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The Honorable Andrew Wheeler
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

April 17, 2019

RE: [Docket No. EPA-HQ-OAR-2018-0794]

Dear Administrator Wheeler:

The Environmental Protection Network (EPN) is pleased to submit the following comments in response to U.S. Environmental Protection Agency's proposal to reverse its finding that regulation of hazardous air pollutant emissions from coal- and oil-fired electric utility steam generating units is "appropriate and necessary." (84 Fed. Reg. 2670 (Feb. 7, 2019)).

EPN is an organization comprised of over 400 EPA alumni volunteering their time to protect the integrity of US EPA, human health and the environment. We harness the expertise of former US EPA career staff and confirmation-level appointees to provide an informed and rigorous defense against current Administration efforts to undermine public health and environmental protections.

EPN opposes reversing the "appropriate and necessary" finding for the following reasons: 1) EPA has failed to comply with basic principles of administrative law by failing to develop an adequate factual record. It simply used a report that was developed 8 years ago for a different purpose, not gathering the body of information relevant to these issues that has become available since then. This is such a fundamental procedural mistake that EPN believes EPA must withdraw the proposal and start over. 2) The reason EPA gives for not regulating mercury (and other toxic chemicals) from power plants is that it believes most of the benefits of the current rule should not be counted. Its approach cannot be defended either under the logic of the Supreme Court's decision in *Michigan v. EPA* or under the language and structure of the Clean Air Act. It is also at odds with federal and EPA policy, with decades of past practice, with standard economic principles, and with common sense. 3) EPA claims that it can leave the rule in place even while nullifying the legal finding needed to support it, which is arbitrary and disingenuous. A rule that rests on a repudiated finding is by definition arbitrary, and likely cannot be enforced. It therefore appears that EPA wants to withdraw the rule but is unwilling to take responsibility for doing so directly.

Because regulatory decisions must be based on sound reasoning and current information, EPN calls on EPA to withdraw the proposal, develop a proper record, and assess whether it still believes the facts support

its position. For the reasons above, EPN is confident that an up-to-date record will fully uphold the original finding.

Sincerely,

Michelle Roos, Executive Director, Environmental Protection Network
Submitted on behalf of EPN

EPN COMMENTS ON EPA'S PROPOSAL
TO WITHDRAW THE SUPPLEMENTAL "APPROPRIATE AND NECESSARY FINDING"
FOR THE MERCURY AND AIR TOXICS STANDARDS (MATS)

Overview

This document sets out the comments of the Environmental Protection Network (EPN) on EPA's proposal to reverse its finding that regulation of hazardous air pollutant emissions from coal- and oil-fired electric utility steam generating units is "appropriate and necessary" (the "A&N finding").[1]

EPN opposes reversing the A&N finding. In brief, EPA uses a sleight of hand to justify its proposed conclusion that regulating hazardous air pollutants (HAP) from power plants is not appropriate. First, it finds that virtually all of the benefits of reducing such hazardous pollutants are difficult to monetize, makes no effort to do so, and concludes that the benefits it cannot monetize have little weight and little value. When it compares that low value, which EPA's own decision has created, to the costs of regulation it finds--unsurprisingly--that the costs are much greater than the benefits. On that basis it goes on to claim that regulation under § 112 would be "irrational," and that it need not even consider the co-benefits (reductions of other pollutants that are harmful but not "hazardous") everyone agrees will be produced by the measures taken to control hazardous pollutants. In other words, it effectively ignores not one but two types of benefits to support the conclusion that regulation does not have enough benefits to be worthwhile. And it bases all of its cost and value estimates on 8-year-old information that has become stale and incorrect. Because regulatory decisions must be based on sound reasoning and knowledge of the actual facts, EPA's proposal should be withdrawn.

Specifically, these comments address three points.

First, EPA has failed to provide an adequate administrative record for this proposal that addresses the body of relevant information that is currently available (or could be created with reasonable effort). Instead it relies on outdated information, produced for other purposes, to strike its cost-benefit balance. Current information shows both that the costs of the EGU HAP rule are far less than EPA assumed, and that both its HAP control benefits and its other benefits are far greater. At a minimum, EPA must consider and respond to this new information. Indeed, the failure to develop a record is so fundamental that commenters cannot be expected to fill the gap. EPA should withdraw the proposal, do the necessary analysis and then determine how to proceed.

Second, we demonstrate that EPA's decision to deny any dispositive weight to this rule's co-benefits cannot be defended either under the logic of the Supreme Court's decision in *Michigan v. EPA,* 135 S.Ct. 2699 (2015), or under the language and structure of the Clean Air Act (CAA), and is at odds with federal and EPA policy, with decades of past practice, with standard economic principles, and with common sense.

Finally, EPA's proposal to leave the rule in place while nullifying the legal finding needed to support it is arbitrary and disingenuous. A rule that rests on a repudiated finding is by definition arbitrary, and likely

[1] 84 Fed. Reg. 2670 (February 7, 2019); EPA-HQ-OAR-2018-0794; FRL-9988-93-OAR.

cannot be enforced. It therefore appears that EPA wants to withdraw the rule but is unwilling to take responsibility for doing so directly.

We urge EPA, even if it rejects all our other arguments, which it should not, to take steps to preserve the rule and thus avoid such an underhanded result. Happily, there is a clear legal path to that goal, as we explain fully below.

I. Introduction and summary

The CAA commands the Environmental Protection Agency to establish strict emission standards to reduce emissions of hazardous air pollutants (HAP). However, before establishing such standards for coal- and oil-fired utility steam generating units (EGUs) EPA must find that establishing such regulations would be "appropriate and necessary." EGUs are among the largest sources of HAP emissions. Congress added the requirement of an additional finding in order to have EPA determine whether there were "unique circumstances" affecting EGUs:[2] for example, whether other regulatory requirements might affect their HAP emissions.

EPA has made an A&N finding on three separate occasions--most recently in 2016--and has set EGU HAP emissions standards as a result. Those rules have been in effect since 2012; the required controls have now been installed and, EPA reports, EGU mercury emissions have been reduced by 96%.[3]

Nevertheless, on February 7 of this year the agency proposed to reverse the A&N finding though it also proposed to leave in place the rules that the finding made possible. The sole justification offered by EPA for doing so was a change in how it considers benefits and costs in making an A&N determination.

In the 2016 finding, EPA had relied on cost and benefit estimates from a Regulatory Impact Analysis prepared in 2011 that predicted that the costs of the rule would be about $9.6 billion a year. It found that the monetized value of benefits from reducing mercury and other HAP emissions would amount to $4-6 million a year, and that benefits from associated reductions of non-HAP pollutants would be $37-90 billion a year. (It has long been standard practice to consider such associated benefits in evaluating whether to proceed with regulations.) Based on those results, EPA concluded that the total benefits of the rule greatly exceeded its projected costs.

Such associated benefits (also called "co-benefits") arise here because the same controls that reduce emissions of hazardous air pollutants also reduce direct and indirect emissions of other harmful pollutants regulated under the CAA--especially fine particulate matter (PM2.5). These co-benefits include reduced premature deaths, lower rates of lung and heart disease and other respiratory conditions, and reduced infant mortality, emergency room visits, lost school days, and lost work days. These are exactly the types of health

[2] 84 Fed. Reg. at 2677.

[3] Factors other than MATS may account for part of this reduction; for example, some coal-fired power plants have been taken offline due to a combination of MATS, market forces, and other regulatory requirements. However, it is clear that MATS was a major contribution to the dramatic reduction in toxic emissions noted above.

effects that regulation under § 112 seeks to prevent (see § 112(b)(2)), even if the pollutants that cause them are not a direct target of that section..

EPA now proposes to reach a different conclusion on EGU regulation by effectively excluding co-benefits from consideration, and focusing only on benefits from control of HAP emissions.[4] Under that approach, the agency proposes to conclude that the cost of regulation far exceeds its benefits.

EPA does not dispute that the co-benefits were real and would in fact result from the controls mandated by the rule. It also does not dispute that the rule would have been found cost-justified, even without any adjustment to the valuation of HAP benefits, had it given those co-benefits even a quarter of the weight that their estimated dollar value would indicate.

For factual support, EPA relies on the 2011 analysis of costs and benefits, without updating it to reflect new knowledge on the health impacts of EGU HAP emissions or new information about the actual costs incurred in installing and operating equipment to comply with the rule. Nor does the agency acknowledge that many of the costs of compliance have been sunk and cannot be recovered, or that for various reasons the annual cost of installing the controls has proved much smaller than the estimate.

EPA noted, but summarily dismissed, comments submitted on prior A&N findings arguing that HAP control benefits had been vastly undervalued. EPA claimed that it was legally proper to rely on 2011 data without updating it. In addition, the agency speculated--with no supporting analysis or evidence--that even if the figures were wrong, and EPA were to use accurate data, EPA's evaluation "would likely stay the same." 84 Fed. Reg. 2678.

Somewhat counterintuitively, EPA proposed to leave its HAP rule in place even if it were to withdraw the A&N finding. EPA reasons that it has not withdrawn its decision to list EGU under CAA § 112(c) and that that fact alone, even without any basis for the A&N finding, would be sufficient to support the existing rule. EPA asks for comment on this position.

These comments demonstrate that EPA's proposal is fatally flawed in multiple ways. Under EPA's own view of the law, its decision must rest on a detailed analysis of costs and benefits. Yet EPA proposes to rest that decision on an outdated, eight-year-old analysis of those costs and benefits prepared for completely different purposes than supporting regulation. Such a record can neither provide an adequate basis for informed public comment nor support any defensible final agency action.

Moreover, EPA's decision to ignore co-benefits whenever they might determine the decision cannot be defended either under the governing Supreme Court opinion, the language and history of the CAA, longstanding and uniform EPA and Executive Branch practice, or settled regulatory economic principles.

[4] EPA's proposal is inconsistent about how co-benefits should be treated. It sometimes says that they should not receive "equal" weight. However, it also states that they should not be considered at all if HAP benefits are not at least "modestly commensurate" with costs. The second statement is governing and effectively denies any role to co-benefits whenever they might strongly influence the decision.

We conclude by explaining how the agency can keep the current rule in place, as it claims to desire, even if it rejects all our arguments, and urging the agency to do this should it reject those arguments.

II. Legal background

A. The CAA

Before 1990, CAA § 112(b)(1)(B) required EPA to set HAP emissions standards tight enough to "protect the public health with an ample margin of safety." For a variety of reasons, including the difficulty of analyzing the protectiveness of individual standards, the drastic ramifications of setting risk-based standards that might not be technically feasible, and (of particular relevance here) difficulty in quantifying the risks associated with HAP, EPA set very few standards under this language.[5]

In 1990, Congress reacted by commanding tight regulation of all major HAP sources, establishing a technology-based regime that required EPA to set strictly prescribed standards reflecting performance of "maximum achievable control technology" (MACT).[6] These "floor" levels were to be followed by a determination on whether *further* standards to reduce remaining residual risk were necessary.[7] In setting MACT floor levels, the statute did not allow EPA to either consider the cost of compliance or balance that cost against health or environmental benefits.[8]

The legislative history of the CAA amendments of 1990 expressly affirmed the existence (and importance) of co-benefits, which were well recognized by EPA and commonly used and relied upon to set emissions standards at the time the amendments were enacted: Specifically, the Senate Report states "When establishing technology-based standards under this subsection, the Administrator may consider the benefits which result from control of *air pollutants that are not listed* [emphasis added] but the emissions of which are, nevertheless, reduced by control technologies or practices necessary to meet the prescribed limitation."[9] In

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[5] See U.S. Sugar Corp. v. Envtl. Prot. Agency, 830 F.3d 579 (D.C. Cir., 2016)(reasons for 1990 amendments to § 112 included "uncertainty over which substances posed a threat to public health").

[6] In doing so Congress effectively repeated the history of toxic pollutant regulation first encountered in the Clean Water Act, where after years of ineffectual risk-based regulation, Congress amended the statute to adopt a first-stage technology-based standards, to be supplemented by risk-based standards if sufficient residual risk remains. See S. Rep. 101-228, 101st Cong. 2d sess. at 134.

[7] MACT floor levels standards must be determined by the average emission reduction achieved in practice by the best-performing 12% of existing sources The standards for new sources cannot be less stringent than the control achieved in practice by the best controlled similar source.EPA can establish more stringent "beyond the floor" standards after considering (among other factors) technological feasibility and cost.

