires paying attention to the advantages and the disadvantages of agency decisions.”

Indeed, the court stated, “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. . . . No regulation is ‘appropriate’ if it does significantly more harm than good.”

The court ruled that EPA interpreted Section 112 “unreasonably when it deemed cost irrelevant to the decision to regulate power plants.” It remanded the case to the D.C. Circuit Court of Appeals, which left MATS in effect while EPA addressed the *Michigan* decision.

### Supplemental Finding

In response to *Michigan*, EPA in April 2016 finalized a Supplemental Finding that the MATS rule’s compliance costs are “reasonable” whether considered in terms of electric power sector economics or in comparison to the rule’s total benefits.<sup>10</sup> EPA concluded, for the third time, that MACT regulation of power plants is appropriate. The Supplemental Finding may be summarized as follows.

First, MATS compliance costs represent small percentages of the power sector’s annual sales and capital expenditures and will induce commensurately small increases in consumer electricity prices. The sector can “absorb” the rule’s compliance costs without diminishing its economic viability. The costs imposed on the regulated industry are reasonable.<sup>11</sup>

Second, MATS compliance costs are small compared to the rule’s total benefits. The rule’s collateral reductions of fine particulate matter (PM<sub>2.5</sub>) will avoid thousands of premature deaths and non-fatal heart attacks, providing \$37 billion to \$90 in annual “co-benefits,” according to the

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<sup>9</sup> Decision available at <https://www.scotusblog.com/case-files/cases/michigan-v-environmental-protection-agency/>

<sup>10</sup> EPA, Supplemental Finding That It Is Appropriate and Necessary to Regulate Hazardous Air Pollutants from Coal- and Oil-Fired Electric Utility Steam Generating Units; Final Rule, 81 FR 24420, April 25, 2016, <https://www.govinfo.gov/content/pkg/FR-2016-04-25/pdf/2016-09429.pdf>

<sup>11</sup> EPA, Supplemental Finding That It Is Appropriate and Necessary To Regulate Hazardous Air Pollutants From Coal- and Oil-Fired Electric Utility Steam Generating Units; Proposed Rule, 80 FR 75032-36, December 1, 2015, <https://www.govinfo.gov/content/pkg/FR-2015-12-01/pdf/2015-30360.pdf>

MATS rule's Regulatory Impact Analysis.<sup>12</sup> Thus, total benefits will exceed the rule's \$9.6 billion annual compliance cost by 3-to-1 or 9-to-1. MATS will enhance the economy's overall efficiency.<sup>13</sup>

### EPA's Reconsideration

In the current proceeding, EPA proposes to find that the 2016 Supplemental Finding fails to meet the agency's obligation to consider cost as interpreted by the Supreme Court's *Michigan* decision. The finding's industry-specific "cost reasonableness" test relied on case law for a different Clean Air Act provision, Section 111(b), which deals with emission performance standards for "new sources." New source performance standards may not be "exorbitant," "excessive," or "unreasonable."<sup>14</sup> Because the power sector as a whole can absorb the MATS compliance costs, the Supplemental Finding concluded those costs are reasonable.

The EPA now considers that approach "misguided." Section 112 standards apply to all sources in a category, not just a small number of "new" sources that have not yet been built. Every coal power plant in the fleet had to install MATS-compliant technologies within 3-4 years. Section 111(b) case law is not a touchstone for determining under Section 112 "whether it is appropriate to impose control requirements on sources that are already operating." Moreover, even if the power sector can afford to implement MATS, costs can still be excessive for individual sources.<sup>15</sup>

More importantly, the Supplemental Finding's industry-focused reasonableness test did not "make the statutorily mandated assessment of whether the benefits garnered by the rule were worth it—i.e., a direct comparison of costs and benefits."<sup>16</sup> As noted, for the hazardous air pollutant reductions that are the rule's statutory purpose, costs exceed benefits by as much as 2,400 to 1.

The draft rule also rejects the Supplemental Finding's conclusion that large estimated PM<sub>2.5</sub> co-benefits make the MATS rule appropriate. Here some statutory background is required to understand EPA's argument.

