The following comments were submitted by Environmental Defense Fund and other organizations on EPA's Proposed National Emissions Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units—Reconsideration of Supplemental Finding and Residual Risk and Technology Review, 84 Fed. Reg. 2670 (Feb. 7, 2019).

All attachments to these comments are available in the docket for that rulemaking at EPA-HQ-OAR-2018-0794-1267. Many of the attachments are also available for download at https://www.regulations.gov/comment/EPA-HQ-OAR-2018-0794-1267.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Proposed National Emissions Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units—Reconsideration of Supplemental Finding and Residual Risk and Technology Review, 84 Fed. Reg. 2670 (Feb. 7, 2019)	Docket Nos. EPA-HQ-OAR-2018-0794, EPA-HQ-OAR-2009-0234, EPA-HQ-OAR-2002-0056, & Docket No. A–92–55 *Via regulations.gov* *April 17, 2019*

COMMENTS OF ENVIRONMENTAL, PUBLIC HEALTH, AND CIVIL RIGHTS ORGANIZATIONS

The undersigned organizations[1] respectfully submit these comments in opposition to the U.S. Environmental Protection Agency's proposal, 84 Fed. Reg. 2670 (Feb. 7, 2019) ("Proposal"), to find under section 112(n)(1) of the Clean Air Act that regulation of emissions of mercury and other hazardous air pollutants from coal- and oil-fired electric utility generating units ("EGUs") is not "appropriate," and to reverse its prior, contrary finding, Supplemental Finding that it is Appropriate and Necessary to Regulate Hazardous Air Pollutants from Coal- and Oil-Fired Electric Utility Steam Generating Units, 81 Fed. Reg. 24,420 (April 25, 2016) ("Supplemental Finding").[2] Undersigned organizations also oppose EPA's unwarranted proposal to create a new sub-category that would allow certain waste-coal plants to emit greater quantities of acid gases.

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[1] Air Alliance Houston, Chesapeake Bay Foundation, Inc., Chesapeake Climate Action Network, Citizens for Pennsylvania's Future, Clean Air Council, Clean Air Task Force, Clean Wisconsin, Conservation Law Foundation, Downwinders at Risk, Earthjustice, Environmental Defense Fund, Environmental Integrity Project, Environmental Law & Policy Center, National Association for the Advancement of Colored People, National Wildlife Federation, Natural Resources Defense Council, Natural Resources Council of Maine, Sierra Club, Southern Environmental Law Center, The Ohio Environmental Council, and Waterkeeper Alliance.

[2] In addition to these joint comments, various of the undersigned organizations are separately submitting comments on specific issues. Chesapeake Bay Foundation, Inc. is submitting Comments of Chesapeake Bay Foundation, Inc. concerning the benefits to the Chesapeake Bay of HAPs reductions under MATS; Environmental Law & Policy Center, *et al.* is submitting region-specific Midwest Environmental Organizations' Comments, and the Southern Environmental Law Center is submitting comments on behalf of numerous local, state, and regional advocacy groups active in six southeastern states – Alabama, Georgia, North Carolina, South Carolina, Tennessee, and Virginia. The Residual Risk and Technology Review component of the Proposal is addressed in separate comments of Earthjustice, *et al*.

TABLE OF CONTENTS

Introduction And Overview 6

I. The proposal rests upon fundamental legal errors and hopelessly flawed reasoning. .. 9

A. The *Michigan* decision does not support the proposed revised finding (Comment C-2). 9

1. The Proposal's claims that the 2016 Supplemental Finding violates *Michigan*'s holdings or rationale are incorrect. 10

2. The proposed approach is contrary to *Michigan*'s core teaching. 14

B. The Proposal unreasonably fails to address the concern at the heart of Section 112: the health effects of uncontrolled air toxics emissions from power plants (Comment C-2). 15

C. EPA unlawfully proposes to find that regulation is not "appropriate" without sufficient explanation and consideration of the relevant factors (Comment C-2). 18

D. The Proposal's reliance on portions of the MATS Regulatory Impact Analysis is arbitrary and capricious (Comment C-2). 22

E. The Proposal's myopic focus on a subset of *monetized* health benefits is arbitrary and unlawful (Comment C-2). 25

II. The proposed rule's negative appropriate and necessary finding is an unauthorized exercise; under the Clean Air Act, and on the record before it, EPA can neither reverse its earlier finding, de-list egus, nor rescind MATS 28

A. The Clean Air Act and court precedent make clear that EPA cannot, on the record before it, de-list or de-regulate EGUs (Comments C-1, C-3, C-6). 28

B. EPA also cannot revise the appropriate and necessary finding (Comments C-1, C-3). 30

1. The appropriate and necessary finding is a threshold determination. 30

2. Court decisions confirm that EPA may not administratively revise the appropriate and necessary determination under the circumstances presented here. 31

C. Even if EPA was not statutorily barred from administratively reversing its appropriate and necessary finding, EPA presents no reasoned basis for doing so (Comment C-1). 31

D. The Proposal's alternative interpretations are unlawful and unreasonable (Comments C-1, C-4, C-6, C-7, C-8). 33

III. The proposal's estimate of the benefits of reducing air toxics contradicts the statute, EPA's 2012 record, and the current record. 35

A. EPA fails to acknowledge Congress' determination in Section 112 that reductions in emissions and associated public health harms of mercury and other HAPs are of great value (Comment C-2). 35

1. EPA has unlawfully ignored the core purposes of Section 112. 36

2. EPA has unlawfully ignored its own record. 44

B. EPA's 2012 record demonstrates that its 2012 $4-$6 million monetized benefits figure dramatically under-counts even the subset of monetizable benefits of mercury reductions under the MATS Rule (Comment C-2). 45

C. Available information post-2012 indicates much higher value for HAP reductions, including benefits from reducing mercury that alone exceed the total cost of the Rule (Comment C-2). 49

1. Current scientific evidence supports mercury emissions reductions benefits far in excess of those monetized by the Agency in 2011. 50

2. Recent work also shows that the adverse public health impacts of non-mercury HAPs are more significant, and that the benefits of reducing them are greater, than EPA's RIA suggests. 52

3. The Proposal unreasonably ascribes no value to reducing massive contamination of waters throughout most of the United States and related limitations on the safe consumption of fish. 53

D. EPA's proposed analysis fails to address distributional issues at the heart of Section 112's purpose and requirements (Comment C-2). 53

IV. EPA's analysis of costs and benefits for the section 112 appropriate and necessary finding must include all benefits resulting from regulation, including benefits from particulate matter reductions (Comment C-2) 55

A. There is a bipartisan history of considering co-benefits and indirect costs (Comment C-2). 57

1. Bipartisan federal regulatory history over the course of several decades has consistently accounted for both co-benefits and indirect costs as part of comprehensive and balanced cost-benefit analyses. 57

2. EPA's own cost-benefit guidelines direct the agency to consider indirect costs and benefits. 59

3. Legislative history supports full consideration of indirect costs and benefits. 59

4. Case law supports comprehensive consideration of indirect benefits and costs. 61

B. There is no legal basis for, and EPA fails to provide a reasoned analysis or explanation for, proposing to treat avoided public health effects differently from industry compliance costs (Comment C-2) 62

1. The statutory language of Section 112 contradicts EPA's position that particulate matter benefits should be treated differently from compliance costs for the appropriate and necessary finding. 63
2. EPA's position contradicts existing legal precedent, including *Michigan*, which directed EPA to address all advantages and disadvantages of regulation. 65
3. EPA fails to provide a reasoned explanation or justification for this abrupt reversal and dramatic change in its approach to considering benefits. 67

C. Basic principles of reasonable economic analysis and existing authorities require EPA to consider all effects of regulation (Comment C-2). 68
1. EPA has failed to satisfy basic requirements for proper regulatory analysis as described in OMB Circular A-4 and EPA guidelines. 68
2. Treating these "indirect" effects differently creates a biased analysis against regulation. 69
3. EPA's proposal fails to comply with applicable Executive Orders. 71

D. By excluding all benefits of particulate matter reduction from equal consideration, EPA's Proposal excludes targeted pollutants of MATS and direct benefits of HAP reduction (Comment C-2). 73
1. MATS targets surrogate pollutant emissions and power plants have targeted and reduced criteria pollutant emissions to comply with MATS. 73
2. EPA must at least give benefits from particulate matter reductions that result from particulate HAP reductions primary consideration. 73

E. EPA provides no support for its claim that the Agency cannot provide equal consideration to co-benefits from reduction in emissions of co-pollutants that are regulated under the National Ambient Air Quality Standards (Comment C-2). 74

V. EPA has not provided a reasonable estimate of the standards' costs. 77

A. Readily available information indicates that the central assumptions of EPA's cost estimate are incorrect. (Comment C-2, C-24). 77

B. EPA fails to distinguish between sunk and recoverable costs. (Comment C-2, C-24) 78

C. EPA fails to consider the costs-per-ton of MATS in the context of other rules under Section 112. (Comment C-2, C-24) 79

D. EPA has not attempted to separate the Non-HAP costs of MATS, which illustrates the arbitrariness of its selective consideration of benefits. (Comment C-2, C-24). 82