[8] Congress did provide some carefully restricted relief from these absolute standards to sources that posed a minimal risk. First, if a health threshold has been established for a pollutant, EPA may consider that threshold - with an added margin of safety - in setting MACT standards. § 112(d)(4). Second, a source category may be delisted so that regulation is not required if (1) for carcinogens, no source in the category emitted a carcinogen at a rate that would pose more than a one in a million lifetime risk of cancer to the person most exposed to those emissions; or (2) emissions of all non-carcinogenic HAP from the source category were low enough to protect public health with an ample margin of safety. CAA § 112(c)(9)(B). The D.C. Circuit has held that this provides the exclusive process for removing a source category from the statutory list (*New Jersey v. EPA,* 748 F. 3d. 1222 (D.C. Cir. 2014)) and that EPA cannot remove a source category without going through that process.

[9] Senate Report at 172.

other words, Congress recognized that control technologies or practices necessary to meet a standard could reduce pollutants other than the target HAP and provided for consideration of such co-benefits in establishing standards.

Most HAP sources automatically become subject to MACT controls if they emit more than 10 tons a year of any HAP or more than 25 tons a year of all HAP together. However, Congress required EPA, before setting EGU standards, to "perform a study of the hazards to public health reasonably anticipated to occur as a result of [EGU HAP] emissions after imposition of the requirements of this Act"[10] CAA § 112(n)(1)(A). EPA must regulate EGUs if it "finds such regulation is appropriate and necessary after considering the results of the study." Id. If EPA chose to regulate EGUs, the standards were to be set in the same way as for the other source categories, as an absolute limit based on the emission levels achieved by the best performing sources.

Although the legislative history does not describe the origins of this provision, quite clearly it was meant to allow EPA to consider the hazards to public health of EGU emissions and determine whether to regulate them after adjusting for the impact of other CAA requirements, not directly aimed at HAP, on both utility HAP emissions and the industry's ability to comply with HAP controls. Some of these non-HAP control programs, such as the limits on acid rain, bore uniquely heavily on EGUs, thus making such a requirement entirely understandable.

In short, the A&N finding requirement does not in any way change the statutory mechanism for actually setting § 112 regulations. It is a gatekeeper, designed to allow EPA to decide whether anything unique about the utility industry makes it a special case to which the application of that mechanism would be inappropriate.[11]

B. The history of the A&N finding

As EPA's proposal explains, the agency made an A&N finding in 2000, concluding that regulation of EGUs under § 112 was warranted. EPA then withdrew the finding in 2005 (while still proposing to regulate mercury emissions under a different CAA authority, an approach that the D.C. Circuit found improper). In 2011, EPA chose to again pursue regulation under § 112, proposing another A&N finding together with implementing regulations, which the agency made final in 2012. The D.C. Circuit upheld EPA's rule in all respects in *White Stallion Energy Center, LLC v. EPA,*[12] and the industry appealed to the Supreme Court.

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[10] It also required a study of EGU *mercury* emissions considering "the health and environmental effects of such emissions, technologies which are available to control such emissions, and the costs of such technologies." 112(n(2). The Supreme Court cited and relied on the requirement for this study to consider costs to support its conclusion that EPA should not have ignored costs in making the "appropriate and necessary" determination. *Michigan v. EPA,* sl. Op. at 9, 135 S.Ct. at 2708.

[11] As EPA's proposal states, § 112(n) is "a special provision written by Congress to address the unique circumstances facing EGUs." 84 Fed. Reg. at 2677.

[12] 748 F. 3d. 1222 (D.C. Cir. 2014).

C. *Michigan v. EPA*

The Supreme Court overturned the D.C. Circuit ruling, holding that Congress' use of the term "appropriate and necessary" required EPA to consider the costs (and, implicitly, the benefits) of any EGU HAP regulation. EPA had concluded that it could have considered costs and benefits in this manner, but decided not to do so. Justice Scalia, writing for five Justices, found that legally insufficient. The Court rested its conclusion on reasoning in then-Judge Kavanaugh's opinion, dissenting in the lower court, that "'appropriate' is the 'classic broad and all-encompassing term that naturally and traditionally includes consideration of all the relevant factors'" (Sl. op. At 6, 135 S.Ct. at 2707)(quoting 748 F. 3d at 1266 (Kavanaugh, J. dissenting)). The Court applied that expansive approach and implicitly endorsed the need to consider both harms and benefits when it recognized that any disadvantage could be considered a cost, including collateral costs, and, specifically, that regulation would not be appropriate if EPA "were to find that emissions from power plants do damage to human health, but that the technologies needed to eliminate these emissions do even more damage to human health" (Sl.op. At 7, 135 S.Ct. at 2707). This led to the Court's conclusion that "[n]o regulation is 'appropriate' if it does significantly more harm than good." Id.

The Court then remanded the issue for EPA reconsideration in the light of its ruling.

D. The initial remand response

In 2016, after taking comment, EPA reaffirmed its A&N finding. 81 Fed. Reg. 24420. (April 25, 2016).

In that finding, the agency first reaffirmed its long-standing position that EGU HAP emissions posed a significant threat to human health and welfare.

EPA pointed out that EGUs are a major source of HAP, accounting for large fractions of the national emissions of eight of the HAP that Congress had required to be controlled under § 112: mercury, 50%; arsenic, 62%; cadmium; 39%; chromium, 22%; hydrogen chloride, 82%; hydrogen fluoride, 62%; nickel, 28%; and selenium, 83%.

EPA also found, upon analyzing the cancer risk posed by the non-mercury HAP emissions of 16 EGUs, that for seven of them the risk to a most-exposed individual exceeded one in a million--the benchmark for potentially triggering risk-based regulation under the residual risk provisions of § § 112 (f)(2)(A) and (B). 82 FR at 24423.

EPA did not update its 2011 analysis of the costs and benefits of EGU HAP control, but used that information to conclude that the costs would be reasonable, and the health benefits would be substantial, and would outweigh the costs significantly.

EPA received comments on that proposal, including at least four detailed studies, arguing that its RIA "vastly understated the full benefits from reducing mercury emissions." 81 Fed. Reg. 24441. For example, the monetized value of HAP benefits related only to an extraordinarily limited universe of benefits (savings in lost IQ for children born of pregnant recreational anglers) and no other benefits to any other persons or to the environment. One study, published in the *Proceedings of the National Academy of Sciences* and

submitted as a comment, estimated the true benefits of EGU mercury control as $3.7 billion a year in health benefits and $1.1 billion a year in economic benefits.[13]

Commenters also argued that the 2011 RIA on which EPA was relying for information on costs and benefits had underestimated both the reductions in mercury emissions actually achieved and the unquantified HAP benefits of that reduction.

The agency acknowledged these comments and did not disagree with them but did not adjust its formal cost-benefit computation since an adjustment would not have affected the decision to regulate for reasons explained below. 81 Fed.Reg. 24420, 24441 (April 25, 2016).

After setting out this finding of risk, the agency offered two alternative grounds for its decision to regulate.

The first, which it identified as its preferred approach, was to find (without doing any cost-benefit balancing), that the industry would be able to afford the costs of compliance with the EPA rules without damage to its ability to perform its key economic functions (a "cost reasonableness test").

As a second approach, the agency also concluded, upon examining **all** the costs and benefits of the rule, as itemized in the 2011 RIA, that the benefits clearly exceeded the costs, once again making regulation appropriate. It concluded that a cost-benefit analysis was not required, but provided additional support for affirming the A&N finding.

Industry petitioners challenged this finding in court, and litigation was underway when the current Administration took office. The Administration requested and received a stay of proceedings to reconsider the issue at stake, and then issued the current proposal.

The current re-examination, therefore, is not compelled by any court order or subject to any legal deadline--it takes place solely at the agency's initiative.

E. <u>The current EPA proposal</u>

EPA's proposal rejects both of the prior EPA grounds for reaffirming the A&N finding and therefore proposes to withdraw it.

First, it rejects EPA's "affordability" approach because of its "disregard for the *Michigan* court's suggestion that [in making a § 112(n) finding] the agency must meaningfully consider cost *within the context of a regulation's benefits* [emphasis added]." 83 Fed. Reg. 2675.

Second, as noted earlier, it rejects the conclusion that the benefits of regulation exceed the costs, by determining that the large non-HAP-related benefits should not be considered. Instead, it finds that EPA had previously violated the statutory purpose by relying disproportionately on the collateral benefits of the rule for its justification.

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[13] Comment of Amanda Giang, Kathleen Mulvaney and Noelle Selin, MIT (Jan. 15, 2016), containing Amanda Giang and Noelle Selin, "Benefits of Mercury Controls for the United States," 113 PNAS 286 (Jan. 12, 2016).

Specifically, EPA said:

> [I]t would be highly illogical for the Agency to make a determination that regulation under CAA section 112, which is expressly designed to deal with HAP, is justified principally on the basis of the criteria pollutant impacts of these regulations. That is, *if the HAP related benefits are not at least moderately commensurate with the cost of HAP controls, then no amount of co-benefits can offset this imbalance* [emphasis added] for purposes of a determination that it is appropriate to regulate under CAA section 112(n)(1)(A).

84 Fed. Reg. 2676. The proposal offers only two items of analytic support for its conclusion that non-HAP benefits could not serve to justify an EGU HAP rule.

First, it points out that the study required by § 112(n) before any A&N finding focuses on analyzing the health benefits of HAP reduction, not on co-benefits.

Second, it suggests, in carefully labored language, that since the co-benefits of an EGU HAP rule result from its associated reductions in criteria pollutants, and since the CAA contains many provisions aimed specifically at criteria pollutant control, that somehow makes it illegitimate to consider such co-benefits in setting § 112 standards.

In analyzing the benefits and costs of regulation, the agency relied once again on its 2011 computation of costs and benefits. It did not update the record either to reflect the comments received in 2016 arguing that HAP benefits are much larger than reported (though it acknowledged their receipt) or new information developed since then regarding benefits, or the costs of complying with the rule.

EPA asserted that relying on such old data was legally appropriate. In addition, the agency speculated, with no analytic support or factual evidence, that even if it adjusted for this information, its calculation of costs and benefits "would likely stay the same." 84 Fed. Reg. 2678.

Finally, the proposal suggested that even if EPA were to withdraw its § 112(n) finding, the EGU HAP rule itself would remain in effect, since EPA's listing of HAP under § 112(c) as a source category requiring regulation would remain in effect.

EPA asks for comment on all aspects of this position.

III. EPA's proposal must be withdrawn because it failed to provide a proper administrative record on the central issues for decision.

(Section III of these comments responds to Section II of the Notice of Proposed Rulemaking, "Appropriate and Necessary Finding," designated "Comment C-1.")

We begin by pointing out a fundamental and fatal administrative law error that will make it impossible for the agency to take legally defensible final action based on this proposal.

EPA has voluntarily decided to revisit the A&N finding that it made in 2016, and to do so using an analytic approach that it has never used before. Detailed analysis of the HAP control benefits and costs of the EGU MACT rule is central to that approach.

Yet the agency proposes to rely for the benefit side of that analysis on studies made eight years ago under the Obama administration, which considered the economic value of such benefits irrelevant to this decision. That administration admitted at that time that it had omitted analysis of large categories of benefits because it did not have the resources to address them. Similarly, EPA did not respond to comments made in 2016 that the estimation of benefits on which EPA now proposes to rely was three orders of magnitude too low. That lack of analysis or response might have been warranted under the analytic framework the agency was using then; it is not valid under the one that EPA has adopted in its current proposal.

New information has been developed since 2011 which has important implications regarding the benefits of EGU HAP regulation, information with major implications for any cost-benefit analysis. Yet EPA has completely failed to analyze either that new information, or even the information submitted on the 2016 finding, much less take a position on any of these points, or make that position available for public comment.

EPA's analysis is equally lacking on the cost side. EPA continues to use a cost estimate of $9.6 billion per year. Its decision depends on the difference between that estimate and the estimated benefits. But the regulation has been fully implemented, and thus there is now definitive information on actual compliance costs. Those costs have proven to be less than a quarter of the estimate. EPA's continued use of the old, and incorrect cost numbers is arbitrary.

In the balance of this section, we first discuss the legal defects of EPA's position, the need for an accurate factual record to support its decision, and then set out in brief summary the information developed since 2011 that EPA has failed to consider.[14]

A. <u>EPA cannot defend its failure to consider new information or its continued reliance on inaccurate old information.</u>

EPA's entire justification for its refusal to consider post 2012 information states that because the A&N finding is

> a threshold analysis that Congress intended the Agency would complete prior to regulation, the EPA believes it is reasonable for purposes of this reconsideration to rely on the estimates projected prior to the rule's taking effect, i.e., the estimates of costs and benefits calculated in the 2011 RIA.