PM<sub>2.5</sub> is one of several criteria air pollutants regulated under other provisions of the Clean Air Act but not regulated as "hazardous" under Section 112.<sup>17</sup> In the 1990 Clean Air Act Amendments, Congress both expanded the Section 112 HAP program and created a new Title

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<sup>12</sup> EPA, Regulatory Impact Analysis for the Final Mercury Air Toxics Standards, December 2011, ES-1, (hereafter MATS RIA), <https://www3.epa.gov/ttnecas1/regdata/RIAs/matsriafinal.pdf>

<sup>13</sup> 80 FR 75039-40

<sup>14</sup> As determined by the D.C. Circuit Court of Appeals in *Lignite Energy Council v. Environmental Protection Agency* (1999), <https://elr.info/sites/default/files/litigation/30.20279.htm> and *Sierra Club v. Costle* (1981), <https://openjurist.org/657/f2d/298/sierra-club-v-m-costle>

<sup>15</sup> 84 FR 2675

<sup>16</sup> *Ibid.*

<sup>17</sup> EPA, Criteria Air Pollutants, <https://www.epa.gov/criteria-air-pollutants>

IV acid rain program.<sup>18</sup> Congress understood that Title IV's extensive new controls on power plant emissions of sulfur dioxide and nitrogen oxides, criteria pollutants that are PM<sub>2.5</sub> precursors, would reduce HAP emissions as well.

Accordingly, Section 112(n)(1)(A) directs EPA to study the health hazards of air pollution from power plants "after imposition of other [Clean Air Act] requirements," such as Title IV, before determining whether additional regulation under Section 112 is appropriate and necessary.

Because Section 112 requires EPA to consider Title IV's HAP co-benefits when determining whether MACT regulation of power plants is necessary, the Supplemental Finding assumed EPA could give substantial weight to the MATS rule's PM<sub>2.5</sub> co-benefits when determining whether MACT regulation is appropriate.<sup>19</sup> However, there is no indication in the text or legislative history that Congress intended criteria pollutant co-benefits to be a factor in determining whether to regulate hazardous air pollutants.

"[I]f anything," the draft rule argues, the directive to consider "other requirements" is "support for the conclusion that it is *not* proper to place much weight on the co-benefits of further criteria pollutant reductions as part of the CAA section 112(n)(1)(A) determination." EPA explains: "Directing the EPA to study HAP effects under CAA section 112 *after* other provisions of the CAA had been implemented suggests that Congress envisioned that the judgement about whether additional regulation was appropriate and necessary should be predicated primarily on an assessment of HAP emissions from this source category."<sup>20</sup>

Indeed, Congress established an elaborate set of specific instructions for regulating criteria air pollutants. Those instructions do not include consideration of the criteria air pollutant co-benefits of regulating power plants under Section 112. As EPA explains:

Congress established a rigorous system for setting standards of acceptable levels of criteria air pollutants and wrote a comprehensive framework directing the implementation of those standards in order to address the health and environmental impacts associated with those pollutants. . . . As noted above, the vast majority of estimated monetized benefits resulting from MATS are associated with reductions in PM<sub>2.5</sub> precursor emissions, principally NO<sub>x</sub> and SO<sub>2</sub>. Both NO<sub>x</sub> and SO<sub>2</sub> are criteria pollutants and precursors to criteria pollutants that are already addressed by the cavalcade of statutory provisions governing levels of these pollutants, including the National Ambient Air Quality Standards (NAAQS) provisions that require the EPA to set standards for criteria pollutants requisite to protect public health with an adequate margin of safety, and by state, regional, and national rulemakings establishing control measures to meet those levels. To the extent that additional reductions of these criteria pollutants are necessary to protect public health, regulation explicitly targeted at these pollutants is best reserved for

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<sup>18</sup> EPA, Clean Air Act Title IV – Subchapter A: Acid Deposition Control, <https://www.epa.gov/clean-air-act-overview/clean-air-act-title-iv-subchapter-acid-deposition-control>

<sup>19</sup> 80 FR 75041

<sup>20</sup> 84 FR 2677

the NAAQS program, under which Congress provided the EPA ample authority to regulate.<sup>21</sup>

### **Part III: Legal Ramifications**

EPA poses several questions pertaining to the proposal's potential impacts on the agency's statutory authority or obligations.