E. EPA inconsistently gives the indirect costs of regulating EGUs under Section 112 full weight while discounting or ignoring indirect benefits. (Comment C-2, C-24). 84

VI. EPA has not justified creating an exemption for waste coal facilities. (Comment C-11 through C-23). 86

A. The plants within the proposed subcategory can—and are—complying with the current acid gas standards. (Comment C-15, C-16, C-17, C-18). 86

B. EPA has suggested no valid technical basis for the sub-category. (Comment C-12, C-13, C-14, C-18). 88

C. EPA's proposed limits for the sub-category are not defensible. (Comments C-12, C-13, C-14, C-19, C-23). 89

VII. EPA'S proposal fails to satisfy the agency's obligations under CAA section 307(d)... 91

Conclusion 94

INTRODUCTION AND OVERVIEW

The Proposal is unlawful, arbitrary, and senseless; it is an exercise in selective myopia and outcome-driven inconsistency. EPA proposes, first and foremost, to ignore the most salient fact: The Mercury and Air Toxics Standards ("MATS") have been fully and successfully implemented. (Indeed, the electric utility industry itself has firmly opposed any effort to roll back MATS). Emissions of hazardous air pollutants ("HAPs") from EGUs – previously the United States' largest sources of HAPs including mercury, chromium, arsenic, nickel, selenium, hydrogen fluoride, hydrogen cyanide, and hydrogen chloride, National Emission Standards for Hazardous Air Pollutants from Coal- and Oil-Fired Electric Utility Steam Generating Units and Standards of Performance for Fossil-Fuel Fired Electric Utility, Industrial-Commercial-Institutional, and Small Industrial-Commercial-Institutional Steam Generating Units, 77 Fed. Reg. 9304, 9310-11, 9335 (Feb. 16, 2012), have fallen by 96 percent since 2015. 84 Fed. Reg. at 2689 (Table 4). Each of these pollutants, as well as other HAPs that MATS controls, are toxic contaminants that Congress itself listed because of their serious health and environmental harms. *See* 42 U.S.C. § 7412(b)(2) (HAPs are chemicals that are "carcinogenic, mutagenic, teratogenic, neurotoxic," "cause reproductive dysfunction," or have "acutely or chronically toxic" or "adverse environmental effects"). While declaring regulation of large-scale emissions of such pollutants not "appropriate," the Proposal rests on a preposterously incomplete analysis of the health and environmental consequences of regulating, and essentially no analysis of the real-world consequences of abandoning already implemented regulations. EPA's proposal, without reasoned explanation, contradicts EPA's own findings affirming the serious and widespread public health hazards posed by mercury and other HAPs. And the majority of the expenses associated with achieving those results are sunk—EPA's decision will not allow spent money to be un-spent.

(Comment C-2). The Proposal purports to follow a mandate to ensure "reasoned decisionmaking," *Michigan v. EPA*, 135 S. Ct. 2699, 2706 (2015) (citation omitted), with a skewed parody of a cost-benefit analysis that ignores reality in favor of a gerrymandered test that deliberately elides the actual consequences of EPA's decision. EPA uses an outdated projection of industry compliance costs that its record shows to be several times higher than the actual costs of compliance. And it has entirely excluded from its analytical focus the benefits of reductions in particulate matter emissions, including thousands of saved lives and avoided illnesses each year, on the theory that these benefits should be deemed legally inconsequential to the "appropriateness" of regulation.

EPA's proposal then performs a further gerrymander by denying any significant weight to the central objective and purpose of the statute – reducing hazards to human health from exposure to toxic pollutants listed by Congress in section 112. EPA accords almost no weight to massive reductions in these health hazards, and instead focuses on a sliver of underestimated monetized benefits, adopting a miniscule $4-6 million sum as the operative value of eliminating vast quantities of multiple HAPs. EPA uses that sum even though the Agency previously acknowledged that it represented only a tiny subset of a subset of the benefits. Proposed Supplemental Finding that it is Appropriate and Necessary to Regulate Hazardous Air Pollutants from Coal- and Oil-Fired Electric Utility Steam Generating Units, 80 Fed. Reg. 75,025, 75,040 (December 1, 2015); 81 Fed. Reg. at 24,441. Indeed, EPA acknowledges that because IQ is "not the most sensitive neurodevelopmental endpoint affected by [methylmercury] exposure,"

reliance on it "underestimates the impact of reducing methylmercury in waterbodies." 77 Fed. Reg. at 9373. And EPA's proposed approach ignores published studies showing that the monetized benefits of reducing mercury alone are orders of magnitude greater than it had estimated (and well in excess of the actual compliance costs). The Proposal's disregard of the benefits of large reductions in HAP emissions and associated health hazards is incompatible with Congress's determination that control of HAPs is a central priority. EPA's analysis, including its nearly exclusive reliance on a ridiculously small estimate of partial monetized benefits, is an unlawful effort to override legislative judgments that prioritize reducing public exposure to HAPs, particularly for sensitive populations.

Only through such rank distortions is EPA able to claim a "disproportionate" relationship between regulatory costs and regulatory benefits. The Proposal disregards the Clean Air Act's core, driving statutory interest in reducing health and environmental risks from HAP emissions. Moreover, EPA's Proposal fails to address or refute specific findings in the Supplemental Finding demonstrating that the significant benefits from regulation of power plant HAP emissions outweigh the disadvantages and that regulation of these emissions fully comports with Congress's objectives in section 112 of the Clean Air Act.

Although the Proposal claims support in *Michigan v. EPA*, nothing in the Supreme Court's decision supports EPA's proposed approach here. *Michigan* requires EPA to consider all of the consequences of the Agency's decision—including cost—as EPA's 2016 Supplemental Finding did, reasonably and from multiple dimensions. *Michigan* not only fails to support, but directly contradicts the kind of deliberately manipulated analysis EPA presents in the Proposal. And *Michigan* certainly did not authorize EPA to negate or second-guess Congress's judgment that HAP emissions are harmful and that reductions in hazardous air pollutants are an important public benefit and urgent priority. EPA's efforts to ignore the real-word consequences of regulation, including the thousands of premature fatalities and many more serious illnesses avoided, is counter to *Michigan*'s central tenet that determining whether regulation is "appropriate" requires consideration of all relevant factors. *Michigan*'s recognition that collateral health *harms* from section 112 regulation must be considered, 135 S. Ct. at 2707, directly contradicts EPA's effort to exclude from consideration the thousands of lives extended and improved by reductions in particulate matter pollution resulting from regulation. (Part I).

(Comments C-1, C-3, C-4, C-5, C-8, C-9). The Clean Air Act does not permit EPA to deregulate any listed source category without meeting the statutorily defined delisting requirements, and those are not satisfied here.[3] At this juncture that lack of authority also extends to reversing the appropriateness determination. To the extent the Proposal seeks to remove EGUs from section 112 regulation, it is plainly contrary to the statute. To the extent EPA is merely issuing a new "finding" that would leave regulation unaffected, then such a final rule is unauthorized and without purpose and therefore arbitrary and capricious. (Part II).

EPA's proposal to predicate a decision whether regulation is "appropriate" on a comparison of the entire cost to the regulated industry against EPA's incomplete assessment of the monetizable public benefits of reducing mercury emissions from EGUs disregards the core

[3] 42 U.S.C. § 7412(c)(9); *New Jersey v. EPA*, 517 F.3d 574 (D.C. Cir. 2008).

statutory purposes of section 112. In 1990, Congress deliberately withheld from EPA the authority to reweigh the value of reducing HAP emissions of the air toxics that Congress itself listed. EPA's Proposal also ignores the record, which shows that the 2011-2012 figure for monetized HAP benefits was only a small fraction of the total monetizable HAP-specific benefits of the MATS rule. That monetized estimate was too small and incomplete for EPA to draw any meaningful conclusions about the HAP-specific benefits, or the proportionality of those benefits to the costs to industry. Worse, the unreasonably small $4-6 million value EPA ascribes to mercury reductions completely ignores substantial studies demonstrating that the subset of benefits that have been monetized (all relating to mercury, and excluding all the other HAPs emitted in large volumes) have monetary values orders of magnitude larger than EPA's estimate, so as to themselves exceed compliance costs (and, *a fortiori*, wholly refute EPA's claim of "grossly disproportionate" costs). EPA, furthermore, has given no meaningful effect to the statute's clear concern with the distributional impacts of air toxics pollution, and its impacts on vulnerable groups including racial minorities and the poor – or justified the Agency's rejection of its own prior determinations that the Clean Air Act's concern with the impacts on vulnerable groups militates strongly in favor of regulation. (Part III).