(84 Fed. Reg. at 2678.) EPA offers no further attempt to explain, much less justify, the remarkable assertion that a voluntary agency decision to undo a prior determination and make a new determination with

[14] EPA placed a brief memorandum in the docket stating that material from prior related rulemakings is incorporated by reference. However, EPA's proposal makes no reference to any of that material and is based entirely on the 2011 RIA.

prospective effect can properly be based only upon information available at the time of the original decision, nearly a decade in the past, while ignoring all information developed since then.[15] If EPA does in fact withdraw its § 112(n) finding, the **consequences** of that decision will be determined by the facts as they are **at present.** The consequence may well be to invalidate the current EGU rule. Any resultant increases in damage from HAP emissions, and any resultant savings in compliance costs, will take place **now** and in the future, not in the past.

At a minimum, EPA must consider new information on what the benefits and costs of regulating EGUs would be if the question were revisited ex ante. However, to properly apply § 112(n)(1)(A) as of today would require a completely different analysis than anything EPA has put in the record so far. It would require projecting the likely effect of repealing MATS, assessing the savings industry would experience (which would be much smaller than the total cost of compliance), but also modeling the extent to which controls would be taken out of use, the increases in pollution that would result, and secondary effects such as the possible increase in the number of coal-fired power plants in active use. This is a complex analysis, but without it EPA lacks a legal basis on which to decide whether regulation is "appropriate and necessary."

Why should EPA not base its decision on the best currently available estimate of the effects of MATS from the perspective of a decision-maker in the current day? To say otherwise is to make the law of § 112(n) a game, in which the agency can re-examine its decision based on facts as they were thought to be eight years in the past (or conceivably longer, depending upon the date of the finding being re-examined), with no attention to current or future impacts. EPA seems to view this action as a matter of turning back the clock to 2012, purely for purposes of finding that the prior decision was incorrect regardless of what may have occurred, or been learned, since then. This is a curious framing that would make the new "finding" a purely academic exercise.

EPA's position would also turn principles of judicial review on their head. EPA's reconsideration amounts in effect to a voluntary remand of the current rule. But EPA points to no other instance where a decision on remand is or can be based only on information available at the time of the original decision. Instead, the cases as far as we know uniformly reflect the guidance offered by then-Judge Kavanaugh when remanding EPA's Transport Rule to the agency for error correction. He said "On remand, EPA, petitioners, or other parties as appropriate may provide new evidence, data, or calculations." *EME Homer City v. EPA,* 795 F. 3d. 118 (D.C. Cir. 2015) .

No rational Congress would intend agencies to rely on stale data, and courts would be reluctant to vacate and remand past actions, if they thought the record on remand could or would be confined to information available at the time of the original decision.

[15] EPA does assert that "agencies have inherent authority to reconsider past decisions and to revise, replace, or repeal a decision to the extent permitted by law and supported by a reasoned explanation," citing FCC v. Fox Television Stations, Inc., 556 U.S. 502, 515 (2009). However, that does not absolve agencies of their legal responsibility to consider new, pertinent new information to comply with the legal duty to rely on the best available information when they do so.

Moreover, the relevant administrative law principles uniformly require agencies to account for new information. For example, in *Catawba County v. EPA,* 571 F.3d. 20 (D. C. Cir. 2009), the court considered whether EPA erred in not updating its designations of areas that did not attain air quality standards in view of new conclusions that one important category of sources did not emit nearly as much as the agency had assumed. Even though EPA had made these designations to implement a statutory schedule for pollution control, and even though the new information arose after EPA was supposed to make those designations, and after it had in fact made them, the court still found that the agency was obliged to "deal with that information in a reasonable manner," and upheld the agency only because it had fully considered the merits of this new development.

Similarly, even though agencies enjoy extremely wide discretion in rejecting petitions for rulemaking, the D.C. Circuit has repeatedly disapproved such rejections if they were based on "outdated data," since "agency reasoning must adapt as the critical facts change" *Flyers Rights Fund v. FAA,* 864 F. 3d. 738 (D.C. Cir. 2017). Accord, *American Horse Protection Association v. Lyng,* 812 F.2d. 1 (D.C. Cir. 1987). Indeed, the right to petition itself serves in important part as a mechanism to force agencies to consider new information.

In short, agencies must account for recent, and changed, information as part of the obligation to engage in reasoned decision-making. The courts have emphasized this duty in the context of the § 112 program itself, stating that agencies "have an obligation to deal with newly acquired evidence in some reasonable fashion," *Catawba Cnty. at* 45, or to "reexamine" their approaches "if a significant factual predicate" changes, Bechtel v. FCC, 57 F. 2d 873, 881 (D.C. Cir. 1992). In addition to Catawba County, see, e.g. *Portland Cement Ass'n v. EPA*, 665 F. 3d 177, 187 (D.C. Cir. 2011); *City of Las Vegas v. Lujan*, 891 F. 2d 927, 933 (D.C Cir. 1984); *Connor v. Buford*, 848 F. 2d 1441, 1454 (9th Cir. 1988); *Roosevelt Campobello Intern. Park Comm'n v. EPA*, 684 F. 2d 1041, 1055 1ist Cir. 1982). EPA has made no attempt to do so as to either costs or benefits.

Here, the need for a reliable record is stronger than in those cases. EPA is using a record it thought irrelevant to its decision eight years ago to make an actual but different decision now. And the previously developed facts, which were not critical to the former decision, are critical to the new one. It would be improper to make the new decision based on the old factual information without considering whether there is more current, and more accurate information available.

The complete failure here to consider any information more recent than 2011 is a far more fundamental and egregious legal failure than anything that the cases we have cited address.

- Those cases involved either a completed regulatory proceeding, or a petition for rulemaking, circumstances in which the interest in regulatory finality or concerns about interfering with agency management make courts reluctant to intervene.

  Here, by contrast, the issue is presented in an open rulemaking, undertaken voluntarily without either a court order or a statutory deadline.

- Those cases involved factual issues that the agency had addressed before in the context of making its decision, and perhaps issues whose central relevance to the decision at issue might be doubted.

> Here, by contrast, EPA has never before in its EGU HAP decisions considered the balance between the estimated HAP control benefits and their costs to be relevant to that decision, much less centrally relevant. It has now become relevant as a result of EPA's change in how it conducts cost-benefit analysis. EPA simply cannot defend adopting a new analytical framework, and then refusing to undertake the analysis that such a framework makes critical.

Conceivably, EPA could defend its failure to analyze some new information on HAP control benefits by arguing that even if this information were true, it would not change the decision because it lay outside the bounds of established decision-making standards. But EPA has not established any such standards. On the contrary, it has only said that to support regulation, the HAP control benefits of an EGU rule must be "modestly commensurate" with the costs--an extremely vague test that is not based on anything in the statutory text.

Basic administrative law requires an agency to set forth in its proposal the reasoning and information supporting its proposal in enough detail to allow informed public comment. Here, with standards for decision so ill-defined, any new information that a reasonable person might think would support a judgment that the "modestly commensurate" standard had been met is potentially relevant to that decision.

Yet EPA has done nothing either to refine the meaning of "modestly commensurate," or to explain how the mountain of perhaps centrally relevant new information that it has ignored--which is often highly technical--might bear on its conclusion that this standard had or hadn't been met. This is not a defect that the agency can cure by responding to comments at the time of final rulemaking. That would amount to rulemaking based on reasons disclosed for the first time at the time of final action and never subjected to public comment. Instead the agency itself must examine these new data, reach its own conclusions, and then invite public comment on them.

In the next two sections of this argument, we demonstrate the magnitude of the agency's omission by setting out in detail the new information that has developed since 2011 on both the benefits of EGU HAP control, and the costs of controlling them.

B. <u>EPA's assessment of benefits and costs is inaccurate and outdated.</u>

If the 2011 RIA that EPA relies on were factually unassailable, and if its conclusions were simply confirmed by more recent data, failing to update the record might be a harmless error. Neither, however, is true. To show this, we will address benefits and costs separately.

1. *EPA's benefits assessment is dated and vastly incomplete.*

Because EPA prepared the 2011 analysis prior to the *Michigan* ruling and because the legal theory that it adhered to then did not involve a weighing of costs and benefits, it truncated its analysis of HAP

benefits due to limits on time and resources.[16] Many other relevant data were available, even at that time, that could have been considered but were not.

Today, much more information is available (or could be obtained with reasonable effort) that could supplement the limited analysis conducted eight years ago. Consideration of all this information is essential for a sufficiently accurate assessment of the costs and benefits to provide a reasonable basis for the "appropriate and necessary" decision. Such an assessment is essential for reaching a legally supportable decision.

We will discuss quantitative estimates of benefits and qualitative estimates of benefits separately.

a. Quantitative estimates of benefits

EPA has never made a responsible attempt to thoroughly measure, and especially to quantify and monetize, the HAP benefits of MATS, even though its proposed decision depends entirely on those benefits being low. Its justification for repealing its A&N finding rests virtually exclusively on the Obama administration's estimate--prepared for other purposes--which found monetized HAP control benefits of the EGU MACT rule of less than ten million dollars a year. Never before had the validity of this number assumed central relevance to EPA decision-making. Yet EPA undertook no new investigation whatever of that validity to supplement the analysis undertaken eight years ago.

This is legally unacceptable. Responsible regulation requires an agency to be more than "an umpire blandly calling balls and strikes" based on information already available, see *Scenic Hudson Preservation Conf. v. FERC,* 354 F2d. 608, 620 (2d. Cir. 1965). It must undertake an independent and proactive investigation of the merits on which it proposes to base its decision.

That duty, which EPA has made no effort to discharge, would apply here even if the record did not reveal any reasons to question the current validity of the Obama administration's benefits estimate. But it does.

The estimated monetized benefits attributed to HAP reductions in the RIA, which is the crux of EPA's entire approach in this proposal, represent only a tiny fragment of all mercury exposures and were never intended to serve as even a partial measure of total HAP benefits. That benefit figure (of $6-8 million) comes from a single study that was looking only at a very limited population (children born to pregnant recreational freshwater anglers--in only part of the country). It is a gross misrepresentation to use this number, taken wholly out of context, as any kind of indicator as to the magnitude of the HAP benefits from MATS.

[16] The RIA was prepared in accordance with Executive Orders 12866 and 13563. Those Executive Orders require cost-benefit analysis to be done as a tool to aid in decision-making, to the extent such factors are relevant under applicable law. Both say that they do not "create any right or benefit, substantive or procedural, enforceable at law or in equity by any part against the United States, its departments, agencies, or entities … or any other person." E.O. 13563 7(d).

EPA received comments on its 2016 proposal contending that it had greatly underestimated the quantifiable benefits of EGU HAP control, and that the true benefits could be about $4.8 billion a year--$3.7 billion a year in health benefits and $1.1 billion a year in economic benefits. See 81 Fed. Reg. 24441.[17] EPA has never provided any substantive response to or evaluation of these comments.

Since then, further evidence has emerged that is consistent with that much higher valuation of controlling HAP from EGUs. One recent study estimates the societal costs of neurocognitive deficits in the US resulting from methylmercury exposure at $4.8 billion per year.[18] While this figure is not limited to mercury from EGUs, it also does not account for all EGU HAP emissions. Furthermore, the study itself characterizes this estimate as a "substantial underestimation [emphasis added] of the total societal costs due to neurotoxicity," since it focuses only on intellectual disabilities and disregards less severe cognitive dysfunction. In addition, it falls significantly short of estimated total costs for methylmercury exposure in the US since it does not consider the costs associated with all other methylmercury effects, including cardiovascular effects. At a minimum, this study represents a further indication that the impacts of EGUs (which were the largest US anthropogenic mercury emissions source in 2011-12) likely have a monetary value much greater than that shown in the 2011 RIA, and it should be given close consideration.

Other benefits exist that might be quantified with modest effort. The old RIA does not address the effects of methylmercury on cardiovascular health. Yet the quantifiable scale of these effects could well be comparable in magnitude to the neurotoxic effects if EPA were to take the trouble to address them. Several studies have documented these effects (ranging from blood pressure effects to fatal myocardial infarction), and an independent panel of experts convened by EPA concluded that there was sufficient evidence to include analyses of the relationship between mercury exposure and fatal heart attacks in regulatory analyses.[19] If EPA were to include the effects of methylmercury on cardiovascular health, as it should, the quantified benefits attributed to mercury likely would increase by orders of magnitude. In any event, it is arbitrary for EPA to make a decision without considering that evidence. EPN requests that EPA conduct a review of studies that have considered cardiovascular health, add them to the record and reconsider its cursory dismissal of unquantified benefits in that light.