Question C-1 asks whether EPA would have the "authority or obligation to delist the source category and rescind the standards, or to rescind the standards without delisting."<sup>22</sup>

CEI response: EPA would not have the authority or obligation to de-list power plants as long as the agency finds that the most exposed individual has a lifetime cancer risk greater than 1 in 1 million.

Question C-3 solicits comment on *New Jersey v. EPA*'s ruling that EPA may remove a source category from the Section 112(c)(1) list only if the Section 112(c)(9) statutory criteria for delisting have been met.<sup>23</sup>

CEI response: In *New Jersey*, EPA freely acknowledged that it "never made the findings section 112(c)(9) would require in order to delist EGUs." Those findings are as follows:

(i) In the case of hazardous air pollutants emitted by sources in the category that may result in cancer in humans, a determination that no source in the category (or group of sources in the case of area sources) emits such hazardous air pollutants in quantities which may cause a lifetime risk of cancer greater than one in one million to the individual in the population who is most exposed to emissions of such pollutants from the source (or group of sources in the case of area sources).

(ii) In the case of hazardous air pollutants that may result in adverse health effects in humans other than cancer or adverse environmental effects, a determination that emissions from no source in the category or subcategory concerned (or group of sources in the case of area sources) exceed a level which is adequate to protect public health with an ample margin of safety and no adverse environmental effect will result from emissions from any source (or from a group of sources in the case of area sources).

As noted above, EPA proposes to determine that the lifetime cancer risk of the most exposed individual is 9-in-1 million. That precludes delisting power plants under the plain words of the statute.

As to the second delisting criterion, MATS has reduced annual power plant emissions of mercury and other HAPs by 96 percent.<sup>24</sup> Presumably, that means emissions no longer "exceed a

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<sup>21</sup> Ibid.

<sup>22</sup> 84 FR 2672-73

<sup>23</sup> 84 FR 2678

<sup>24</sup> 84 FR 2689



level which is adequate to protect public health with an ample margin of safety and no adverse environmental effect will result from emissions from any source (or from a group of sources in the case of area sources).” So, EPA could remove power plants from the list under criterion (ii)—were it not for criterion (i).

Questions C-8 and C-9 ask whether rescinding the appropriate determination would authorize EPA to rescind MATS or its standards even if EPA could not remove power plants from the list of Section 112 source categories.<sup>25</sup>

CEI response: As EPA suggests, deregulation is logical “in light of the fact that Section 112(n)(1)(A) plainly establishes that the Administrator must find regulation under CAA section 112 is appropriate and necessary as a prerequisite to undertaking such regulation.”<sup>26</sup> EPA should explore options to rescind MATS or its standards for three reasons.

First, far from being appropriate, MATS is loony, as my former colleague William Yeatman illustrated with a cartoon:



Yeatman commented:

**That's no joke:** The actual justification for the Utility MACT, one of the most expensive and consequential regulations of all time, is to protect a supposed population of pregnant subsistence fisherwomen, who consume hundreds of pounds of self-caught fish from exclusively the most polluted inland bodies of fresh water. . . . Notably, EPA never identified a single member of this putative population of super-angler, pregnant women, who feed exclusively off self-caught fish from polluted bodies of water, despite the

<sup>25</sup> 84 FR 2679

<sup>26</sup> 84 FR 2679



abundance of warnings, in multiple languages, posted about the river or lake where these amazing ladies do their sustenance fishing. Rather, they are modeled to exist.<sup>27</sup>

Second, MATS is a clear case of mission accomplished. Since the rule's adoption, power plant mercury emissions have decreased by almost 90 percent.<sup>28</sup> Few if any new coal-fired power plants are being built,<sup>29</sup> and more retire every year.<sup>30</sup> There is no point keeping a regulation on the books once the putative problem it addresses has been solved. Third, as discussed in Part IV below, the MATS rule's health benefits are illusory anyway.

Question C-10 requests comment on the draft rule's legal implications in light of *New Jersey v. EPA*.<sup>31</sup>

CEI response: EPA should ponder the *New Jersey* Court's statutory reason for vacating the Clean Air Mercury Rule (CAMR): "Because coal-fired EGUs are listed sources under section 112, regulation of existing coal-fired EGUs' mercury emissions under section 111 is prohibited, effectively invalidating CAMR's regulatory approach."