EPA determined in 2012 that regulation of EGUs under section 112 would avoid 4,200 to 11,000 premature fatalities annually from respiratory and cardiovascular causes, and would provide additional benefits including avoiding 47,000 non-fatal heart attacks. 77 Fed. Reg. at 9429. These estimates alone yielded monetized health benefits many times greater than even EPA's original estimate of compliance costs. However, the Proposal deprives these real health benefits of any real weight in the "appropriateness" inquiry – declaring that they should not be given primary consideration because section 112's target is HAP pollutants alone. EPA's effort to ignore the "co-benefits" of regulation is contrary to the statutory "appropriate" language that (as *Michigan* emphasizes) requires consideration of all relevant factors – and that all significant effects of regulation (positive or negative) be considered. EPA's effort to blinker itself to real health harms is contrary to longstanding Executive Branch principles employed consistently by administrations of both parties for assessing proposed Agency action. Treating thousands of premature fatalities and hundreds of thousands of serious injuries as irrelevant to whether regulation is "appropriate" is manifestly unreasonable, and directly contrary to the core reasoning of the *Michigan* decision itself. That improving human health (or saving lives) would be a result of regulation is obviously an important consideration in determining appropriateness (just as, as *Michigan* noted, it would be unreasonable for EPA to ignore ancillary health harms that section 112 regulation might cause). EPA's approach contradicts *Michigan*'s core teaching and is irreconcilable with both common sense and, most importantly, a statute centrally concerned with human health. (Part IV).

The Proposal relies upon compliance cost estimates from 2012 that have proven to be dramatically overstated. Those estimates are based on predictions that the power sector would rely upon installation of specific pollution controls that – as the record reflects – in fact were in many cases not deployed by source owners, who instead opted for far less expensive methods of compliance. As the record shows, the $9.6 billion estimated cost of compliance for 2015 is many times greater than the actual compliance cost that occurred under MATS. The Proposal's reliance on compliance cost information now proven to be drastically overstated as a basis for its finding of "disproportionate" costs is arbitrary and unlawful. EPA's analysis of cost is arbitrary

in other ways as well, including its failure to distinguish between sunk and avoidable costs, and to consider what magnitude of cost per unit of pollution reduction Congress considered acceptable in section 112. (Part V).

(Comment C-11, C-12). EPA's Proposal to create a new subcategory for certain waste-coal plants is unlawful and unsupported. EPA has not identified any valid technical basis for such a subcategory, and EPA's own prior findings and experience under MATS demonstrate that the subcategory is unwarranted. (Part VI).

Finally, EPA's Proposal fails to satisfy the requirements of section 307(d) of the Clean Air Act. (Part VII).

I. THE PROPOSAL RESTS UPON FUNDAMENTAL LEGAL ERRORS AND HOPELESSLY FLAWED REASONING.

A. The *Michigan* decision does not support the proposed revised finding (Comment C-2).

The Proposal invokes the Supreme Court's decision in *Michigan v. EPA* as the impetus for EPA's proposed new methodology for determining whether regulation of EGUs is "appropriate and necessary." *E.g.*, 84 Fed. Reg. at 2670, 2072, 2074, 2075. *Michigan*, however, does not support—let alone require—EPA's proposed approach. In fact, *Michigan* demonstrates that EPA's proposal is both unlawful and arbitrary.

As an initial matter, EPA's reading of the Supreme Court's decision in *Michigan* is not entitled to deference. *See New York New York, LLC v. N.L.R.B.*, 313 F.3d 585, 590 (D.C. Cir. 2002) (when NLRB's decision "purport[ed] to rest on the Board's interpretation of Supreme Court opinions ... the Board's judgment is not entitled to judicial deference"); *Akins v. Fed. Election Comm'n,* 101 F.3d 731, 740 (D.C. Cir. 1996) (declining to defer under *Chevron* to FEC decision based on an interpretation of Supreme Court precedent). As shown below, EPA distorts the opinion's holding and directives.

The Proposal's reliance on *Michigan* is deeply flawed: First, EPA incorrectly claims that the Court's decision imposed strictures on EPA's methodology for considering cost under section 112(n) that preclude both of the approaches embraced in the 2016 Supplemental Finding. In fact, the Court was careful *not* to so confine EPA's judgment, and did *not* preclude either of the carefully reasoned approaches in the Supplemental Finding. Second, the Proposal would violate what *Michigan* does require: That EPA must give effect to the ordinary meaning of the term "appropriate" by considering clearly relevant factors, including cost of regulation. EPA now proposes to disregard the health harms that regulation would prevent—an error logically identical to the error found by the Supreme Court in *Michigan*. Thus, *Michigan* not only fails to support EPA's new approach, but also directly contradicts it. *Michigan* nowhere supports the use of a blinkered, biased analysis that ignores critically important consequences of regulation to determine whether regulation of EGU emissions of HAPs is "appropriate."

1. The Proposal's claims that the 2016 Supplemental Finding violates *Michigan*'s holdings or rationale are incorrect.

The Proposal asserts that "[t]he primary, fatal flaw of the 2016 Supplemental Finding's 'preferred approach' was its disregard for the *Michigan* Court's suggestion that, under CAA Section 112(n)(1)(A), the Agency must meaningfully consider cost within the context of a regulation's benefits." 84 Fed. Reg. at 2674. EPA claims that "the purpose of CAA Section 112(n)(1)(A) as set forth in *Michigan*" supports the Proposal's new approach—to "directly compare the cost of compliance with MATS with the benefits specifically associated with reducing emissions of HAP." *Id.*

The Proposal mischaracterizes both the Supplemental Finding and *Michigan*. In the 2016 Supplemental Finding, EPA *did* consider—and properly gave substantial weight to—the fact that regulation under section 112(n) would eliminate large quantities of air toxics that Congress listed under section 112(n), thereby providing exactly the public benefits that section 112 was adopted to provide. 81 Fed. Reg. at 24,424-25; *see also infra* Part III. EPA's 2016 analysis also properly balanced those health benefits against the costs of regulation. Thus, EPA "weighed [identified compliance] costs against the previously identified advantages of regulating HAP emissions from EGUs—including the Agency's prior conclusions about the significant hazards to public health and the environment associated with such emissions of HAP and the volume of HAP that would be reduced by regulation of HAP under CAA Section 112." 81 Fed. Reg. at 24,423. EPA also correctly gave weight to "Congress's determination that HAP emissions are inherently harmful, and the instruction from Congress to protect the most sensitive populations from those harms." 81 Fed. Reg. at 24,424.

The Supplemental Finding properly and reasonably took account of the "context" in which the term "appropriate" appears in the statute—as part of an entire statutory program dedicated to reducing pollutants Congress has specifically designated as hazardous to human health. *See* 81 Fed. Reg. at 24,426-27. As explained in more detail *infra* Part III, EPA's current Proposal strips the "appropriateness" inquiry from its statutory context, and trivializes HAP-reduction benefits, such that the statute's central concern with protecting health and the environment from these particularly harmful pollutants carries almost no weight in EPA's decisionmaking.

Contrary to the Proposal's suggestion, *Michigan* nowhere suggests that EPA's consideration of benefits of toxic emissions had to come in the form of a *monetized* estimate, or that the only benefits with real weight for consideration in an appropriateness determination under section 112(n) are those bearing dollar signs. No language in section 112(n) supports that idea, and the Court expressly refused to endorse it. *See Michigan*, 135 S. Ct. at 2711 ("We need not and do not hold that" EPA should "assign[] a monetary value" to the benefits of reducing air toxics). The idea that Congress would have wanted EPA to give significant weight only to the *monetized* benefits of reducing emissions of the toxic pollutants that Congress listed in section 112 is implausible. It is incompatible with a statutory regime that makes control of toxics a mandatory, automatic obligation for emissions above quantitative thresholds, and with Congress's intent in the 1990 Clean Air Act Amendments to dispense with a regulatory approach that had led to chronic delays in controlling toxic air pollution. *See* 81 Fed. Reg. at 24,448; *see also* S. Rep. No. 101-228 at 182 (1989), *reprinted in* Legis. History of the Clean Air Act Amendments of 1990 at

8522 ("Leg. Hist.") ("The public health consequences of substances which express their toxic potential only after long periods of chronic exposure will not be given sufficient weight in [a] regulatory process when they must be balanced against the present day costs of pollution control and its other economic consequences."); Legal Memorandum Accompanying the Proposed Supplemental Finding, Docket ID No. EPA-HQ-OAR-2009-0234-20519 ("Legal Memorandum") at 23 n.27 ("Monetized benefits are at least two steps removed from risk identification, thus they are even more difficult to assess than risk.").

EPA cannot claim justification in the *Michigan* decision for the Proposal's arbitrary and biased approach to cost. The *Michigan* majority specifically emphasized that EPA would have "flexibility" in deciding how to factor cost into its "appropriateness" decision, 135 S. Ct. at 2707, and explicitly left it to EPA "to decide (as always, within the limits of reasonable interpretation) how to account for cost." *Id*. at 2711. *See also id.* at 2708 ("[R]easonable regulation ordinarily requires paying attention to the advantages and the disadvantages of Agency decisions."); *id*. at 2711 ("Read naturally in the present context, the phrase 'appropriate and necessary' requires at least some attention to cost.").