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[17] See comment of Amanda Giang and Noelle Selin, and attached article: Giang, A.; Selin, N.E. Benefits of mercury controls for the United States. Proc. National Academy of Sciences, U.S.A., 2016, 113, p. 286. https://www.pnas.org/content/113/2/286

[18] Grandjean, P. and Bellanger, M. 2017. Calculation of the disease burden associated with environmental chemical exposures: application of toxicological in health economic estimation. 16:123. DOI: 10.1186/s12940-017-0340-3.

[19] Roman HA, Walsh TL, Coull BA, Dewailly É, Guallar E, Hattis D, Mariën K, Schwartz J, Stern AH, Virtanen JK, Rice G. Evaluation of the cardiovascular effects of methylmercury exposures: current evidence supports development of a dose-response function for regulatory benefits analysis. Environmental Health Perspectives 2011 May;119(5):607-14. doi: 10.1289/ehp.1003012. Epub 2011 Jan 10. Review. Giang, A.; Selin, N.E. Benefits of mercury controls for the United States. Proc. National Academy of Sciences, U.S.A., 2016, 113, p. 286. https://www.pnas.org/content/113/2/286. Rice, G.; Hammitt, J.A.; Evans, J.A. A Probabilistic characterization of the health benefits of reducing methyl mercury intake in the United States. Environmental Science and Technology 2010, 44, pp. 5216-5224.

In addition, readily available data show that the studies on which the 2016 finding did rely very likely underestimated the quantitative benefits of HAP control in ways that require EPA to re-examine that finding before issuing a decision. Specifically:

- The mercury impact reflected in the RIA's estimate of HAP benefits is a tiny part of the whole. Most Americans are exposed to mercury by eating commercial marine species and some of the most highly exposed populations consume fish for subsistence or for cultural reasons. Recent studies might support estimating the reduction in fish mercury concentrations that are attributable to EGUs in near coastal waters, including the Atlantic and Gulf coasts. This is where a significant amount of the fish that Americans eat are found (up to 37% of total U.S. methylmercury intake).[20]

- EPA considered only IQ loss, as it is readily quantified, although other neurotoxic effects are more sensitive to mercury.

- EPA also undervalued mercury-related benefits because it used out-of-date assumptions concerning atmospheric transport of mercury. EPA's analysis overestimated global transport and deposition and underestimated the extent to which mercury emissions travel regionally and locally. As EPA only considers benefits that would occur in the US, this was an additional source of undercounting benefits.[21]

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[20] Evers, D. C.; et. Al. op. cit.
Cross, F.A.; Evans, D.W.; Barber, R.T. Decadal declines of mercury in adult bluefish (1972-2011) from the mid-Atlantic coast of the U.S.A., Environmental Science and Technology, 2015, 49, pp. 9064-9072.

Evans, D. W., M. Cohen, C. Hammerschmidt, W. Landing, D. Rumbold, J. Simons, and S. Wolfe. 2015. White Paper on Gulf of Mexico Mercury Fate and Transport: Applying Scientific Research to Reduce the Risk from Mercury in Gulf of Mexico Seafood. NOAA Technical Memorandum NOS NCCOS 192. 54 p.

Harris, R.; Pollman, C.; Landing, W.; Evans, D.; Axelrad, D.; Hutchinson, D.; Morey, S.; Rumbold, Dm; Dukhovskoy, D.; Adams, D.; Vijayaraghavan, K.; Holmes, C.; Atkinson, R.D.; Myers, T.; Sunderland, E. Mercury in the Gulf of Mexico: Sources to Receptors, Environmental Research 119 (2012) pp.42–52.

Sunderland, E., Li M., and Bullard, K. Decadal Changes in the Edible Supply of Seafood and Methylmercury exposure in the United States. Environmental Health Perspectives, 126.2, Online publication date: 1 February 2018.

[21] Zhang, Y.; Jacob, D.J.; Horowitz, H.M.; Chen, L.; Amos, H.M.; Krabbenhoft, D.P.; Slemr, F.; St. Louis, V.; Sunderland, E.M. Observed decrease in atmospheric mercury explained by global decline in anthropogenic emissions, Proc, National Academy of Sciences, U.S.A. 2016. www.pnas.org/cgi/doi/10.1073/pnas.1516312113

Evers, D.C.; Han, Y.J.; Driscoll, C.T.; Kamman, N.C.; Goodale, W.; Fallon Lambert, K.; Chen, C.Y.; Clair, T.A.; Butler, T. Biological mercury hotspots in the northeastern United States and southeastern Canada. BioScience 2007, 57 (1) pp. 29-43.

Drevnick, P.E.; Engstrom, D.R.; Driscoll, C.T.; Swain, E.B.; Balogh, S.J.; Kamman, N.C.; Long, D.T.; Muir, D.G.C.; Parsons, M.J.;Rolfhus, K.R.; Rossmann, R. Spatial and temporal patterns of mercury accumulation in lacustrine sediments across the Great Lakes region. Environmental Pollution 2012, 161 pp.252-260.

- Furthermore, the methodology that EPA used in the analysis served to undercount mercury benefits because EPA assumed that there is a threshold for human health effects of methylmercury and that exposures below the mercury reference dose have no adverse effects. More recent science does not support that approach.[22]

- EPA also undercounted benefits by not taking into account the background mercury exposure from all other mercury sources in all people. This means it takes less additional exposure attributable to power plants to reach the reference dose level than the EPA analysis assumes. If EPA had factored in the background exposure, it would have found that owing to the EGU contribution, many more people in even this limited group to be exposed above the reference dose and the calculated benefits would be greater.

Finally, the 2011 RIA does not take into account that a portion of PM emissions are also HAP. See, e.g., *Sierra Club v. EPA,* 353 F. 3d 976, 984 (D.C. Cir. 2004) ("it is undisputed that HAP are invariably present in PM" (Roberts, J.)).[23] Thus, since control of PM co-controls some non-mercury metal HAP emissions, the reductions in HAP that are also PM should be added to the calculation of HAP benefits. EPN does not have access to detailed information on what share of EGU HAP emissions are PM, but PM benefits are so large that it would greatly increase monetized HAP benefits if even a small percentage of PM is also a HAP. This is yet another matter that EPA must look into.

It is quite possible that further information on all these points would be available upon investigation. Faced with a complete failure to assemble the relevant record, it is not the job of a commenter to scour the world for the background information that the agency should have considered before even proposing action. EPA must make a thorough search before proceeding any further.

If EPA were to undertake a new and responsible analysis of even the quantitative benefits of mercury control, these values would very arguably meet the "moderate commensurability" test in EPA's proposal.

b. Qualitative impacts

i. The extent of these benefits

As EPA acknowledges, controlling HAP from power plants has many benefits that could not be --or have not yet been--quantified or monetized.[24] Such benefits are important even if they are hard to measure. Furthermore, since the RIA was prepared, new studies have appeared on the impact of EGU HAP on major non-quantified impacts including those to the cardiovascular system, attention deficits, fine motor skills, and

[22] Karagas, M.R.; Choi, A.L.; Oken, E.; Horvat, M.; Schoeny, R.; Kamai, E.; Cowell, W.; Grandjean, P.; Korrick, S. Evidence on the human health effects of low-level methylmercury exposure. Environmental Health Perspectives, 2012, 120 (6), pp.700-806. We understand that EPA is re-evaluating the methylmercury reference dose and that the question noted above will be considered in that review. In the meantime, this concern should be considered in any re-evaluation of HAP health benefits.

[23] MATS and many other MACT standards use PM emissions as a surrogate for the reduction of various non-mercury metal HAP emissions including arsenic, lead compounds, cadmium and nickel.

[24] 84 Fed. Reg. 2678 at n. 15.

memory, and on their immunotoxicity, chromosomal toxicity and carcinogenicity. In the 2011 RIA in support of the MATS rule, EPA quantified and monetized the benefit of avoided IQ loss that would occur without MATS in a very narrow subset of the population. However, in 2000, the National Research Council of the US National Academies of Science, identified additional neurodevelopmental effects such as deficits in attention, fine-motor function, confrontational naming, visual-spatial abilities, and verbal memory as important health effects of methylmercury exposure which can result in learning disabilities. There is no reason to believe that if investigated they would **not** be significant, despite the EPA proposal's confident assertion to the contrary. This is equally true of less well studied but serious effects such as chromosomal aberrations likely to affect egg and sperm, and effects on immune systems.[25]

The *Utility Study Report to Congress* [26] identified potential human health effects of other HAP emissions from electric power plants including the acid gases such as hydrogen chloride and hydrogen fluoride. Metals other than mercury including arsenic, chromium, nickel and cadmium were identified as "of potential concern for carcinogenic effects." Dioxins, also are of potential concern. The possible health effects of these HAP were unquantified in the MATS RIA.

Finally, the MATS RIA does not quantify potential effects of HAP power plant emissions on wildlife.[27] Section 112(b)(2) makes avoiding harm to wildlife a proper goal of HAP regulation. Here, too, new data indicate that potential harm from EGU HAP emissions may be much greater than previously believed. Emerging research indicates that mercury, for example, can have reproductive and neurological effects leading to behavioral abnormalities at low levels of environmental exposure in various birds (e.g., fewer eggs); mammals (e.g., impaired motor skills for hunting food); fish (e.g., difficulty in spawning); reptiles; and amphibians in both fresh and saltwater ecosystems. New research during the past decade has reported high mercury concentrations in songbirds (especially for long-distance migrants), shorebirds, and bats.

Some of these impacts might be quantified with reasonable effort; others are not quantifiable but need to be given appropriate weight. In either case, EPA has failed to conduct the analysis required to underpin a major regulatory action.

ii. EPA has failed to justify its casual dismissal of unquantified benefits.

EPA acknowledges that "there are many obstacles to successfully quantifying and monetizing the public health benefits from reducing HAP emissions,"[28] but then deals with this difficulty by simply

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[25] National Research Council, The Toxicological Effects of Methylmercury, 2000. https://www.nap.edu/catalog/9899/toxicological-effects-of-methylmercury,p.310

[26] US EPA, Study of Hazardous Air Pollutant Emissions from Electric Utility Steam Generating Units--Final Report to Congress, February 1998. https://www3.epa.gov/ttn/atw/combust/utiltox/eurtc1.pdf

[27] Eagles-Smith, C.A.; Wiener, J.G.; Eckley, C.S.; Willacker Jr., J.J.; Evers, D.C.; Marvin-DiPasquale, M.C.; Obrist, D.; Fleck, J.A.; Aiken, G.R.; Lepak, J.M.; Jackson, A.K.; Stewart, A.R.; Webster, J.; Davis, J.A.; Alpers, C.N.; Ackerman, J.T.; 2016, Mercury in western North America--A synthesis of environmental contamination, fluxes, bioaccumulation and risk to fish and wildlife: Science of the Total Environment, p. 1213-1226, https://doi.org/10.1016/j.scitotenv.2016.05.094.

[28] 84 Fed. Reg. at 2678 n. 15.

assigning such benefits no weight in its decision. In a paradigm case of proof by assertion, the agency has announced that, "while there are unquantified HAP benefits and significant monetized PM co-benefits associated with MATS, the Administrator has 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." Fed. Reg. 76-77. In other words, EPA argues without any further analysis that the non-monetized benefits **must** be too small to make up for the large gap between monetized benefits and costs, and then relies on that speculative suggestion to justify its proposal that there is no need to regulate EGU HAP emissions.

How can EPA be sure of this, in light of its failure to perform any analysis of the issue, and in light of the old rule that "You don't know what you don't know?" EPA's failure to do so makes its proposal arbitrary.

EPA's dismissive handling of unquantified benefits is a classic error in the use of cost-benefit analysis, focusing far too heavily on the single numerical value for HAP benefits contained in the 2011 RIA. In a statement of basic principles for cost-benefit analysis, a group of the most distinguished economists in the country cautioned that although "Benefits and costs of proposed regulations should be quantified wherever possible…Care should be taken to ensure that quantitative factors do not dominate important qualitative factors in decision-making."[29] It also reflects a common cognitive error by "anchoring" its analysis in the most readily available number, badly skewing its overall assessment.[30]

EPA's assertion might have had some surface plausibility if, after full investigation, the quantifiable benefits of HAP control had stayed firmly in the seven-figure range. But as we have seen, there has been no such full investigation, and the quantifiable benefits based on what we now know seem far larger than that. If there is reason to believe that the neurotoxic or cardiovascular benefits of HAP control are three orders of magnitude higher than EPA estimates--and there is--why might that not be true of other harms as well, such as impacts on the immune or reproductive systems?