The Court further stated: "EPA promulgated the CAMR regulations for existing EGUs under section 111(d), but under EPA's own interpretation of the section, it cannot be used to regulate sources listed under section 112; EPA thus concedes that if EGUs remain listed under section 112, as we hold, then the CAMR regulations for existing sources must fall."

Actually, the Court's explanation is imprecise. Section 111(d) excludes from its regulatory purview source "regulated under Section 112," not those merely "listed" under that provision.

Nonetheless, the implication for EPA's proposed Affordable Clean Energy (ACE) rule is clear. EPA may not regulate existing power plants under Section 111(d) unless it rescinds MATS or its regulatory standards.<sup>32</sup>

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<sup>27</sup> William Yeatman, "EPA's Shocking Justification for Retiring Up to 25% of U.S. Coal Fleet," GlobalWarming.Org, April 1, 2014, <http://www.globalwarming.org/2014/04/01/epas-shocking-justification-for-retiring-up-to-25-of-u-s-coal-fleet/>

<sup>28</sup> EEI et al., letter to Air Administrator William Wehrum, July 10, 2018, <http://src.bna.com/Ajk>

<sup>29</sup> "Power sector modeling does not predict the construction of any new coal-fired EGUs." EPA, Review of Standards of Performance for Greenhouse Gas Emissions From New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units; Proposed rule, 83 FR 65436, Fn. 56, December 20, 2018, <https://www.govinfo.gov/content/pkg/FR-2018-12-20/pdf/2018-27052.pdf>

<sup>30</sup> U.S. Energy Information Administration, "Almost all power plants that retired in the last decade were powered by fossil fuels," December 19, 2018, <https://www.eia.gov/todayinenergy/detail.php?id=37814>

<sup>31</sup> 84 FR 2679

<sup>32</sup> For further discussion, see Marlo Lewis, Competitive Enterprise Institute, comment letter on Affordable Clean Energy Rule, Docket ID No. EPA-HQ-OAR-2017-0355, October 31, 2018, <https://cei.org/sites/default/files/MarloLewisCompetitiveEnterpriseInstituteCommentLetterACERuleDocketIDNoEPAHQOAR.pdf>

## Part IV: Additional Evidence MATS Is Unreasonable

### Illusory HAP Benefits

EPA proposes to find MATS inappropriate because its estimated cost outweighs its estimated direct benefits by 2,400 to 1. However, the rule's unreasonableness goes deeper than that, because its putative benefits are illusory.

Mercury is the principal HAP targeted by MATS. Unlike most air pollutants, mercury poses health risks not via inhalation but after being deposited in water bodies. Microbes can transform some of the mercury into an organic compound, methylmercury, which can accumulate in aquatic food chains. For humans, the "primary route of exposure" is eating fish.

MATS claims that pregnant women in subsistence fishing households consume enough mercury in self-caught fish to impair their children's cognitive and neurological development. Although that is theoretically possible, in the decades since Congress tasked EPA to study the health risks of mercury in 1990, the agency has not identified a single child whose learning or other disabilities can be traced to maternal consumption of self-caught fish.

The EPA's December 2000 "appropriate and necessary" determination, the trigger for the MATS rule, depicted power plant mercury emissions as a significant growing public health threat. That turned out to be inaccurate. The EPA projected that power plant mercury emissions would increase from 46 tons per year (TPY) in 1990 to 60 TPY in 2010.<sup>33</sup> In fact, emissions declined to 29 TPY in 2011—50 percent below EPA's projection.<sup>34</sup>

Citing a 1999-2000 Centers for Disease Control and Prevention (CDC) survey, EPA stated that 7 percent of childbearing age women in the U.S. (one in every 14) had blood mercury concentrations exceeding the agency's reference dose (the "safe" exposure level).<sup>35</sup> But the relevant subpopulation is pregnant women, not women of childbearing age (defined as 18 to 49 years). Childbearing age women are older, on average, than the average pregnant woman, and blood mercury levels increase with age.<sup>36</sup> In the CDC's 2001-2004 surveys, only 0.4 percent of pregnant women (one in every 250) had blood mercury levels exceeding the reference dose.<sup>37</sup>