Michigan therefore offered EPA some room to consider costs – but in a reasonable manner. The *Michigan* Court certainly did not prescribe the particular approach to considering cost that EPA now wishes to adopt. EPA cannot, as it tries to do in the Proposal, simply assert that whatever its chosen methodology, its cost-benefit consideration bears the imprimatur of the Supreme Court's decision. Indeed, the Agency previously concluded that the best approach to assessing costs under section 112(n)(1)(A) was through a set of industry-relevant cost-reasonableness metrics, including percentage of revenues, percentage of total capital expenditures and production costs, and increases in retail electricity prices.[4] The Agency thoroughly justified this methodology,[5] and it has robustly defended its approach before the D.C. Circuit:

> [T]he record demonstrates that in fact, in the Supplemental Finding, EPA thoroughly evaluated costs, which EPA found to be relatively modest compared to sector revenues, expenditures, and historical rate changes, and found that the sector could incur the costs while maintaining an adequate supply of electricity, and then considered those cost factors in light of specific public health and environmental hazards that EPA had already determined exist as a result of hazardous air pollutant emissions from power plants. . . .[6]
>
> EPA may have weighed the relevant factors under CAA section 112(n)(1)(A) differently than Petitioners would have liked, and certainly reached a conclusion different than what Petitioners would have preferred, but EPA's approach and conclusion were

[4] 81 Fed. Reg. at 24,426.

[5] *See id.* at 24,434-37.

[6] Br. of Respondent U.S. EPA, *Murray Energy v. EPA*, D.C. Cir. No. 16-1127, at 36 (filed Jan. 18, 2017).

> thoroughly explained and well-supported by the record. Given the discretion EPA is allowed under the statute, *Michigan*, and this Court's case law to weigh relevant factors, EPA's consideration of costs and weighing of costs with hazards to public health and the environment, and its ultimate conclusion, are reasonable. *Motor Vehicle Mfrs. Ass'n*, 463 U.S. at 43. EPA's preferred approach thus satisfies its duty under the statute and *Michigan*.[7]

In contrast, EPA has failed in this proposal to explain why it is departing from this approach, rendering the current proposal arbitrary.[8] The Agency cannot rely on a mistaken interpretation of *Michigan* and section 112 to support discarding its previous approach and taking a new tack focused solely on a biased cost-benefit analysis.[9]

Equally groundless is EPA's suggestion that *Michigan* supports rejecting the alternative approach from the Supplemental Finding, which is based upon the cost-benefit analysis performed in the Regulatory Impact Analysis for the Final Mercury and Air Toxics Standards, Docket ID No. EPA-HQ-OAR-2009-0234-20131 (Dec. 2011) ("RIA"), which includes avoided mortality and health effects attributable to reductions in particulate matter resulting from HAP controls. EPA wrongly asserts that:

> [I]f 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 for purposes of a determination that it is appropriate to regulate under CAA section 112(n)(1)(A). *Cf. Michigan*, 135 S. Ct. at 2707 ("One would not say that it is even rational, never mind 'appropriate,' to impose billions of dollars in economic costs in return for a few dollars in health or environmental benefits.").

84 Fed. Reg. at 2676.

Michigan simply does not support this argument. Instead, EPA makes the false assumption that the absence of monetized estimates of the benefits of significant reductions in emissions of mercury and multiple other HAPs means those benefits deserve little to no weight at all. In fact, as EPA explained in the Supplemental Finding, all of the HAP reductions resulting

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[7] *Id.* at 42.

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

[9] *Prill v. NLRB*, 755 F.2d 941, 947-48 (D.C. Cir. 1985) ("An Agency regulation must be declared invalid, even though the Agency might be able to adopt the regulation in the exercise of its discretion, if it was not based on the [Agency's] own judgment but rather on the unjustified assumption that it was Congress' judgment that such [a regulation is] desirable." (internal citations omitted)); *see also U.S. Postal Serv. v. Postal Regulatory Comm'n*, 640 F.3d 1263, 1264 (D.C. Cir. 2011) (remanding the Commission's interpretation of the Postal Accountability and Enhancement Act of 2006 because it incorrectly concluded the plain meaning of the statutory language required a particular result); *NextEra Desert Ctr. Blythe v. FERC*, 852 F.3d 1118, 1122 (D.C. Cir. 2017) (remanding order to Commission because its decision rested "on an erroneous assertion that the plain language of the relevant wording is unambiguous").

from MATS are important and align with section 112's core purpose, and must be granted substantial weight—arguably even greater than their full monetized value— not trivialized.[10]

Second, the language from *Michigan* cited in the Proposal's "*cf*." cite, 84 Fed. Reg. at 2676, excerpted above, does not purport to address the question whether EPA must (or whether it may) disregard avoided losses reflecting lives lost and hospitalizations avoided from regulation under section 112 on the basis that these savings relate to non-"target" pollutants. The Proposal's effort to recast *Michigan* as having *precluded* giving weight to "co-benefits" is fully belied by the fact that the Court expressly reserved that point, noting that EPA had not relied on the RIA as a basis for its appropriateness decision. 135 S. Ct. at 2711.

Indeed, while the Court in *Michigan* was careful not to hold that a full cost-benefit analysis is *required*, the Court's opinion strongly suggests that such an analysis would at least *suffice* as a means of considering cost under section 112(n)(1): "We need not and do not hold that the law unambiguously required the Agency, when making this preliminary estimate, to conduct a formal cost-benefit analysis in which each advantage and disadvantage is assigned a monetary value."[11] *Michigan*, 135 S. Ct. at 2711. Furthermore, as noted below, the Court's affirmation that EPA must take account of indirect costs, 135 S. Ct. at 2707 (discussing indirect health cost hypothetical), strongly supports the proposition that it also must account for indirect benefits—a view incompatible with the Proposal's espousal of a gerrymandered tally of costs and benefits.

EPA also errs by attributing to the Supreme Court a belief that cost should "trump" or "predominate" other considerations. 84 Fed. Reg. at 2675. *Michigan*'s observation that "Agencies have long treated cost as a centrally relevant factor when deciding whether to regulate," *Michigan*, 135 S. Ct. at 2707, was not a holding that cost is more important than other

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[10] And EPA now does unreasonably trivialize the benefits of MATS. EPA's own 2011 and 2016 records show, a more complete, monetized estimate of even some of the HAP benefits of MATS is many times greater than the 2011 RIA estimate on which EPA predicates its Proposal. As discussed *infra* at Part III, rather than the $4-6 million annual benefits claimed by the Agency now, in fact EPA's record shows that a subset of annual mercury benefits alone is worth many, many times that amount to the U.S. economy. Comment Letter from Amanda Giang & Noelle Selin to Dr. Nick Hutson, Jan. 15, 2016, EPA-OAR-2007-0234-20544, Exh. 1 (including Amanda Giang & Noelle E. Selin, Benefits of Mercury Controls for the United States, 113 PNAS 286 (Dec. 28, 2015, printed copy Jan. 12, 2016), Exh. 2. Other research since 2016 suggests a value for some mercury benefits of the rule (still not all are monetized) of $4.8 billion annually. P. Grandjean & M. Bellanger, Calculation of the Disease Burden Associated with Environmental Chemical Exposures: Application of Toxicological Information in Health Economic Estimation, 123 Envtl. Health Persp. 16 (Dec. 5, 2017) Exh. 3; Giuseppe Genchi *et al*., Mercury Exposure and Heart Diseases, 14 Int'l J. Envtl. Research Pub. Health 74 (Jan. 12, 2017), Exh. 16.

[11] Though the Court never suggested that EPA could revisit Congress' determinations as to the benefits of controlling HAP; any cost-benefit analysis by the Agency must necessarily defer to the values Congress placed on the reduction of health harms from HAP, when weighing the benefits of such reductions. *See* Part III.A, below.

factors to be considered, such as the benefit of reducing hazardous air pollutants, but merely a preamble to the Court's finding that EPA should not have given cost "no thought at all" and should pay "at least some attention to cost" as part of its consideration of all relevant factors. *Id.* at 2706-07.

2. The proposed approach is contrary to *Michigan*'s core teaching.

Far from providing support for the Proposal, *Michigan* actually *contradicts* EPA's proposed new approach to assessing whether regulation of HAP emissions from EGUs is "appropriate." A central premise of the *Michigan* decision is that the broad term "appropriate" shows that Congress did not want to foreclose EPA from considering relevant factors — including cost—that are ordinarily important in Agency decisionmaking. As the *Michigan* Court explained:

> One does not need to open up a dictionary in order to realize the capaciousness of this phrase. In particular, 'appropriate' is 'the classic broad and all-encompassing term that naturally and traditionally includes consideration of all the relevant factors. 748 F.3d at 1266 (opinion of Kavanaugh, J.).

135 S. Ct. at 2707. *Michigan* holds that an Agency cannot, in deciding what is "appropriate," excise relevant factors from consideration.

The Proposal's approach disregards factors that are ordinarily part of reasonable regulation, and thus is irreconcilable with *Michigan*'s emphasis on the breadth of the term "appropriate." It arbitrarily truncates EPA's assessment of the consequences of its decision, and excludes from consideration a critically important set of those consequences: the public health concerns at the heart of the Clean Air Act. Those are obviously relevant, indeed central, to any rational examination of whether regulation under section 112 is "appropriate." Whether an Agency's decision *not* to regulate will permit thousands of premature deaths (and tens of thousands of additional nonlethal but serious health impacts such as heart attacks) is clearly a "relevant factor[]" in determining whether regulation is appropriate." EPA's proposed approach effectively gives these benefits of regulation no discernable weight whatsoever. That is unreasonable.