Indeed a far more comprehensive inquiry into health effects than EPA has conducted would be warranted even without these quantitative data. Given the ubiquity of EGU HAP pollutants, and the wide-ranging health concerns they raise, any small shift in our understanding of them could greatly change our view of the damage they cause.

2. Compliance costs are greatly overstated.

New information shows that the 2011 RIA is also seriously flawed on the cost side.

To begin with, in this proposal EPA is improperly considering past compliance costs--sunk costs--rather than the cost of remaining in compliance as of the current time. EPA's analysis adopts the perspective of a decisionmaker prior to issuance of the rule, and asks what the total cost of complying with MATS would be if it had not yet gone into effect, rather than what the ongoing cost of compliance will be now that initial capital investments have now been made. As we have noted above (p. 12), revisiting a

[29] Kenneth J. Arrow et al., *Benefit-Cost Analysis in Environmental, Health and Safety Regulation: A Statement of Principles* (1996).
[30] Daniel Kahneman, *Thinking Fast and Slow (2001), ch. 11.*

decision as if it were still 2011 is a purely academic exercise; if EPA intends its action to have any prospective legal or regulatory significance, it must look at the benefits and costs of a decision being made today.[31] Total compliance costs were a relevant consideration in 2011, but EPA is now making a determination whether continuing to regulate HAP from EGUs is appropriate *as of 2019*. The relevant cost factor in 2019 is not what industry has already spent to come into compliance, but what it will cost now to remain in compliance (that is, how much EGUs would save if MATS were no longer in effect).

A credible estimate of ongoing annual compliance costs is less than $1 billion, provided by an industry analyst who examined filings with the Security Exchange Commission.[32] This reduces the cost side of the equation dramatically. And because the linchpin of EPA's conclusion is the dramatic disproportionality between costs and benefits, if the cost estimates are too high, the conclusion is unreliable. To do its job properly, EPA must either use these cost estimates or develop its own, and then use that accurate data to do a thorough study of prospective compliance costs. Without information on that cost, EPA cannot even perform such a calculation.

Even using EPA's time perspective, its cost figures are far too high. In 2011 EPA had estimated that MATS would cost the power-generating industry $9.6 billion per year. We now know that the costs were much lower.

First, leading up to and during the compliance period, mercury and acid gas controls became less expensive as the industry developed activated carbon and sorbents tailored to power plant control. Power plant operators also learned to use these agents more efficiently.

Second, EPA overestimated the amount of generating capacity that would need to retrofit with fabric filters or dry flue gas desulfurization (FGD), or that would need to upgrade their existing wet FGD. Instead, existing fabric filters either proved adequate or were upgraded, and plants that did not have FGD were able to meet the acid gas standard with dry sorbent injection, a much less expensive technology.

Third, in 2011, industry and EPA thought that the use of activated carbon and sorbents would increase the cost of waste disposal at coal plants because the waste ash would be contaminated with activated carbon rendering it unsuitable for use in concrete. But instead the makers of activated carbon developed products that were compatible with use in concrete.

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[31] As we have also noted above (p. 12), approaching the analysis properly would also require much additional analysis of benefits (e.g., modeling likely increases in HAP emissions, and assessing whether deregulation might cause more coal-fired power plants to be utilized).

[32] Declaration of James E. Staudt, Ph.D. CFA, September 24, 2015, White Stallion Energy Center, et. al., v. United States Environmental Protection Agency, Case No. 12-1100 and consolidated cases, U.S. Court of Appeals for the District of Columbia. For an interesting discussion on the development of mercury controls, see: International Energy Agency, Sloss, Leslie, "The Emerging Market for Mercury Control" February 2015. https://www.usea.org/sites/default/files/022015_The%20emerging%20market%20for%20mercury%20control_ccc245.pdf.

Finally, natural gas prices did not rise as EPA had assumed in 2011, and as a result various power plants switched to less costly natural gas generation, which is not covered by MATS and, thus, requires no mercury or other HAP emission control.[33]

The industry analyst noted above estimated that the actual cost of coming into compliance with MATS was "approximately $2 billion"--less than one-quarter of EPA's original estimate of $9.6 billion. As a result, the amortized capital cost, as well as the fixed and variable operating and maintenance costs were also over estimated. [34]

It is not unusual for EPA's cost estimates to be overstated as they tend to be conservative in estimating costs, and rightly so. But now that there are real data on the cost of MATS compliance, there is no justification for using outdated estimates.

3. An accurate, updated RIA is likely to yield a different result.

For all the reasons above, the information in the 2011 RIA provides a grossly inaccurate (and out-of-date) representation of both the HAP control benefits and the costs of reducing emissions of mercury and other HAP from power plants. An EPA interested in actually understanding the issues raised by its proposal would have analyzed these new issues **before** issuing a proposal, and would have made its views known and invited public comment on them. Such an EPA would have conducted further work on its own, beyond the studies submitted to it, so as to fully grasp the issues relevant to a decision of as much consequence as this.

To date, however, EPA has done nothing along this line. Instead, EPA's proposal states that because the 2011 cost estimate exceeded the 2011 HAP control benefit estimate by three orders of magnitude, it would not consider any new information, as it was not "likely" that any new information would change its evaluation of the balance between them.

But there is nothing in the record other than EPA's cavalier speculation to support this proposition. Even under the agency's newly minted standard--which EPN strongly rejects--that EGU HAP regulation is only appropriate if the HAP control benefits are "moderately commensurate"[35] with the costs, it is unreasonable and arbitrary to presume, without detailed consideration, that MATS would not meet that test if all new information were analyzed responsibly. The information presented here is sufficient to show that an honest review of current information could well support a different conclusion. EPA's failure to make such an effort, and its continued reliance on faulty information to support its conclusion, makes that conclusion arbitrary.

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[33] EIA had estimated that by 2015 the delivered price of natural gas to the power industry would be $5.23 per thousand cubic feet in nominal dollars. Annual Energy Outlook, 2011, p142. https://www.eia.gov/outlooks/aeo/pdf/0383(2011).pdf The actual delivered cost of natural gas to the power industry in 2015 was $3.38 per thousand cubic feet in nominal dollars, only two-thirds the EIA estimate.. https://www.eia.gov/dnav/ng/ng_pri_sum_dcu_nus_a.htm

[34] Staudt Declaration, note 30, at exhibit 2.

[35] 84 Fed. Reg. at 2676.

There is no responsible way, other than obtaining and giving due consideration to the full range of the best available cost and benefits information, of concluding, as EPA now proposes, that the test EPA has articulated, which certainly provides no bright line, would **not** be met. And since this analysis would be the foundation of any defensible reconsideration of the A&N decision, and since it does not exist at present, EPA if it wishes to proceed must withdraw the present proposal and issue a new one accompanied by a proper review of the data so that the public can comment on the real issues involved. EPA must perform this analysis *before* proposing any action to reverse the § 112(n) finding. As we described earlier, the public has a right to comment on the **actual** grounds for an agency action, and if an agency has simply failed to put forward anything approaching a legally valid justification for its proposed action, it cannot meet that standard.

Finally, EPN notes that EPA's entire approach of relying on cost-benefit analysis[36] as the principal if not sole ground on which to determine whether regulation is "appropriate" is a dramatic departure from long-standing agency policy. EPA has used cost-benefit analysis for many years as one source of information, but not as the determining factor in decision-making.[37] While a useful tool, cost-benefit analysis has many limitations; in fact the RIA on which EPA now relies is a classic example of how difficult, and potentially misleading, it is to try to reduce to simple numbers a complex weighing of positive and negative consequences--some of which are easily quantifiable, some of which involve, at best, educated guesses about future costs, and some of which are very difficult to put into monetary or even quantitative terms. Despite EPA's claims that it is faithfully following *Michigan,* the Court in that case expressly did not require EPA to use such a reductionist approach, and EPA has not provided any other adequate explanation for its dramatic change in position. This failure alone renders the current proposal legally questionable.

IV. Excluding non-HAP benefits is not a reasonable interpretation of § 112(n).

(Section IV of these comments responds to Section II of the Notice of Proposed Rulemaking, "Appropriate and Necessary Finding," designated "Comment C-1.")

EPA's sole basis for proposing to reverse its earlier A&N finding is that it now believes benefits other than from reductions in HAP--so called "co-benefits" or "ancillary benefits"--should be given little or no weight. EPA does not deny that these human health benefits are real, have been accurately valued, and have resulted from implementation of the same controls installed to control HAP. Even now, EPA

[36] As discussed below, EPA is not in fact applying standard cost-benefit principles faithfully, because doing so would require counting co-benefits. To get around that problem, EPA asserts that a formal benefit cost-analysis does not dictate how cost should be considered for purposes of § 112(n)(1)(A). (84 Fed. Reg. at 2676.) However, other than selectively excluding the type of benefit it finds inconvenient, EPA's proposal is entirely based on cost-benefit analysis in all other respects.

[37] EPA's "Guidelines for Preparing Economic Analyses," which as far as we know remain in effect, state at p. 11-12: "Even the most comprehensive economic analyses are but part of a larger policy development process, one in which no individual analytical feature or empirical finding dominates. The role of economic analysis is to organize information and comprehensively assess the economic consequences of alternative actions—benefits, costs, economic impacts, and equity effects—and the trade-offs among them. Ultimately statutory requirements dictate if and how the analytic results are used in standard setting. In any case, these results, along with other analyses and considerations, serve as important inputs for the broader policy-making process and serve as important resources for the public."

estimates their value at between $36 and $89 billion, between 3 and 10 times as large as, and between $26 and $80 billion more than, the projected costs of $7.4 to $9.6 billion that EPA persists in using. Yet it chooses to largely ignore them. Doing so is inconsistent with governing case law and with the CAA, as well as with well-established and universally accepted economic principles, and with longstanding regulatory policy and practice.

A. Excluding non-HAP benefits is inconsistent with the Supreme Court's direction in *Michigan v. EPA* and with the structure of the CAA.

EPA's proposal to functionally ignore co-benefits in making an A&N decision barely mentions *Michigan v. EPA,* even though it is the governing case. That is entirely understandable, since the entire logic of that precedent contradicts EPA's position.

Instead, EPA invokes broad generalizations about the policy, "logic" and language of the CAA. However, EPA does not even mention the ways in which its position directly conflicts with the overall purpose and structure of the CAA in general and § 112 in particular. In addition, EPA ignores specific statutory indications that Congress thought that considering co-benefits would be proper. Finally, the few specific points that EPA does make are unpersuasive.

We will address each issue in turn.

1. EPA's proposal conflicts with Michigan v. EPA

The Supreme Court's command to EPA to consider costs in making a A&N decision is a "Chevron Step 1" decision--that is, a declaration that the law is clear and that the agency has no power to alter it.

Specifically, the Court thought it clear that § 112(n) commanded EPA to undertake a "broad and all-encompassing" review of "all the relevant factors" (Sl. op. At 6, 135 S.Ct. at 2707.). The Court concluded that cost is ordinarily a "relevant factor" in deciding whether to regulate, and that EPA had erred in failing to consider it. Moreover, the Court emphasized an expansive reading of the word "cost," which "includes more than the expense of complying with regulations; any disadvantage could be termed a cost," and stated that regulation would not be appropriate if it required a control technology that caused ancillary emissions that did more harm than those it controlled. (Sl. op. At 7, 135 S.Ct. at 2707.) But if "appropriate" is a "broad and all-encompassing term" (Sl. op at 6, 135 S.Ct. at 2707), it would seem to require consideration of any direct or collateral advantage as well. Indeed, the Court held that "[n]o regulation is 'appropriate' if it does significantly more harm than good" (Sl. Op. at 7, 135 S.Ct. at 2707), and analysis of all relevant factors will of course be needed to make that evaluation.

The Court used cost rather than benefit to illustrate the legal requirement for a comprehensive analysis of all factors. But it does not suggest, and no logical--no defensible--reason can be given based on common understanding why benefits should be treated less inclusively. The term of art is, of course, "cost-*benefit*" analysis. EPA implicitly concedes the point when it notes "the *Michigan* court's suggestion that [in making a § 112(n) finding] the agency must meaningfully consider cost *within the context of a regulation's benefits* [emphasis added]" 83 Fed. Reg. 2675.