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<sup>33</sup> EPA, *Regulatory Finding on the Emissions of Hazardous Air Pollutants From Electric Utility Steam Generating Units*, 65 FR 79828, December 20, 2000, <https://www.govinfo.gov/content/pkg/FR-2000-12-20/pdf/00-32395.pdf>

<sup>34</sup> EPA, *Revised Technical Support Document: National Scale Assessment of Mercury Risk to Populations with High Consumption of Self-Caught Freshwater Fish, In support of the Appropriate and Necessary Finding for Coal- and Oil-Fired Electric Generating Units*, December 2011, p. 7, fn.

9, <https://www3.epa.gov/ttn/atw/utility/revisedmercurytsd.pdf>

<sup>35</sup> 65 FR 79827

<sup>36</sup> Lindsey Jones, Jennifer D. Parker, and Pauline Mendola, *Blood Lead and Mercury Levels in Pregnant Women in the United States, 2003-2008*, NCHS Data Brief No. 52, December 2010, <http://www.cdc.gov/nchs/data/databriefs/db52.pdf>

<sup>37</sup> Joel M. Schwartz and Seven E. Hayward, *Air Quality in America: A Dose of Reality in Air Pollution Levels, Trends, and Health Risks* (Washington, D.C.: American Enterprise Press), 2007, p. 169, <http://www.globalwarming.org/wp-content/uploads/2012/06/Schwartz-Hayward-Air-Quality-in-America.pdf>

More importantly, the EPA's reference dose is not a valid measure of actual health risk. The reference dose is 1/15th the lowest exposure level—a value known as the “benchmark dose”—associated with mild, subclinical effects in any epidemiological study. The highest exposure measured in any pregnant woman by the CDC during 1999-2004 was 3.7 times the reference dose—about 1/4th the benchmark dose. Serious harm such as neurological disorders requires exposures higher than the benchmark dose.<sup>38</sup>

The MATS rule assumed that any increase in prenatal mercury exposure above the reference dose produces a corresponding decrease in the child's IQ. Here the EPA relied on a single study funded by the agency and led by an EPA scientist.<sup>39</sup> The study purports to be an “integrative assessment” of epidemiological studies conducted in the Faroe Islands,<sup>40</sup> the Seychelles,<sup>41</sup> and New Zealand.<sup>42</sup> However, the Seychelles study—the most reliable of the three (the study with the fewest potential confounding variables)—found no association between prenatal mercury exposure and IQ even though exposures were as high as 18 times the reference dose.<sup>43</sup>

In 2011, EPA estimated that the MATS rule's mercury reductions would cost utilities \$9.6 billion to comply with in 2016 and deliver \$4 million to \$6 million in health benefits in the same year (assuming a 3 percent discount rate). EPA did not try to quantify the benefits of the rule's MACT standards for other HAPs such as chromium, nickel, and acid gases. As noted, for the HAP reductions that are the rule's primary purpose, estimated costs exceed estimated benefits by as much as 2,400 to 1.

Even those numbers give MATS too much credit, and not only on account of the dubious supporting epidemiology. The MATS benefit estimate assumes that mercury emission reductions

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<sup>38</sup> Schwartz and Hayward, *Air Quality in America*, p. 170

<sup>39</sup> Daniel A. Axelrad, David C. Bellinger, Louise M. Ryan, and Tracey J. Woodruff, “A Dose-Response Relationship of Prenatal Mercury Exposure and IQ: An Integrative Analysis of Epidemiologic Data,” *Environmental Health Perspectives*, Vol. 115, No. 4, April 2007, pp. 609-615, <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1852694/>

<sup>40</sup> Philippe Grandjean, Pal Weihe, Roberta F. White, Frodi Debes, Shunichi Araki, Kazuhito Yokoyama, Katusiyuki Murata, Nicolina Sorensen, Rasmus Dahl, and Poul J. Jorgensen, “Cognitive Deficit in 7-Year-Old Children with Prenatal Exposure to Methylmercury,” *Neurotoxicology and Teratology*, Vol. 19, No. 6, 1997, pp. 417-28, <http://www.ncbi.nlm.nih.gov/pubmed/9392777>