Indeed, the logic of *Michigan* rules out EPA's arbitrarily selective approach to cost-benefit analysis. In explaining the flaws in EPA's interpretation that cost is "irrelevant" in determining appropriateness, the Court considered a hypothetical scenario in which pollution controls for HAP emissions from power plants reduce HAP emissions, but have the unfortunate side effect of harming human health. The Court said:

> The Government conceded that if the Agency were to find that emissions from power plants do damage to human health, but that the technologies needed to eliminate those 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.

135 S. Ct. at 2707. Under the logic of *Michigan* and the plain understanding of "appropriate," the effects of a government action on life and health are an important component of whether such action is "appropriate." A regulatory decision that causes thousands of excess deaths a year (or fails to prevent them) cannot reasonably be deemed "appropriate" (at least without an exceptionally compelling explanation that is entirely missing in the Proposal). That is particularly so for a decision made in the context of section 112 of the Clean Air Act, the overarching purpose of which is deep, technology-based reductions to emissions of hazardous air pollutants. It does not matter, moreover, that many of those deaths may result from reductions in emissions of pollutants controlled by regulating, but not what EPA considers the "target" pollutants: Justice Scalia's hypothetical was of a regulation that would reduce HAP emissions but, in doing so, cause collateral harm to human health. The indirect costs to public health in the *Michigan* majority's hypothetical are logically indistinguishable from the indirect benefits to public health associated with the real-world case of the MATS rule.

The situation here is not hypothetical, but real. EPA's 2011 RIA (which did not include all monetizable benefits of certain HAP reductions) found that regulation of HAPs from power plants would save between 4,200 and 11,000 lives annually from respiratory and cardiovascular causes, and would provide massive additional benefits including avoiding 47,000 non-fatal heart attacks annually, obviating 3,100 emergency room visits for asthmatic children, and avoiding 540,000 days of lost work from air pollution-related illness. 77 Fed. Reg. at 9429.

Michigan teaches that the impacts of the Agency's action on human life and health necessarily inform a decision on whether regulation is "appropriate." Just as, in the Court's words, "[n]o regulation is 'appropriate' if it does significantly more harm than good," 135 S. Ct. at 2707, so too a decision that it is *not* appropriate to regulate under section 112 cannot be reasonable if it causes thousands of excess deaths every year. Yet EPA's Proposal arbitrarily excludes these lost lives and illnesses from consideration. The Proposal is irreconcilable with the judicial decision that is its ostensible basis.

B. The Proposal unreasonably fails to address the concern at the heart of Section 112: the health effects of uncontrolled air toxics emissions from power plants (Comment C-2).

EPA proposes "to find that it is not appropriate and necessary to regulate coal- and oil-fired EGUs under section 112" of the Clean Air Act, claiming to have paid "particular heed to the statutory text and purpose of Section 112(n)(1)(A)." 84 Fed. Reg. at 2678. This is especially outrageous because, as explained below, EPA has effectively read out of the statute the only criterion that subection 112(n) expressly directs EPA to consider in making its determination—"hazards to public health." 42 U.S.C. § 7412(n)(1)(A). A further problem is that, through a myopic focus on subsection 112(n), the Agency fails to sufficiently attend to the context of its decision: the text and purpose of section 112 as a whole. Both the text of section 112 and its history demonstrate the value Congress placed on preventing the harms caused by mercury and the other toxic pollutants addressed by MATS. In 1990, Congress withdrew EPA's authority to judge the importance of the harms caused by air toxics when it listed specific pollutants in section 112(b), and targeted them for deep cuts using the best technologies available. Leg. Hist. at 8496 (S. Rept. No. 101-228). Congress recognized their "potent" and "especially serious health risks," even in small amounts, including "birth defects, damage to the brain or other parts

of the nervous system, reproductive disorders, [] genetic mutations," and cancer. Leg. Hist. at 2524 (House Debate); *see also* 42 U.S.C. §7412(b)(2) (describing characteristics of pollutants). Congress also recognized the insufficiency of purely quantitative or monetary assessments of those particular pollutants' harm. Leg. Hist. at 8522 (S. Rept. No. 101-228) (concluding that because of the nature and latency of harms posed by toxic air pollutants, they "will not be given sufficient weight in [a] regulatory process" by which "they must be balanced against the present day costs of pollution control and its other economic consequences"). For that reason, the statute provides "bright lines," *id.* at 8521, specifying the harms that Congress itself thought are "worth it" to eliminate. 84 Fed. Reg. at 2675.

The Supreme Court held that section 112(n)(1)(A) required EPA to consider cost. It did not require a formal cost-benefit analysis and made clear that "it will be up to the Agency to decide (as always, within the limits of reasonable interpretation) how to account for cost." 135 S. Ct. at 2,711. Nothing in *Michigan* lends even the slightest support to EPA's current bid to overwrite the values Congress assigned to air toxics' harms with its own alternative sense of those harms' weight. Further, *Michigan* does not support establishing an arbitrary test under which only the benefits that have been monetized should be considered, and those benefits must be "moderately commensurate" to compliance costs. *Id.* ("We need not and do not hold that" EPA should "assign[] a monetary value" to the benefits of reducing air toxics) (although a reasonable effort to quantify the benefits of hazardous air pollutant reductions would indicate that those benefits are fully adequate to justify the costs of the MATS rule, as explained elsewhere in these comments).

Yet in the proposal, EPA deems regulation of power plant HAP emissions not appropriate, based virtually entirely upon its claim that it has independently revisited the value of reducing the pollutants listed in section 112(b), and found that value to be *de minimis*. EPA makes no further effort to describe, much less assess, the consequences of failing to regulate coal- and oil-fired power plants' for section 112's core goals—even though those plants are the United States' largest sources of mercury, chromium, arsenic, nickel, selenium, hydrogen fluoride, hydrogen cyanide, and hydrogen chloride. 77 Fed. Reg. at 9310-11, 9335. Before issuing the MATS rule, EPA projected that the standards would eliminate over a third of total *national* anthropogenic emissions of mercury, arsenic, chromium and nickel, and cut acid gas emissions by nearly half. *Id.* at 25,014-15. The current proposal presents evidence suggesting that the standards have produced even deeper cuts than EPA expected. 84 Fed. Reg. at 2689 & Table 4. And independent studies confirm MATS' extraordinary effectiveness in achieving section 112's goals. *See* Giang & Selin, Exhs. 1 & 2. EPA now provides no explanation of why the costs of this rule to industry are so extraordinary as to allow it to forego the massive reductions in HAP emissions due to MATS, particularly given those reductions' centrality to section 112's manifest purposes, and Congress' imposition of proportionately similar costs on other industries in order to achieve reductions in air toxics. *See* Part V.C. (noting cost-effectiveness of MATS). Nor has EPA offered any statutorily grounded explanation for its novel requirement that monetizable HAP benefits be "moderately commensurate" with compliance costs in order to warrant regulation. The structure and purpose of section 112 indicate just the opposite: namely, that it would only be appropriate not to regulate hazardous pollution from EGUs if the costs of doing so were so great as to outweigh the congressionally recognized value of HAP reductions.

EPA proposes to find, in other words, that—in direct contradiction of Congress' determination—reducing the harms posed by emissions of those pollutants is not "worth it." 84 Fed. Reg. 2675. EPA reaches that conclusion without grappling, in any meaningful way, with most of the harms to the public posed by those pollutants, or the statutory purposes. Instead it relies on an analysis of only some of the harms, undertaken for an entirely different purpose, and that disregards information in its own record. *See infra* Part I.E. (discussing that the RIA analysis was not prepared as the basis for a decision to regulate and does not include all the information available to the Agency on benefits in 2011). EPA's rationale assumes the Agency's ability to quantify and monetize harms that Congress already determined warrant a stringent control regime, that Congress nowhere required EPA to monetize, and that both section 112's legislative history and the Proposal itself recognizes are inherently difficult to quantify or monetize.[12] Leg. Hist. at 8522 (S. Rept. No. 101-228). EPA does not—and cannot—reconcile its current approach with the text and purpose of section 112.