Support for this reading of *Michigan* comes from its direct quotation of then-Judge Kavanaugh's dissent in the D.C. Circuit, for the proposition that the term "appropriate" is "the classic broad and all-encompassing term that naturally and traditionally includes consideration of all the relevant factors." (Sl. op. At 6, 135 S.Ct. at 2707.) That dissent went on to define those "relevant factors" as including "health and safety *benefits on the one hand and costs on the other* [emphasis added]."[38]

The Court did say in *Michigan* that the proper treatment of co-benefits is "a point we need not address" (Sl. op. At 14-15, 135 S.Ct. at 2711). But that does not license EPA to take a position at will. Indeed, it does not change the required analysis at all. It simply means that on this specific point we have no express word from the Court. This in turn sends us back to the general message of the opinion, which, as a matter of common meaning, can, as we have just explained, only be read one way.

2. EPA's proposal cannot be justified by reference to the structure, language, or purpose of the CAA.

Despite the language of *Michigan*, EPA might in theory have been able to save its decision to effectively ignore co-benefits by invoking special CAA language authorizing that result. That could perhaps justify a failure to follow the plain common meaning of the language used by the Supreme Court.

But in fact EPA's crabbed claim that it can focus only on reduction of HAP emissions--without even considering reductions in non-HAP pollutants--ignores both the overall policy of the CAA, and Congress' specific intent in enacting § 112. EPA does analyze some of the particular relevant statutory materials, but its analysis even of these specific points is partial and unconvincing.

We will address each topic in turn.

a. EPA ignores the overall purpose of the CAA

No one, including EPA, disputes the massive health benefits of the EGU rule at issue here. HAP emissions from EGUs are down by 96%.[39] The MATS rule has reduced EGU emissions of hazardous air pollutants by 96%. The analysis on which EPA relies projects the rule's overall co-benefits as 37 to 90 billion dollars. The co-benefits include the economic value of a range of avoided health outcomes including 510 fewer mercury-related IQ points lost as well as avoided PM2.5-related impacts, including 4,200 to 11,000 premature deaths, 4,700 nonfatal heart attacks, 2,600 hospitalizations for respiratory and cardiovascular diseases, 540,000 lost work days, and 3.2 million days when adults restrict normal activities because of respiratory symptoms exacerbated by PM2.5. EPA also estimated substantial additional health improvements for children from reductions in upper- and lower-respiratory illnesses, acute bronchitis, and asthma attacks. RIA at ES-2. The premature deaths and years of sickness that the rule would prevent make up the overwhelming part of this projection.

[38] *White Stallion Energy Center LLP v. EPA,* 748 F. 3d 1222, 1266 (Kavanaugh, J. dissenting).

[39] Other factors have contributed to those reductions, but MATS has unquestionably been a major contributor. See note 2.

Yet EPA's analysis gives **no weight** to this huge sum, and the underlying harms to human health that it monetizes. Indeed, it treats it more as a disadvantage than an advantage by suggesting that a rule with huge collateral benefits becomes suspect for just this reason.

> The CAA begins by declaring as its basic purpose:
> to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population;
> CAA § 101.

EPA might not be able to rely on such general statutory language to overcome specific detailed statutory provisions. But no such detailed provisions are in play here. Accordingly EPA should consider the general purposes of the statute in making its decision, including their common-sense message that benefits of the magnitude involved here should have the influence that their size would suggest.

b. EPA ignores the structure and purpose of § 112.

It is not a caricature to say that EPA's principal justification (quoted earlier) for rejecting the A&N finding consists of saying that since § 112 is about HAP control, a § 112 rule cannot be justified unless its HAP control benefits are significant relative to its costs ("at least moderately commensurate" is EPA's exact phrase)--*regardless* of how large its other benefits may be.[40] Nothing in the text, structure or history of the statute creates such a test; EPA has simply made it up.

It is important to recognize that this test, although framed in terms of a comparison between HAP benefits and compliance costs, is not a response to the *Michigan* ruling, which was about whether the regulation "does significantly more harm than good." (Sl. op. At 7.) Rather, it goes to an entirely different issue: whether MATS is justifiable as a rule under § 112, which is about controlling HAP.

By any standard measure, the MATS rule is a legitimate use of § 112, and fits squarely into the § 112 regulatory portfolio. This is true whether one looks at the importance of EGU HAP emissions as a share of national HAP emissions, at the impact of EGUs compared to other sources regulated under § 112, the size of the pollution reductions achieved, or the general philosophy of HAP control embodied in the statute.

Before MATS went into effect, EGUs were among the primary sources of HAP emissions nationwide. EGU emissions accounted for a large share (in some cases half or more) of the total U.S. emissions into the atmosphere of no fewer than eight of the listed pollutants in § 112(b): In 2005 (the most recent inventory year available during the MATS rulemaking), U.S. EGUs emitted approximately 50% of total domestic anthropogenic mercury emissions, 62% of total arsenic emissions, 39% of total cadmium emissions, 22% of total chromium emissions, 82% of total hydrogen chloride emissions, 62% of total

[40] See 84 Fed. Reg. at 2676 ("[I]t would be highly illogical for the Agency to make a determination that regulation under CAA section 112, which is expressly designed to deal with HAP, is justified principally on the basis of the criteria pollutant impacts of these regulations.... If the HAP-related benefits are not at least moderately commensurate with the cost of HAP controls, then *no amount of co-benefits can offset this imbalance."* [emphasis added])

hydrogen fluoride emissions, 2% of total nickel emissions, and 83% of total selenium emissions. (81 FR at 24423 n.8.)

EGU emissions far exceed the statutory thresholds for regulation, and they pose significant individual risks. No one disputes that EGUs emit HAP in quantities that would trigger automatic HAP regulation for any other source category. Moreover, EPA has examined whether EGUs qualify for the health-based exclusions from regulation that Congress established and has found repeatedly--most recently in the very proposal under comment--that they do not.

The requirements established by MATS were specifically designed, as required by § 112, to reduce HAP emissions, based on the most effective HAP control technologies available. And through those controls, MATS has brought about a major reduction in HAP emissions--easily comparable to, if not greater than, that achieved by many other § 112 rules. This is hardly an "illogical" use of a statutory provision enacted with the express purpose of speeding up HAP control and making it more automatic.

EPA nevertheless argues that MATS is not a proper use of § 112 because it believes the HAP-specific benefits are in some sense too small. That approach amounts to a complete rejection of the policy behind Congress' 1990 revision of § 112. As described earlier, before 1990 § 112 did indeed require detailed analysis of the benefits of HAP control. The result was a widespread failure to regulate caused by the difficulty of the analysis required, and in particular the difficulty of quantifying risk.[41] Congress' 1990 amendments changed § 112 precisely in order to make such considerations irrelevant and make the speedy issuance of regulations possible.

We have previously detailed the many analytic and legal defects that invalidate EPA's conclusion that the HAP control benefits of the MATS rule are in fact small (see pp. 14-20). In brief, EPA has *never* made a thorough effort to measure the HAP benefits of MATS. In fact there is good reason today, considering all readily available information, to believe that the HAP-related benefits of the rule are much greater than EPA assumes–possibly greater than costs and certainly "commensurate" with them.

The HAP benefit number that EPA finds so disconcerting is an artifact of the challenges of quantification[42] and the fact that the 2011 RIA did not make an extensive effort to put a monetary value on HAP benefits. For the most part, the RIA did not attempt to monetize HAP benefits at all, because of the technical difficulties of doing so (as was standard practice for MACT standards, as shown in Appendix A). The single monetized benefit figure in the RIA, which EPA now treats as largely defining the HAP benefits of MATS, comes from a single study, focused on a tiny subpopulation, and which was never intended to provide an indication of the full impact of HAP from EGUs. In a classic analytical error, EPA is now

[41] See William A. Wichers et al., "Regulation of Hazardous Air Pollutants Under the New Clean Air Act: Technology-Based Standards at Last," 22 Envtl. L. Reporter 10717, 10718 (1992) ("Implicit in this statutory timetable was the assumption that EPA would have ready access to reliable scientific data that would allow it to easily determine the extent of human exposure, the distribution of emissions, and the health risks posed. However, the various modes of risk evaluation all present levels of uncertainty. While epidemiology generally is considered the most reliable mode of human risk evaluation, it is also inherently deficient in several respects, including its failure to account for lengthy latency periods.")

[42] EPA agrees that there are serious difficulties quantifying many HAP benefits. See 84 Fed. Reg. 2678 n. 15.

taking that number far out of context, focusing almost exclusively on the sole available quantified value, and minimizing the importance of the many other benefits. The stark contrast between the large share of HAP emissions that EGUs were responsible for, and the suggestion that the HAP benefits of MATS were tiny, by itself casts doubt on the validity of using that number as a useful reference point.

But even if EPA's 2011 analysis were taken as the truth, it would not distinguish this rule from the vast majority of other MACT rules. The purpose of § 112(n)(1), as EPA acknowledges, is to take into account the "unique circumstances" facing EGUs (not to simply strike a different balance than for other categories of HAP emitters).[43] But the basis on which EPA says regulation of EGUs is not "appropriate"--the low estimate of monetized HAP control benefits--does not make EGUs a special case. The facts show that RIAs prepared in connection with other standards promulgated under § 112 (as mandated by Congress) are similar to that prepared for MATS: they report very large monetized co-benefits from PM reduction,[44] but do not attempt to monetize HAP benefits at all, for the reasons described above.[45] In using its A&N authority to determine whether regulation is appropriate, EPA cannot plausibly claim that Congress expected it, given very similar facts, to do exactly the opposite of what Congress had expressly and unequivocally mandated in other cases.

Having established that MATS was properly issued under § 112, we get to the question presented by *Michigan*: whether the benefits of MATS exceed its costs. For this purpose, we see no further justification for not counting all benefits--including co-benefits. It is true that § 112(n) establishes that EGUs are not automatically subject to regulation, and sets forth a process to use in deciding whether to regulate them. It is, however, an unreasonable interpretation of that provision to take it as barring regulation because a source category does not pass a cost-benefit test (on the ground that doing so best implements Congress' intent in § 112(n), while at the same time ignoring a major category of benefits in the absence of any Congressional direction to do so (and contrary, as we have already shown, to the clear implication of *Michigan*).

EPA's approach to deciding whether to regulate mercury also cannot be reconciled with § 112(n)(1) taken as a whole. In *Michigan*, the Supreme Court looked beyond § 112(n)(1)(A) in finding that it was necessary to consider cost--whether direct or collateral--and considered the language defining the mercury study required under 112(n)(1)(B).[46] The Supreme Court's reliance on the range of factors encompassed by

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[43] 84 Fed. Reg. at 2677.

[44] The health effects of PM can be monetized relatively easily, which adds to the misleading appearance that PM benefits dwarf HAP benefits for all these rules. PM impacts are quantifiable largely because the pollutant is so ubiquitous, and so many reliable, replicable short- and long-term epidemiologic studies exist (in particular, long-term cohort studies), that concentration-response functions are derivable that allow for reasonable estimates of exposure and resulting harm, can be obtained and then monetized. See, e.g . 77 FR at 62931-932 (Oct. 15, 2012) (explaining derivation of concentration-response functions for PM2.5 used in monetizing benefits).

[45] See Appendix A. This was true of such major sources of HAP as Auto and Light Duty Truck Surface Coating, Industrial, Commercial, and Institutional Boilers and Process Heaters, Commercial-Industrial Solid Waste Incinerators, Brick and Structural Clay Products Manufacturing (see also Clay Ceramics), Plywood and Composite Wood Products (formerly Plywood and Particle Board Manufacturing), and Portland Cement Manufacturing.