<sup>41</sup> Gary J. Myers, Philip W. Davidson, Christopher Cox, Conrad F. Shamlaye, Donna Palumbo, Elsa Cernichiari, Jean Sloanne-Reeves, Gregory E. Wilding, James Kost, Li-Shan Huang, and Thomas W. Clarkson, “Prenatal methylmercury exposure from ocean fish consumption in the Seychelles child development study,” *The Lancet*, Vol. 361, May 17, 2003, pp. 1686-92, <http://www.ncbi.nlm.nih.gov/pubmed/12767734>

<sup>42</sup> Tord Kjellstrom, Paul Kennedy, Sally Wallis, Alistair Stewart, Lars Friberg, Birger Lind, Ted Wutherspoon, and Colin Mantell (1989). *Physical and mental development of children with prenatal exposure to mercury from fish*. National Swedish Environmental Board, (Report no. 3642), [http://books.google.com/books/about/Physical\\_and\\_Mental\\_Development\\_of\\_Child.html?id=pPBfAAAACA](http://books.google.com/books/about/Physical_and_Mental_Development_of_Child.html?id=pPBfAAAACA)

<sup>43</sup> The reference dose translates into a maternal hair mercury concentration of 1.2 parts per billion (ppb). The average maternal hair mercury concentration in the Seychelles Island study was 5.9 ppb; the highest was 22 ppb. Gary J. Myers and Philip W. Davidson, “Does Methylmercury Have a Role in Causing Developmental Disabilities in Children?” *Environmental Health Perspectives* Vol 108, Supplement 3 June 2000, Table 1, p. 415, <http://www.ncbi.nlm.nih.gov/pubmed/10852838>

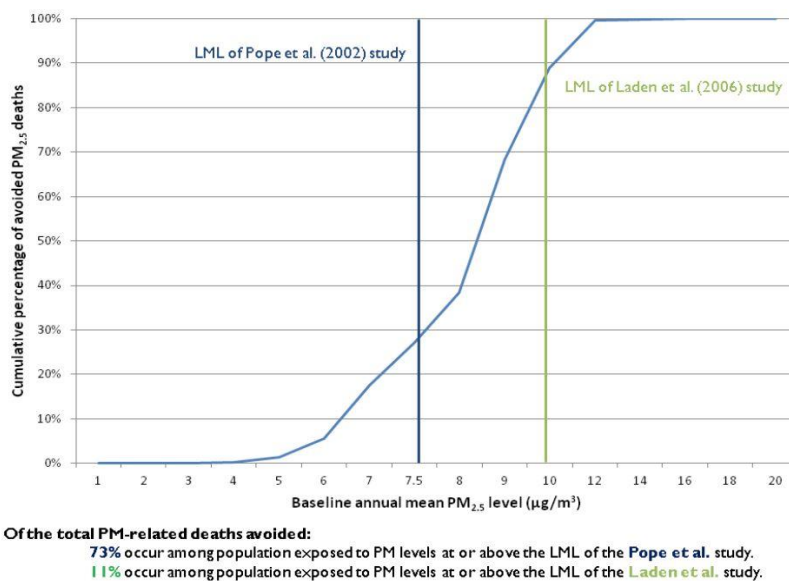
achieved in 2015 yield proportional reductions in fish tissue concentrations in 2016. Yet the RIA acknowledges that fish tissue concentrations may not decrease for “years to decades.”<sup>44</sup>

Most critically, the benefit estimate assumes that the hoped-for reduction in fish mercury concentrations will avert the loss of 0.00209 IQ points per child in a guesstimated population of 240,000 subsistence fishing households, and that those “saved” IQ points will boost aggregate lifetime income by \$4 million to \$6 million.<sup>45</sup> That is not verifiable even in principle. IQ cannot accurately be measured out to five decimal places. Consequently, it is also impossible to determine whether any relationship exists between income and IQ for increments as tiny as two-thousandths of an IQ point. In short, the RIA’s benefit estimate is a statistical figment.

### Inflated PM<sub>2.5</sub> Co-Benefits

The 2016 Supplemental Finding, citing the MATS rule RIA, estimated that coincidental reductions in non-HAP emissions, especially PM<sub>2.5</sub> precursors, would avert 4,200 to 11,000 deaths per year, producing \$37 billion to \$90 billion in collateral benefits, or \$3 to \$9 in health benefits for every dollar of cost. That is not credible.