EPA's approach to considering the benefits of MATS, which effectively gives weight only to health harms that are both quantifiable and monetizable using existing data and methods, is contrary to the text of section 112(n)(1) because it excludes, or gives no discernable weight to, "the hazards to public health reasonably anticipated to occur" as a result of HAP emissions from power plants. As EPA has long and consistently recognized, and as confirmed by other provisions of section 112, the term "hazard to public health" encompasses risks that may not be quantifiable or monetizable with current methods. *See* 77 Fed. Reg. 9304 ("we do not interpret CAA section 112(n)(1)(A) as providing Congressional license to ignore risks that Congress determined warranted regulation"); National Emissions Standards for Hazardous Air Pollutants from Coal- and Oil-Fired Electric Utility Steam Generating Units, and Standards of Performance for Fossil-Fuel-Fired Electric Utility, Industrial-Commercial-Institutional, and Small Industrial-Commerical-Institutional Steam Generating Units, 76 Fed. Reg. 24,976 (May 3, 2011) ("Proposed MATS") ("the Agency reads section 112(c)(9)(B)(i) to reflect Congress' view of the acceptable hazard to public health for HAP that may cause cancer."). The D.C. Circuit unanimously upheld this interpretation, *White Stallion Energy Ctr., LLC v. EPA*, 748 F.3d 1222, 1236 (D.C. Cir. 2014), and the issue was not appealed. The hazards to public health from power plants' HAP emissions, including cancer risk and other health risks, are significant and substantial, yet EPA affords these risks no significant weight in its analysis. By only focusing on quantifiable and monetizable harms, and disregarding health risks that EPA has consistently recognized as constituting serious hazards, EPA contravenes the plain text of section 112(n). The Agency also has failed to acknowledge or explain the change in its prior consistent recognition that "hazards to public health" encompasses unacceptable risks of cancer and other health harms, without regard to whether these risks are monetizable.

[12] *E.g.,* Leg. Hist. at 8522 (S. Rep. No. 101-228) (recognizing the difficulties of "giv[ing] sufficient weight" to "substances which express their toxic potential only after long periods of chronic exposure"); *see* 84 Fed. Reg. at 2678 n.15 (emphasizing severe limitations on EPA's ability to quantify and monetize such harms).

C. EPA unlawfully proposes to find that regulation is not "appropriate" without sufficient explanation and consideration of the relevant factors (Comment C-2).

Even assuming arguendo that EPA has the authority to reverse its 2016 determination that it is "appropriate" to regulate coal- and oil-fired power plants under section 112, *but see infra* Part II, EPA must provide a reasoned basis for its change of position, which it has failed to do. EPA claims in the Proposal that the costs of compliance "greatly outweigh" the benefits of the MATS rule, that EPA impermissibly gave "equal weight" to fine particulate matter ("$PM_{2.5}$") air quality co-benefits, 84 Fed. Reg. at 2676, and that the Supplemental Finding ignores the Supreme Court's "suggestion" in *Michigan* that EPA "must meaningfully consider cost within the context of a regulation's benefits." 84 Fed. Reg. at 2675. None of these contentions has merit. Moreover, EPA's proposal ignores, or arbitrarily rejects, specific conclusions of the Supplemental Finding demonstrating that the significant benefits from regulation of HAP emissions from power plants outweigh the disadvantages and that regulation of these emissions fully comports with Congress's objectives in section 112 of the Clean Air Act ("CAA").

Under the Clean Air Act, a court may overturn EPA action found to be "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law," or "in excess of statutory … authority … ." 42 U.S.C. § 7607(d)(9)(A),(C). *See also Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto Ins. Co.*, 463 U.S. 29, 43 (1983) (Agency decision must be "based on a consideration of the relevant factors" and Agency cannot "rel[y] on factors which Congress has not intended it to consider") (internal citation and quotation omitted). Agency action is arbitrary and capricious if the Agency fails to "examine the relevant data and articulate a satisfactory explanation for its action including a 'rational connection between the facts found and the choice made.'" *State Farm*, 463 U.S. at 43 (internal citation omitted).

These basic principles apply to Agency proposals to change past decisions as well. An Agency must demonstrate that the change in policy "is permissible under the statute" and that "there are good reasons" for it. *Fox,* 556 U.S. at 515. An Agency cannot simply ignore its prior factual determinations but must provide a "reasoned explanation" for its proposed departure from "facts and circumstances that underlay or were engendered by the prior policy." *Id.* at 516; *see also Public Citizen v. Steed*, 733 F.2d 93, 98 (D.C. Cir. 1984) (Agency must '"cogently explain"' basis for reversal of prior position) (quoting *State Farm*, 463 U.S. at 48).

EPA claims in the Proposal that neither the "cost reasonableness" test nor the benefit-cost analysis in the 2016 Supplemental Finding satisfies EPA's obligation under CAA section 112(n)(1)(A) as interpreted by the Court in *Michigan*. EPA faults the benefit-cost analysis, claiming that the costs "dwarf" the benefits,[13] 84 Fed. Reg. at 2677, and that EPA impermissibly placed "equal reliance" on co-benefits, 84 Fed. Reg. at 2675. As to costs, the Proposal also relies on cost projections set forth in the 2011 RIA, contending that "it is reasonable for purposes of this reconsideration to rely on the estimates projected prior to the rule's taking effect," because

[13] As discussed *supra*, nothing in the statute or the Court's decision in *Michigan* requires a cost-benefit analysis or mandates any particular type of cost analysis. Further, the "cost-benefit" analysis in the Proposal is contrary to well-recognized economic principles, OMB's Circular A-4, and EPA's own economic guidance as discussed in Part IV. *infra*.

the appropriate and necessary finding "is a threshold analysis that Congress intended the Agency would complete prior to regulation." 84 Fed. Reg. at 2678. This assertion ignores reality: EPA has made the threshold determination and listed the industry, the MATS rule is in place, and power plants have installed controls to comply with the MATS rule at far lower cost than the 2011 predictions. EPA cannot turn back the clock and pretend otherwise. Even assuming that EPA could reconsider its "appropriate and necessary" determination, it cannot lawfully do so by ignoring the actual costs of compliance and instead relying on cost predictions that it knows are wrong—that is the antithesis of reasoned decision-making. Moreover, EPA ignores studies included in the Supplemental Finding record (and acknowledged but not analyzed or commented on by the Agency there) indicating that the "monetized mercury benefits from MATS could be in the hundreds of millions to billions of dollars per year." 81 Fed. Reg. at 24,441; *see also* Giang & Selin, Exhs. 1 & 2; *see infra* Part III (discussing this issue, and further documenting studies in EPA's record showing significant additional monetary benefits from regulation).

The lack of a reasoned basis for EPA's Proposal is also evident from EPA's statement that, "even assuming that actual costs and benefits differed from projections made in 2011, given the large difference between target HAP benefits and estimated costs, the outcome of the Agency's proposed finding here would likely stay the same." 84 Fed. Reg. at 2678. EPA has no basis for such an assertion in the absence of a consideration of the actual costs—and without properly taking into account the value of benefits – both those that can be monetized, as shown by the Agency's own record, and those that cannot be monetized, which EPA has failed to do.

Second, EPA's claim that the Supplemental Finding put co-benefits on "equal footing" with HAP specific benefits, 84 Fed. Reg. at 2676, is wrong. To begin, the Proposal ignores the fact, documented in EPA's record, that particulate matter encompasses particulate-bound mercury and non-mercury metal HAPs in addition to particulate matter that is controlled as an unavoidable result of controlling acid gas HAPs (or sulfur dioxide, the regulatory surrogate for acid gas HAPs). *See, e.g.,* 81 Fed. Reg. at 24,438 n.29 ("'$PM_{2.5}$ emissions are comprised in part by the mercury and non-mercury HAP metals that the MATS rule is designed to reduce.'") (quoting 80 Fed. Reg. at 75,041). As EPA explained in the Supplemental Finding, the control technologies needed to reduce EGU HAP emissions also necessarily result in concomitant reductions of other pollutants, including directly emitted particulate matter (both filterable PM and $PM_{2.5}$) and SO_2 (a $PM_{2.5}$ precursor). *See* 81 Fed. Reg. at 24,438. The Proposal also ignores the fact that one cannot be controlled without the other:

> The only way to effectively control the particulate-bound mercury and non-mercury metal HAP is with PM control devices that indiscriminately collect all PM along with the metal HAP, which are predominately present as particles. Similarly, emissions of the acid gas HAP (hydrogen chloride, hydrogen fluoride, hydrogen cyanide, and selenium oxide) are reduced by acid gas controls that are also effective at reducing emissions of SO_2 (also an acid gas, but not a HAP).

Id. at 24,438 n. 29 (quoting 80 Fed. Reg. at 75,041). EPA's current failure to acknowledge these facts, along with its rejection of "co-benefits," is arbitrary and capricious.

Turning to the Proposal's consideration of EPA's "cost reasonableness" test, EPA claims the "primary, fatal flaw" of this approach was its disregard of the Supreme Court's "suggestion" in *Michigan* that EPA "must meaningfully consider cost within the context of a regulation's benefits." 84 Fed. Reg. at 2675. It concluded that the Supplemental Finding's approach "did not adequately address the Supreme Court's instruction that a reasonable regulation requires an Agency to fully consider 'the advantages *and* the disadvantages' of a decision." 84 Fed. Reg. at 2675 (quoting *Michigan*, 135 S. Ct. at 2707; emphasis in *Michigan*). EPA's interpretation of *Michigan* is wrong. *See* Part I.B. *supra*.