[46] CAA 112(n)(1)(A) requires "a study of the hazards to public health reasonably anticipated to occur as a result of emissions by [EGUs] of pollutants listed under" CAA section 112 (b) "after the imposition of the requirements of" the

that study--specifically including cost--in deciding if regulating mercury is "appropriate," also suggests that EPA must look to those factors when it considers the range of benefits it will take into account. The Supreme Court made clear that the term "cost" should be read broadly, and that EPA needed to go beyond the hazards of mercury emissions to consider also the health and environmental effects of the "technologies which are available to control such emissions." *Michigan* states that EPA would have to consider whether the technologies to control mercury might also have deleterious health effects, to be counted on the cost side of the ledger.[47]

EPA's proposal to ignore the collateral health effects of emission control technologies is almost exactly what *Michigan* expressly disapproved. The only difference is that in this case the collateral health effects of the controls are beneficial and thus can be described as co-benefits, rather than being harmful. But EPA's *methodology* would require it to ignore the collateral human health effects of emission control technology, precisely what the Court in *Michigan* said was unlawful. "No regulation is 'appropriate' if it does more harm than good," (Sl. op. at 7.), and the opposite must also be true. Thus, it is a basic regulatory principle that cost-benefit analysis must consider collateral harms, as well as benefits.[48] EPA's attempt to conjure a mandate to ignore common sense by isolating a phrase in 112(n)(1)(A), and ignoring the more expansive language in 112(n)(1)(B) that the Supreme Court cited and relied on in *Michigan* is an example of the kind of statutory cherry-picking that *Michigan* dismissed as "interpretive gerrymanders under which an agency keeps parts of statutory context it likes while throwing away parts it does not." That type of approach does not merit Chevron deference (Sl. op. at 9), and cannot provide a legal basis for EPA's proposal.

c. EPA's discussion of specific CAA provisions is incomplete and unpersuasive.

EPA points to parts of the CAA, or its legislative history, for its position that co-benefits should receive little or no weight. None of these arguments is persuasive.

EPA mentions, but then seeks to distinguish, language in the Senate Report on the 1990 amendments to § 112, directing EPA to consider the co-benefits of HAP regulation--i.e. reductions in criteria pollutant emissions that result from HAP control--when setting rules under § 112(d)(2). However,

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CAA. CAA 112(n)(1)(B) requires "a study of mercury emissions from electric steam generating units, municipal waste combustion units, and other sources, including area sources. Such study shall consider the rate and mass of such emissions, the health and environmental effects of such emissions, technologies available to control such emissions, and the costs of such technologies." The latter obviously requires a more expansive consideration of mercury emissions, going beyond EGUs and beyond foreseeable hazards to consider "health and environmental effects," available control technologies, and their costs. And we know that the control measures, including control technologies, are the source of the co-benefits.

[47] "In addition, 'cost' includes more than the expense of complying with regulations; any disadvantage could be termed a cost. EPA's interpretation precludes the Agency from considering any type of cost—including, for instance, harms that regulation might do to human health or the environment. The Government concedes that if the Agency were to find that emissions from power plants do damage to human health, but that the technologies needed to eliminate these emissions do even more damage to human health, it would still deem regulation appropriate. See Tr. of Oral Arg. 70. No regulation is 'appropriate' if it does significantly more harm than good." Slip op at 7.

[48] See generally OMB Circular A-4.

that language is in fact the closest specific indication of Congressional intent for interpreting § 112(n). Both § 112(n) (as interpreted by the Supreme Court), and the language in § 112(d)(2) that the Senate report addressed, were § 112 provisions that provided for balancing of costs and benefits. EPA does not explain why the rules for considering co-benefits should differ between them.

EPA also notes that § 112(n) required EPA to conduct a study of the hazards to health likely to occur from utility HAP emissions after implementation of the other non-HAP provisions of the CAA, and consider that study in its A&N finding. One would think this provision undermined EPA's argument, since it requires EPA to evaluate the HAP benefits of non-HAP rules to see if they are sufficient to negate the case for specific HAP regulation. If this is proper, why is not the converse also proper-- namely, to evaluate the non-HAP benefits of HAP regulations to see if they are sufficient to **establish** the case for HAP regulation? The two cases are logically equivalent.

EPA acknowledges this possibility, but responds by saying that Congress' specific command to consider HAP benefits that would exist **after**[49] non-HAP programs had been implemented shows that non-HAP benefits of the A&N decision should not be considered.

Why should this be so? If you ask yourself that question in light of the exact parallel just explained, nothing will come to mind. In other words, this is just an assertion with no logical force or persuasive power.

Finally, EPA says that because the large non-HAP benefits of MATS stem largely from control of criteria pollutants, it would be more appropriate to control them using other CAA provisions aimed specifically at criteria pollutants. It suggests that "regulation explicitly targeted at [criteria pollutants such as PM] is best reserved for the NAAQS program" (rather than § 112).[50] Tellingly, this discussion does not deny that the EGU rule would in fact have major benefits of criteria pollutant control. Nor does it explain how those benefits could be realized more effectively by some other legal mechanism, much less announce any specific plans to do so. Indeed, the argument is rather disingenuous, as we are not aware of **any** plans by the Trump administration to tighten controls of CAA criteria pollutants. EPA does not claim that criteria pollutants have been fully controlled through those other programs. Many parts of the country have not attained one or more national ambient air quality standards. The suggestion that non-HAP provisions are sufficient to protect public health with an adequate margin of safety assumes there are no nonattainment areas.

Given this background, the only possible justification for the proposal's position would be that Congress intended these more specific provisions to be the **exclusive** vehicle for addressing criteria pollutant control. EPA carefully does not make that argument and so we will not address it fully. However,

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[49] It is not clear why EPA attaches such importance to this word. The word "after" plainly just means "marginal," requiring EPA to assess **additional** benefits from HAP regulations in addition to those occurring as a co-benefit of required non-HAP regulations, regardless of when those regulations might actually be issued.

[50] 84 Fed. Reg. at 2677. The suggestion that standards must be "explicitly targeted at" either HAP or PM is misleading. Co-control of PM and metal HAP is actually the norm in MACT standards; virtually all of the standards under § 112 are written in terms of PM, not individual metal HAP.

it is worth noting that the CAA contains numerous programs, such as the PSD program and the acid rain control program, that are designed expressly to address risks from criteria pollutant emissions that the criteria pollutant programs do not address. In addition, both Congress and EPA have acknowledged for many years that EPA's criteria pollutant programs do not and cannot remove all environmental harms from criteria pollutant emissions. This point has been fully discussed and illustrated in an important article by Profs. Castle and Revesz (a copy of which is attached).[51]

In short, EPA's citation of various criteria pollutant programs adds nothing to the force of its argument. It seems to reflect an erroneous perception that MATS must "really" be a PM rule rather than a HAP rule, because the monetized value of its PM-reduction benefits are large, but its monetized HAP benefits do not meet some ill-defined minimum threshold. The error in that perception, and the clear basis for using § 112, have been addressed above.

B. Excluding co-benefits is inconsistent with universally accepted economic practice, as well as common sense.

In addition to being inconsistent with the statutory structure and the holding in *Michigan,* the exclusion of non-HAP benefits is unprecedented in EPA's regulatory practice, contrary to OMB and EPA policy, and enjoys little support among economists or regulatory experts. On a more basic level, it defies common sense. It is therefore an arbitrary policy choice.

1. Failing to consider co-benefits violates longstanding practice and government policy.

It has long been EPA's practice to consider co-benefits in cost-benefit analyses, as has been extensively documented in the 2019 Castle and Revesz article cited above.[52] This approach is the only way to ensure that protecting public health gets fair and full consideration in decisions about public health protection and is consistent with standard accounting practices,[53] as well as fairness, logic, law, scholarship, and decades of regulatory precedent. Co-benefits are universally accepted as an important tool in regulatory economics, and, more generally, in any type of economic planning. In fact, no one ignores co-benefits in real life: not businesses, not individuals, and, until now, not government agencies. Imagine a doctor looking at X-rays of a broken foot and ignoring signs of cancer because that's not what the X-ray was looking for. Or a cardiologist advising a patient to stop smoking because of the heart benefits, without mentioning the co-benefits to lungs and general health. The greatest value of some modern medications, including, by one estimate, 35% of the "transformative" treatments since 1986, has been for new uses beyond their original purpose, which is to say co-benefits.

Co-benefits have always informed our understanding of how EPA's regulations benefit society. For example, the CAA's Acid Rain Program was designed to reduce sulfur dioxide emissions from power plants, but has led to reductions in other airborne particulates and health benefits worth over $50 billion per year.

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[51] Castle and Revesz, "Environmental Standards, Thresholds, and the Next Battleground of Climate Change Regulation," 103 *Minn. L. Rev.* 1349 (2019)

[52] Castle and Revesz, note 48 at 1424.

[53] 2017 Draft Report to Congress on the Benefits and Costs of Federal Regulations and Agency Compliance with the Unfunded Mandates Reform Act, Office of Management and Budget.

The EPA's cost-benefit analyses for clean air rules have also long included co-benefits.[54] That is why until now every president at least since Ronald Reagan, (whose EPA took $222 million in yearly co-benefits into account to justify reducing lead in gasoline)[55] has considered them on an equal footing with direct benefits. In fact, President George W. Bush even cited mercury reductions as a co-benefit of a proposal to reduce soot and fine particles.[56] Thus when the Obama EPA relied on particulate matter reduction as a co-benefit of regulating hazardous pollutants like mercury, it was following a well-established, and, so far as we are aware, unvarying practice.

The legislative history of the CAA amendments of 1990 show that Congress was fully aware of the existence (and importance) of co-benefits when § 112 was enacted. Specifically, the Senate Report states "When establishing technology-based standards under this subsection, the Administrator may consider the benefits which result from control of *air pollutants that are not listed* [emphasis added] but the emissions of which are, nevertheless, reduced by control technologies or practices necessary to meet the prescribed limitation."[57] In other words, Congress recognized that control technologies or practices necessary to meet a standard could reduce pollutants other than the target HAP and provided for consideration of such co-benefits in establishing standards. (EPA's attempt to distinguish that legislative history simply makes no sense as discussed above (p. 30).

Federal policy has long been to treat co-benefits on an equal footing with direct benefits, with both being fundamental to understanding regulatory costs. The Office of Management and Budget directs all agencies, in conducting Regulatory Impact Analyses under E.O. 13563, to "look beyond the direct benefits and direct costs of your rulemaking and consider any important ancillary benefits and countervailing risks."[58] It defines an "ancillary benefit" as "a favorable impact of the rule that is typically unrelated or secondary to the statutory purpose of the rulemaking." OMB has recently recognized that "consideration of co-benefits, *including the co-benefits associated with reduction of particulate matter* [emphasis added], is consistent with standard accounting practices and has long been required under OMB Circular A-4."[59] In fact, if EPA were to

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[54] Castle and Revesz, note 48 at 1429.

[55] U.S. ENVTL. PROT. AGENCY, EPA-230-05-85-006, COSTS AND BENEFITS OF REDUCING LEAD IN GASOLINE: FINAL REGULATORY IMPACT ANALYSIS, at VI1 to -74 (1985), https://yosemite.epa.gov/ee/epa/eerm.nsf/vwan/ee-0034-1.pdf/ %24file/ee-0034-1.pdf. See Castle and Revesz at 1429-30.

[56] Castle and Revesz, note 48 at 1429-30.

[57] Senate Report at 172.

[58] See OMB Circular A-4 at 7 ("Your analysis should look beyond the direct benefits and direct costs of your rulemaking and consider any important ancillary benefits and countervailing risks. An ancillary benefit is 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) while a countervailing risk is an adverse economic, health, safety, or environmental consequence that occurs due to a rule and is not already accounted for in the direct cost of the rule (e.g., adverse safety impacts from more stringent fuel-economy standards for light trucks)." Available at https://www.reginfo.gov/public/jsp/Utilities/circular-a-4_regulatory-impact-analysis-a-primer.pdf

[59] 2017 Draft Report to Congress on the Benefits and Costs of Federal Regulations and Agency Compliance with the Unfunded Mandates Reform Act, Office of Management and Budget, at 13.

prepare an RIA for the repeal of MATS, that document would show repeal to result in massive net losses (due to foregone co-benefits).

Furthermore, EPA's own "Guidelines for Preparing Economic Analyses" state that "An economic analysis of regulatory or policy options should present all identifiable costs and benefits that are incremental to the regulation or policy under consideration. These should include directly intended effects and associated costs, as well as ancillary (or co-) benefits and costs." [60]

EPA concedes that benefit-cost analysis "in accordance with generally recognized...practices" is appropriate for public information and compliance with Executive Order 12866, but argues that such practices do not provide the statutory rule for decision under § 112(n)(1)(A), which is focused on control of HAP emissions.[61] Even if OMB guidelines do not technically apply here, however, EPA must show that its approach is reasonable interpretation of § 112(n) in light of the statutory text and context and the Supreme Court's authoritative interpretation of the key statutory question. While the Supreme Court did not require EPA to use formal cost-benefit analysis, it could not have intended that, if EPA did so, it should adopt an approach that is at odds with longstanding policy and practice, and (as will be seen below) the consensus among economists and regulatory analysts.