As Anne Smith of NERA Economic Consulting points out, “A figure in the MATS RIA reveals that over 99 percent of those projected benefits are projected to occur in areas where the PM<sub>2.5</sub> levels will already be below the PM<sub>2.5</sub> NAAQS of 12 µg/m<sup>3</sup> (Figure 5–15 on p. 5–102 of Ref. 21).”<sup>46</sup>



**Figure 5-15. Cumulative Percentage of Total PM-Related Mortalities of the Mercury and Air Toxics Standards in 2016 Avoided by Baseline Air Quality Level<sup>a</sup>**

<sup>44</sup> EPA, MATS RIA, p. 4-18

<sup>45</sup> EPA, MATS RIA, pp. 4-3, 4-64, 4-67

<sup>46</sup> Anne E. Smith, “Inconsistencies in Risk Analysis for Ambient Air Pollutant Regulations,” *Risk Analysis*, 2015, pp. 6-7, <http://www.globalwarming.org/wp-content/uploads/2016/06/Anne-Smith-Risk-Analysis-Perspectives-early-view-Nov2015.pdf>

Monetizing mortality benefits from reductions below the NAAQS for PM<sub>2.5</sub> is illegitimate. By law, NAAQS must be set at a level “requisite to protect public health” with an “adequate margin of safety.”<sup>47</sup> That is already a precautionary standard. Consequently, the health benefits of PM<sub>2.5</sub> reductions below the NAAQS are too uncertain to be assigned a dollar value.

As explained in the most recent NAAQS rulemaking for PM<sub>2.5</sub>, EPA sets the standard at the point where its “confidence in the magnitude and significance of the associations is reduced to such a degree that a standard set at a lower level would not be warranted to provide requisite protection that is neither more nor less than needed to provide an adequate margin of safety.”<sup>48</sup> If the science does not support a more stringent standard, then EPA can have little confidence in the monetary value of reductions below the NAAQS. EPA cannot reasonably claim that PM<sub>2.5</sub> reductions below the NAAQS are equal in value to PM<sub>2.5</sub> reductions above the NAAQS.

That, presumably, is partly why EPA, in the proposed Clean Power Plan repeal rule, recalculates the Power Plan’s PM<sub>2.5</sub> co-benefits using two “cutpoints” below which further reductions are not assumed to save additional lives. One cut-point is the current NAAQS for PM<sub>2.5</sub> (12 µg/m<sup>3</sup>), the other the lowest measured level (LML) in epidemiological studies used to derive the concentration response function between PM<sub>2.5</sub> and mortality (5.8 and 8 µg/m<sup>3</sup>). The NAAQ is the only appropriate cut-point, because if EPA had the same confidence that PM<sub>2.5</sub> levels below the NAAQS are as deadly as concentrations above the NAAQS, it would set the NAAQS even lower.

In the Power Plan repeal proposal, using the NAAQS as the cutoff for monetizing the mortality effects of PM<sub>2.5</sub> concentrations reduced estimated PM<sub>2.5</sub> co-benefits from \$22.6 billion-\$44.9 billion in 2030 to \$4.0 billion-\$7.3 billion.<sup>49</sup> At a minimum, the MATS rule’s PM<sub>2.5</sub> co-benefit estimates would have to be commensurately reduced before those could be used to justify the rule’s costs.

Note the phrase “at a minimum.” Although it is intuitively plausible that breathing “dirty air” shortens life, there is no direct empirical evidence that inhaling PM<sub>2.5</sub> at today’s historically-low levels in the United States kills anyone, as discussed at length in our comment letters on the Power Plan repeal proposal<sup>50</sup> and the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule.<sup>51</sup> Here it may suffice to mention two relevant studies.