EPA has, moreover, failed to provide a reasoned explanation for its decision to disregard a host of critical conclusions made within its 2016 Supplemental Finding. In the Supplemental Finding, EPA considered the full range of factors relevant to the appropriate and necessary determination, *see* 81 Fed. Reg. at 24,421, 24,422-25, and found that the significant public health and environmental benefits from controlling HAP emissions outweigh the costs, *see, e.g.*, *id.* at 24,421-22, 24,424. EPA also recognized the congressional goals of "reducing the inherent hazards associated with HAP emissions" and of "protecting the public, including sensitive populations, from risks posed by HAP emissions by reducing the volume of, and thus, the exposure to, those harmful pollutants." *Id.* at 24,429. Further, as EPA explained, in some cases the impacts are impossible to quantify or they cannot be represented by monetary values, "but are no less real than any other advantage of regulation." *Id.* As such, EPA took into account "distributional concerns," including the "more severe risks from EGU HAP emissions to the most sensitive individuals, particularly subsistence fishers." *Id.* *See also id.* at 24,439 n.34 ("distributional concerns, such as impacts to the most exposed and sensitive individuals in a population, are important for MATS"); *id.* at 24,442 (recognizing disproportionate impacts from mercury emissions on Native Americans where fishing is an important part of tribal culture and traditions).

EPA claims in the Proposal that it acknowledged the importance of HAP-related benefits that cannot be quantified, 84 Fed. Reg. at 2678, but it merely pays lip service to these values, failing to explain what weight it gave these benefits or how it accounted for them. *See* Part III *infra*. With its narrow focus on costs, and its limited view of benefits of regulation, the Proposal almost entirely ignores the statutory goals of achieving permanent and ongoing reductions in HAP emissions and reducing the associated risks to the public, including the most exposed and vulnerable individuals.

The Proposal ignores a number of other related, specific conclusions from the Supplemental Finding. For example, in its analysis in the Supplemental Finding, EPA pointed out that the monetized mercury HAP benefits estimated in the 2011 RIA "significantly underestimate" these benefits, 81 Fed. Reg. at 24,441, but the Proposal entirely ignores this important point. In addition, EPA in the Supplemental Finding referred to new research submitted by commenters, *see infra* section III, that further corroborated its conclusion that the HAP benefits were underestimated. *Id.* ("monetized mercury benefits from MATS could be in the hundreds of millions to billions of dollars per year"). Here again, the Proposal does not even mention the results of this research, or any other more recent research, never mind considering it. Instead, EPA's narrow focus in the Proposal on costs—and even setting aside for the moment its

impermissible reliance on inaccurate cost predictions rather than actual costs—demonstrates that EPA has not paid adequate attention to the "advantages" of regulation.[14]

Nor does EPA give weight to "the persistent nature of HAP such as mercury," and the fact that mercury, "once emitted, can be re-emitted in the future, thereby resulting in continued contribution to mercury deposition and associated health and environmental hazards." 81 Fed. Reg. at 24,429. Indeed, EPA's record contained information describing cumulative monetized benefits just of the MATS mercury reductions to the U.S. economy, on the order of hundreds of billions of dollars by 2050. Giang & Selin, Exhs. 1 & 2.

EPA's Proposal additionally fails to consider the "serious reliance interests" of states, the public, and industry in maintaining the "appropriate and necessary" determination and the MATS rule. *See Fox*, 556 U.S. at 515 (Agency must provide "more detailed justification . . . when, for example, . . . its prior policy has engendered serious reliance interests that must be taken into account"). And certainly, the public has "serious reliance interests" in the Supplemental Finding's "appropriate and necessary" determination. As a result of the MATS rule, HAP emissions from power plants have decreased dramatically. EPA has failed to consider the public's legitimate reliance on the MATS controls remaining in place and the continuation of improvements in air quality that have occurred as a result of the MATS rule, along with the corresponding public health and environmental benefits.

Finally, the directly regulated industry and public ratepayers also have "serious reliance interests" in the Supplemental Finding's "appropriate and necessary" determination and the MATS rule. For example, a letter dated July 18, 2018 from electric utility trade associations to EPA pointed to a nearly 90% reduction in mercury emissions over the last decade—attributable in significant part to MATS and the investments made to comply with the rule. The letter noted the importance of regulatory certainty given these investments and the fact that state public utility commissions are still considering the inclusion of such costs in utility ratemaking, and the signatories urged EPA to "leave the underlying MATS rule in place and effective." Letter to William Wehrum, EPA, from the Edison Electric Institute, *et al*., at 2 (July 10, 2018), Exh. 40. On other occasions, commissions have already included those costs in current rates, and built long-term resource plans around those costs.

In proposing to reverse the "appropriate and necessary" determination, EPA has failed to "take into account" these "serious reliance interests" of states, the public, and industry. *See Encino Motorcars v. Navarro*, 136 S. Ct. 2117, 2126 (2016) ("In explaining its changed position, an Agency must also be cognizant that longstanding policies may have 'engendered serious reliance interests that must be taken into account.'") (quoting *Fox*, 556 U.S. at 515). EPA's failure to do so is arbitrary and capricious. *See Smiley v. Citibank South Dakota*, 517 U.S. 735, 742 (1996) ("change that does not take account of legitimate reliance on prior interpretation . . . may be 'arbitrary, capricious [or] an abuse of discretion'") (internal citations omitted).

[14] 135 S. Ct. at 2707.

D. The Proposal's reliance on portions of the MATS Regulatory Impact Analysis is arbitrary and capricious (Comment C-2).

EPA's proposal plucks estimates of industry compliance costs and a narrow slice of MATS' health benefits from EPA's 2011 RIA for the rule. EPA's use of those estimates is unreasonable, for two reasons.

First, as set forth in greater detail elsewhere in these comments, readily available information (most of which is already in EPA's possession) indicates that its 2011 RIA's estimates of costs and benefits were incorrect. *See* Part V.A, *infra*; *see also, Nat. Res. Def. Council, Inc. v. Herrington*, 768 F.2d 1355, 1391 (D.C. Cir. 1985) (Agency "may resolve even substantial factual uncertainties in the exercise of its informed expert judgment; but it may not tolerate needless uncertainties in its central assumptions when the evidence fairly allows investigation and solution of those uncertainties."). The Agency cannot avoid its obligation to acknowledge those facts merely because they emerged after the 2012 rule was complete. The purported authority for this proposed action is EPA's authority to revise its policies "on a continuing basis," *Nat'l Cable & Telecomms. Ass'n v. Brand X Internet Servs.,* 545 U.S. 967, 981-2 (2005). 84 Fed. Reg. at 2674. But that authority is constrained by the need to avoid acting arbitrarily or capriciously. *Brand X*, 545 U.S at 981. If, as it claims, EPA is conducting a "continuing" evaluation of its decision to regulate, it cannot select one "changed circumstance"—here, a new Presidential administration—while ignoring every other changed circumstance, no matter how relevant. *Id.* (noting need to address "changed factual circumstances" generally). *Continental Air Lines v. C.A.B.,* 522 F.2d 107, 117 (D.C. Cir. 1974) ("[T]he arbitrary and capricious nature of the [Agency's] action is demonstrated by its selective myopia in confronting" the circumstances before it). Simply put, it is unreasonable for an Agency to make important decisions based upon information that it knows or has reason to know is incorrect, particularly when, as here, the Agency has ready access to more accurate information.

In making its supplemental finding in 2016, EPA determined it had enough evidence to warrant regulation and so did not update costs and benefits—particularly because it was aware of the studies showing that costs were significantly lower than projected, even if it chose not to rely on those numbers in its secondary approach of cost-benefit analysis.[15] However, the Agency cannot ignore better information about compliance costs and benefits when it is proposing to reverse its previous finding and determine that it is *not* appropriate to regulate EGUs under section 112. Indeed, agencies must provide a more thorough explanation when they abandon previous factual findings.[16] Here all the subsequent evidence points in the opposite direction of EPA's deregulatory misadventure, and would not support revising the appropriateness finding even if a heightened standard did not apply.

The only rationale EPA offers now for its refusal to acknowledge any of the facts that have emerged since 2012 (aside from the changed administration) is that "section 112(n)(1)(A) is a threshold analysis that Congress intended the Agency would complete prior to regulation." 84 Fed. Reg. at 2678. *See also* Legal Memorandum at 1 (asserting that information after 2011 is not

[15] *See* 81 Fed. Reg. at 24,434.
[16] *Fox*, 556 U.S. at 516.

relevant because the "section 112(n)(1)(A) determination" is a "prerequisite for the specific regulatory obligations imposed by the MATS rule."). EPA's argument fails on its own premise: it is entirely inconsistent for EPA to take the position that the Agency is forbidden from considering any information that post-dated that "threshold" decision to regulate—and to rely on the 2011 RIA. Under the statute, EPA's section 112(n)(1)(A) determination precedes the entirety of the standard-setting process—it is a prerequisite even to *listing* power plants for regulation. *See Michigan,* 135 S. Ct. at 2723 ("Under the statutory scheme, [the necessary and appropriate] finding comes before—years before—the Agency designs emissions standards.") (Kagan, J., dissenting). EPA's current argument, taken to its logical conclusion, would require it to elide not just those facts that have emerged after 2012, but the entirety of the RIA's detailed assessment of the regulations that EPA devised under section 112(d). The placement of section 112(n)(1) within section 112's step-wise regime suggests use of a general assessment of the availability and costs of controls, contained in the reports EPA prepared pursuant to section 112(n)(1)(B)—not an RIA designed to model the effects of those controls arrived at by EPA after completing its standard setting under section 112(d). And when relying on this post-2000 RIA, as EPA does here, the Agency must correct the analysis for new facts that have become available since the analysis was originally developed.