2. Experts in regulatory analysis do not support excluding co-benefits.

Reputable economists and regulatory experts consistently support the full consideration of co-benefits in cost-benefit analysis. Professor Cass Sunstein of Harvard Law School, a former Director of OIRA, has called EPA's proposal to exclude consideration of co-benefits in the context of MATS "regulatory malpractice."[62]

In June 2018, EPA invited public input on a number of issues relating to the treatment of cost in regulatory decision-making, including whether co-benefits should be considered in cost-benefit analysis.[63] None of the numerous academics and regulatory economists who responded supported excluding them. Typical comments were the following.

- Several economists affiliated with Resources for the Future, perhaps the leading think tank on environmental economics, addressed this issue in detail, stating: "a decision to neglect ancillary benefits is contrary to the existing peer reviewed guidance in OMB Circular A-4. In turn, the existing

[60] U.S. EPA, "Guidelines for Preparing Economic Analyses" at 11-2 (Rev. 2014).
[61] 84 Fed. Rg. at 2676 ("A formal benefit cost analysis does not dictate how cost should be considered under CAA section 112(n)(1)(A)").
[62] Cass Sunstein, "The Sense and Nonsense in EPA's Mercury Rule," Bloomberg Opinion (Jan. 9, 2019); https://www.bloomberg.com/opinion/articles/2019-01-11/trump-s-epa-takes-bad-turn-on-mercury-pollution. Sunstein states that the CAA could be read to require excluding co-benefits, but that doing so would be "arbitrary and unreasonable."
[63] Advance Notice of Proposed Rulemaking, "Increasing Consistency and Transparency in Considering Costs and Benefits in the Rulemaking Process" 83 Fed. Reg. 27524 (June 13, 2018).

guidance reflects the broad consensus within the economics community regarding the consideration of ancillary benefits within the RIA and for their use in decision-making."[64]

- Joseph Cordes, Professor of Economics at George Washington University and co-director of the university's Regulatory Studies center, stated that "there is no disagreement in the extensive literature on benefit-cost analysis about the appropriateness of counting indirect effects or co-benefits. To the extent that indirect benefits or costs are true joint products of a regulation or program, and not merely different manifestations of the primary benefit or cost, such effects should legitimately be included as a social cost or benefit."

- Richard Schmalensee, Professor Emeritus of Economics at MIT, and a member of the Council of Economic Advisors under President George H.W. Bush, wrote that: "The actual costs and benefits of a proposed new regulation, whether strengthening or weakening environmental protection, are as a matter of basic logic independent of the nominal target of that regulation. It would be illogical and inconsistent with basic economics to ignore what are often called co-benefits--as it would be to ignore some of the costs involved. Indeed, transparency requires that all costs and benefits, co- or not, be made explicit and valued where possible." (The similarity to Justice Scalia's language in *Michigan v. EPA* is striking.)

Numerous other commenters expressed similar opinions.[65]

Even economists and analysts who typically are skeptical about the value of regulation, agree that co-benefits should be given due consideration. For example, a guide to cost-benefit analysis by former OIRA Director Susan Dudley and other former senior officials states that "all significant costs and benefits should be counted." They do caution that "closer inspection" may be warranted where co-benefits account for a large share of total benefits, for the purpose of examining the regulation to ensure that it is the most cost-effective way of achieving those co-benefits.[66]

Richard Belzer, President of Regulatory Checkbook and a former OMB official, expressed concern in his response to EPA's June 2018 ANPRM about cases in which co-benefits dominate or provide the margin on which benefits exceed costs; he emphasizes the need in such cases to ensure that there is no

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[64] Comment of Alan Krupnick et al. (August 10, 2018) at 2. Relevant to the present proposal, they also state that "Benefit-cost analysis requires a full presentation of the benefits and costs (including unquantified effects), the full range of regulatory alternatives, ancillary benefits, and a full discussion of the uncertainties in the analysis. We therefore urge consideration by decision-makers of all information in the RIA and its conclusions regarding net benefits, as well as quantitative or qualitative conclusions regarding uncertainties, and any discussion of lack of information and non-quantified effects."

[65] Other similar comments include those from Prof. Catherine L. Kling, Cornell University, https://www.regulations.gov/document?D=EPA-HQ-OA-2018-0107-0141 ; Sean Goho and Elsie Sunderland, Harvard University, https://www.regulations.gov/document?D=EPA-HQ-OA-2018-0107-1853; Joseph E. Aldy, Harvard Kennedy School of Government, https://www.regulations.gov/document?D=EPA-HQ-OA-2018-0107-1792 Mitchell C. Denti and Nancy Loeb, Northwestern Pritzker School of Law; https://www.regulations.gov/document?D=EPA-HQ-OA-2018-0107-1237

[66] Susan Dudley et al., "Consumer's Guide to Regulatory Impact Analysis: Ten Tips for Being an Informed Policymaker," Journal of Benefit-Cost Analysis, Vol. 8 Issue 2 (Summer 2017) pp. 187-204.

double-counting of benefits. However, he agrees that "[a]ll regulatory benefits should be counted regardless of whether they are primary or secondary (or "ancillary ")."

In the case of MATS, such analysts might ask whether EPA could have reduced PM emissions in other less costly ways that provided less stringent controls on mercury and other HAP. However, EPA has not argued (or provided any information in the record to suggest) that such options exist. Furthermore, § 112 prescribes the basis on which controls are to be determined, which would preclude consideration of any that did not control HAP emissions stringently. No suggestion has been made that the co-benefits of MATS are attributable to double-counting. And, as discussed above, EPA's premise that HAP benefits are relatively small is simply incorrect.

EPA says nothing about its long history of relying on co-benefits, does not mention that they are universally recognized in regulatory economics and, are, when they are accurately estimated, like any other consequence of an action, given equal weight. It cites no economist or other authority advocating ignoring them.[67] It offers no rationale based in economic theory or practice for completely ignoring co-benefits. It certainly gives no indication of how radical a step its proposal would be, or its precedential implications for analysis of other rules of all kinds.

EPA has thus failed to show that its interpretation of the statute is reasonable. Its justification is in fact so thin that it fails to provide the public the required notice as to the substance and basis of the decision in two regards: first, it does not indicate that this is a novel and untested and, so far as it appears, unprecedented approach to analyzing costs and benefits. Second, and related, is the fact that it does not offer a rationale for the public to weigh in evaluating the policy and its implications both for this decision and for a host of others.

V. EPA should not repeal MATS even if the finding is reversed.

(Section V of these comments responds to Section II.D of the Notice of Proposed Rulemaking, "Effects of the Proposed Replacement of the Supplemental Finding," designated "Comment C-3.")

EPA has solicited comment on whether, if the A&N finding is reversed, it should (or must) repeal the MATS standard. EPN believes that this issue should not even arise for some time, since EPA has considerable additional work to do before it can even issue a legally valid proposal to reverse its earlier positive A&N finding.

But if EPA does issue such a reversal, EPN cannot think of any legally valid reason why the current rule should remain in effect without further EPA action, much as we would like to support that result. EPA's proposal to leave the rule in place while nullifying the legal finding needed to support the rule is

[67] In its June 13, 2018, Advance Notice of Proposed Rulemaking, "Increasing Consistency and Transparency in Considering Costs and Benefits in the Rulemaking Process" 83 Fed. Reg. 27524. (June 13, 2018), EPA stated that industry commenters on prior rules had advocated for disregarding co-benefits, but did not identify the commenters. In these comments, EPN has not emphasized the original source of this argument, but we note that it is not a neutral attempt to improve EPA's analytic practices, but rather has the very specific goal of undermining a variety of regulations, including but not limited to MATS, that have an adverse effect on the fossil fuel industry.

arbitrary and frankly misleading; EPA has offered no persuasive legal explanation as to why the rule can stand if the finding on which it rests is withdrawn. A rule that rests on a repudiated finding is by definition arbitrary, and likely cannot be enforced, even if it technically remains in the CFR. Nor could it be defended against a legal challenge or a petition to rescind the rule. Certainly there is a substantial risk that the rule would fall.

That said, Administrator Wheeler claimed during his confirmation hearings that he does not intend that result. If so, a legal pathway by which EPA can act to keep the rule in effect is clearly open. We urge EPA to follow it.

That path runs as follows:

1. Even if EPA adheres to its argument that in revisiting the prior A&N finding, it need not update the record of that finding, its § 112(n) authority will not expire. If EPA can reconsider an A&N finding once, it can by the same token make a **new** A&N finding based on the facts as they stand today, even if it has withdrawn the old finding as unsupported by the facts as they were then.

2. As we have outlined in detail, since 2011 much new information has developed underlining the dangers of EGU HAP emissions, while the costs of compliance with EGU MACT has proved far less than estimated. In addition, many of the compliance costs are sunk, and many of the HAP reductions from the rule have already been achieved. In such circumstances the real-world costs and benefits of rule repeal will be determined by the likelihood of backsliding and the cost savings and health costs of backsliding should it occur.

   If EPA does not delay its § 112(n) finding to take account of this new information and these new circumstances, as we believe it legally must, then it can--and we believe must-- analyze the new situation and determine whether it warrants a new A&N finding.

3. This would take time. However, EPA could easily defend a temporary A&N finding to the effect that it would be appropriate and necessary to preserve the status quo pending a full re-examination of these issues.

Since EPA has a continuing duty to implement all provisions of the CAA, including § 112(n), we believe that EPA **must** follow this course if it repeals the current A&N finding without updating the data base on which it bests.

However, to make sure that EPA does not ignore this possibility, EPN hereby formally petitions EPA to continue the EGU MACT rule in effect by the mechanism just described should it repeal the § 112(n) finding based on any justification that does not include a full updating, subject to public comment, of the analytical data base on which it rests.

Conclusion

In sum, the proposal must be rejected for two reasons. First, EPA is proposing to make a finding that will remove the legal basis for a decision that has been in effect for several years and greatly reduced nationwide emissions, based on a record that does not contain sufficient current, reliable information to support it. A great deal of new information is now available that could well lead to a different conclusion. Before it can finalize its proposal, EPA must develop a new factual record that includes sufficient information to support a fully informed decision. It can then determine whether it believes the record still supports reversal of the A&N finding, and if so can re-propose for another round of public comment..

Second, when it reconsiders the proposal, EPA should take into account all of the benefits of the rule. Doing otherwise would be inconsistent with longstanding administrative practice and policy, the relevant provisions of the CAA, and the leading Supreme Court decision construing those provisions. The approach proposed here--ignoring the vast bulk of the rule's beneficial impacts, and declaring regulation under § 112 "irrational" because the benefits of HAP reduction are deemed too small relative to costs--is arbitrary and capricious, and indefensible as an interpretation of § 112(n)(1)(A).

Most importantly, EPA must proceed bearing in mind that its first duty under the CAA is to protect the health of the American people, and the natural environment they live in. Throughout its history, the agency has faced difficult decisions where the costs of advancing that goal are asserted to be greater than the benefits being achieved. This is, however, the first case in which it has proposed to reverse a decision that has--indisputably--resulted in massive net benefits. This historic wrong turn must be avoided; the proposal must be withdrawn.

APPENDIX A

Costs and Benefits Reported in RIAs for Selected NESHAP (MACT) Standards

RIAs reported below include all of those available on Regulations.gov,
for MACT standards issued under CAA § 112.

	HAP Benefits	Non-HAP Benefits	Project Costs
Auto and Light Duty Truck Surface Coating	Not monetized	Not monetized	Nationwide total cost $154 mil $25k/ton of HAP controlled
Industrial, Commercial, and Institutional Boilers and Process Heaters	Not monetized	In implementation year: 3% dr = $22-54 bil 7% dr = $20-49 billion	Annualized costs: $1.4 bil
Commercial-Industrial Solid Waste Incinerators	Not monetized	In implementation year: 3% dr = $340-830 mil 7% dr = $310-750 mil	Annualized costs: 7% interest: $280 mil
Brick and Structural Clay Products Manufacturing (see also Clay Ceramics)	Not monetized	Final standards: 3% dr = $83-190 mil 7% dr = $75-170 mil	Annualized costs: 7% interest: $27 mil
Plywood and Composite Wood Products (formerly Plywood and Particle Board Manufacturing)	Not monetized	Not monetized	Compliance costs: $143 mil Total social costs: $135.1 mil
Portland Cement Manufacturing	Not monetized	Final standards: 3% dr = $7.4-18 bil 7% dr = $.7-16 bil	Annualized social costs: $926-950 mil