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<sup>47</sup> Clean Air Act, Section 109

<sup>48</sup> EPA, National Ambient Air Quality Standards for Particulate Matter; Final Rule, 78 FR 3161, January 15, 2013, <https://www.gpo.gov/fdsys/pkg/FR-2013-01-15/pdf/2012-30946.pdf>

<sup>49</sup> EPA, Repeal of Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units; Proposed rule, 82 FR 48047, October 16, 2017, <https://www.gpo.gov/fdsys/pkg/FR-2017-10-16/pdf/2017-22349.pdf>

<sup>50</sup> Marlo Lewis, Competitive Enterprise Institute, Comments Submitted by Free Market Groups on EPA’s Proposed Rule to Repeal the Clean Power Plan, Docket ID No. EPA-HQ-OAR-2017-0355, April 26, 2018, [https://cei.org/sites/default/files/CEI Comments - Proposed Rule - Clean Power Plan Repeal.pdf](https://cei.org/sites/default/files/CEI%20Comments%20Proposed%20Rule%20Clean%20Power%20Plan%20Repeal.pdf)

<sup>51</sup> Sam Kazman, Marlo Lewis, Devin Watkins, Competitive Enterprise Institute, Comments on EPA and the Department of Transportation’s Joint SAFE Vehicles Rule, Docket ID Nos. EPA-HQ-OAR-2018-0283/NHTSA2018-0067, October 26, 2018, [https://cei.org/sites/default/files/CEI%20SAFE%20Comments%20Final 0.pdf](https://cei.org/sites/default/files/CEI%20SAFE%20Comments%20Final%200.pdf)

California has the largest number of PM<sub>2.5</sub> non-attainment areas in the country.<sup>52</sup> In a 2017 study, statistician S. Stanley Young and two colleagues analyze large datasets for air quality and mortality in California during 2000-2012. Specifically, they examine more than 2 million deaths in eight air basins for possible PM<sub>2.5</sub> associations on more than 37,000 exposure days. The researchers find no effect of PM<sub>2.5</sub> on mortality.<sup>53</sup>

Unlike epidemiological studies, laboratory studies with animals and clinical trials with humans “produce direct evidence for cause-effect relationships through random selection and assignment of subjects.”<sup>54</sup> In their comprehensive review of “inhalation studies using concentrated ambient particles, diesel engine exhaust particulate matter, and sulfate and nitrate salts,” toxicologists Laura Green and Sarah Armstrong report that “Toxicologic data on typical forms of pollution-derived PM strongly suggest that current ambient concentrations in the U.S. are too small to cause significant disease or death.”<sup>55</sup>

## V: Conclusion

The MATS rule is an inappropriate exercise of regulatory power under Section 112(n)(1)(A) of the Clean Air Act because its costs vastly exceed its benefits. Once EPA has finalized the proposal, and rescinded the MATS rule’s statutory justification, it should rescind MATS itself or its standards. Terminating Section 112 regulation of power plants would allow EPA to regulate existing power plants under Section 111(d), as it proposes to do in the Clean Power Plan replacement rule. Leaving the MATS rule or its standards in place would make the Power Plan replacement rule unlawful under the plain text of the statute and *New Jersey v. EPA*. The MATS rule is even more unreasonable than EPA’s current analysis suggests, because the rule’s direct HAP reduction benefits are illusory and its indirect PM<sub>2.5</sub> co-benefits derive from an illegitimate methodology.

Respectfully submitted,

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<sup>52</sup> EPA, 2012 Annual PM<sub>2.5</sub> Designations (as of May 2017), accessed April 17, 2019, <https://epa.maps.arcgis.com/apps/MapJournal/index.html?appid=a76e14f777de49baa5d32f5544c8e20b&webmap=fc297672dd074e4ab5b208aeb21fa52>

<sup>53</sup> S. Stanley Young, Richard L. Smith, Kenneth K. Lopiano, “Air quality and acute deaths in California, 2000-2012,” *Regulatory Toxicology and Pharmacology*, 88 (2017) 173-184, <https://junkscience.com/wp-content/uploads/2017/11/Young-2017-CA-data-RTP.pdf>

<sup>54</sup> Schwartz and Hayward, *Air Quality in America*, p. 123

<sup>55</sup> Laura C. Green and Sarah R. Armstrong, “Particulate matter in ambient air and mortality: toxicologic perspectives,” *Regulatory Toxicology and Pharmacology*, Volume 38, Issue 3, December 2003, Pages 326-335, <https://www.sciencedirect.com/science/article/pii/S0273230003000990>