EPA's own delays meant that the Agency's initial decision in 2000 was made long after Congress required that decision to be made (Congress provided a specific timeline governing EPA's decision-making), 42 U.S.C 7412(n)(1)(A), and its subsequent reaffirmations of that decision have reflected up to date information in the Agency's possession. That EPA is addressing a matter for which the deadline has long since passed does not alter its fundamental obligations. *U.S. Sugar Corp. v. Envtl. Protection Agency*, 830 F.3d 579, 644 (D.C. Cir. 2016). Those obligations include the Agency's duty to "examine the relevant data and articulate a satisfactory explanation for its action including a 'rational connection between the facts found and the choice made.'" *State Farm,* 463 U.S. at 43 (citation omitted)). EPA asserts, in essence, that because it now claims that its earlier decisions were mistaken (in their timing and substance), the Agency may ignore the facts and science that will determine the rationality and impact of the decision it is actually making today (and for which it lacks statutory authority, *see* section II, below).

Second, the RIA was prepared to serve a very different function, using a very different analysis, than that for which EPA employs it here. EPA used that analysis in 2012 and 2016 as a means of assessing consequences distinct from the core statutory purposes, including significant quantified and monetized impacts. But it now uses the same analysis to measure the value of the statutory goals themselves, almost all of which cannot (according to both the RIA and EPA) be quantified or monetized. As EPA emphasized at the time, the RIA was prepared to meet the standards of "EO 12866, and the guidance in OMB Circular A-4," Response to Comments Vol. 2 p. 678, as well as EO 13,563 (Jan. 18, 2011), National Emissions Standards for Hazardous Air Pollutants from Coal- and Oil-Fired Electric Utility Steam Generating Units and Standards of Performance for Fossil-Fuel-Fired Electric Utility, Industrial-Commercial-Institutional, and Small Industrial-Commercial-Institutional Steam Generating Units 76 Fed. Reg. 24,976, 25,078-79 (May 3, 2011)(proposed rule). The goals of those requirements are meaningfully distinct from those of section 112(n)(1)(A), particularly as EPA's proposal now interprets that section. For example, EPA emphasized that its RIA was intended to conform to EO 13,563's mandate of an

analysis that "promote[s] predictability and reduce[s] uncertainty." *Id.* at 25,079 (alteration in original). That drive for certainty and predictability ill suits the need to fully grapple with the uncertainties inherent in valuing reductions in the pollutants regulated by section 112—a task that EPA now describes as the end-all of its analysis under section 112(n)(1)(A). *See, e.g,* RIA at 4-2 (acknowledging that "risk estimates based on IQ will not cover" other "neurological effects," but EPA nevertheless in its attempt to quantify and monetize mercury benefits "focused on reductions in lost IQ points in the population, because of the discrete nature of the effect, and because we are able to assign an economic value to IQ points").

Likewise, the RIA's analytic framework was intended to enable agencies to "assess all costs and benefits," Exec. Order No. 12,866, 58 Fed. Reg. 51,735 (Sept. 30, 1993). But because EPA was trying to consider all costs and benefits, many of which *could* be quantified and monetized, the framework EPA followed in the RIA devoted little rigor to those "benefits and costs" that could *not* be "express[ed] in monetary units." Office of Mgmt. & Budget, Office of Info. and Reg. Aff., Circular A-4 (Sept. 17, 2003), https://www.govinfo.gov/content/pkg/FR-2003-10-09/pdf/03-25606.pdf ("Circular A-4") (Exh. 20) at 7. Consequently, the RIA chose to "quantify and monetize" only some of the HAP benefits, a very limited subset of mercury benefits associated with avoided "IQ loss in children born to a subset of recreational [freshwater] fishers who consume fish during pregnancy"—producing the HAPs benefits figure of $4-6 million that is the linchpin of EPA's claim that the harms posed by air toxics are too unimportant to be worth the cost of MATS. 84 Fed. Reg. at 2677. That circumscribed approach cannot suffice here, where EPA would make its decision depend upon it.

As EPA repeatedly noted at the time it completed the RIA, its limited effort to quantify and monetize the Standards' mercury-specific benefits provided no meaningful insight into the nationwide effects of mercury poisoning, let alone the effects of all air toxics regulated by MATS. *See, e.g.,* 77 Fed. Reg. at 9313. *See also* SAB Report at 8 ("[T]he loss of IQ points is likely to underestimate the impact of reducing methyl mercury in water bodies"), 30 (noting that "the size of the potentially impacted population is a key factor" and that EPA may have lacked the "time or resources" to fully define populations consuming mercury-poisoned fish).[17] The "quantified and monetized net-benefit estimate" produced by the RIA did not even purport to exhaust EPA's ability to collect information and assess the harms posed by power plants' toxic emissions. Nor did it seek to explore "how important the non-quantified benefits and costs are likely to be," or the specifics of the statutory goals and objectives (because EPA did not prepare the RIA in order to provide a full accounting of the narrow slice of benefits upon which EPA now focuses). Circular A-4 at 2, 7.

EPA accepted those analytic limitations because its analysis also encompassed benefits that *could* be quantified and monetized—such as those produced by reducing particular matter—

[17] The RIA acknowledged the harms it did not quantify; it did not seek to provide any meaningful accounting of their extent or severity. *E.g.,* RIA at ES-16 (claiming only to provide "a reasonable indication of the expected *economic* benefits and costs of the final MATS Rule"), ES-18 ("This analysis *omits* unquantified effects due to lack of data"), 4-34—4-37, 4-64—66. *Contra* 84 Fed. Reg. at 2678 (asserting that "[t]he MATS RIA accounts for all the monetized *and* unquantified benefits of the Rule.").

and because it understood its decision to fairly encompass the entirety of the rule's consequences, from which vantage point the benefits dramatically outweighed the costs even without a full accounting for the harms caused by air toxics. Where, as here, EPA has narrowed its view to focus on benefits that the RIA did not fully or accurately quantify or monetize, EPA cannot rely on an analysis that gave such cursory attention to those benefits. Circular A-4 prescribes entirely different approaches to address harms of the kind caused by ingesting mercury or other toxic exposures. *See, e.g.,* Circular A-4 at 20 (describing "[r]evealed preference methods"), 22 (describing "Stated Preference Methods"). And where the primary benefits at issue are "the risk of injury, disease, or mortality among children"—as they are for the mercury benefits at issue here, *e.g.,*—Circular A-4 recommends a "cost-effectiveness analysis," rather than a "benefit cost-analysis," precisely because "[t]he valuation of health outcomes for children and infants poses special challenges." *Id.* at 31.

EPA's decision not to pursue those alternative approaches to assess the neurological, carcinogenic, and other harms from mercury and other air toxics may be defensible where EPA is also assessing other readily quantifiable and monetizable benefits (such as the cardiovascular and respiratory benefits described by the RIA), and where its analysis served a purely informative purpose. At the time EPA undertook that analysis, it did not believe or expect that its threshold decision to regulate depended upon the narrow slice of monetized health consequences that EPA now proffers as the focus of the appropriate and necessary finding. Having manufactured a reason to ignore those other benefits, EPA cannot continue to rely on an RIA that assumed that the Agency would be considering difficult (or impossible) to quantify toxic benefits together with other consequences that EPA has routinely and rigorously quantified and monetized.

E. The Proposal's myopic focus on a subset of *monetized* health benefits is arbitrary and unlawful (Comment C-2).

In its proposed new test for determining whether regulation is "appropriate," EPA decides to compare costs directly to the *monetized* benefits of HAP reductions – fixed in the Proposal (unreasonably) as $4-$6 million.[18] EPA describes the "unquantified benefits" as "substantial and important," but states that those unquantified benefits "are not sufficient to overcome the significant difference between the monetized benefits and the costs of the rule."[19]

EPA's analysis is nonsensical on a few levels. First, the non-monetized benefits of the rule encompass virtually all the hazardous air pollutant reductions that the rule yields. Despite giving lip service to the obvious reality that these benefits are "substantial and important," EPA gives them no discernable weight in reaching its conclusion that regulating hazardous air pollutants from power plants is not appropriate and necessary. Despite its false claim to the contrary, EPA does "discount the importance of the unquantified benefits of reducing HAP emissions," 84 Fed. Reg. at 2678.

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[18] 84 Fed. Reg. at 2676-77. As noted below, EPA's use of the $4-$6 million figure arbitrarily ignores the existence of multiple peer-reviewed studies in the record finding that monetized benefits of mercury reductions are vastly higher.

[19] 84 Fed. Reg. at 2678.

Second, EPA offers no support or explanation for its bare assertion that the unquantified benefits "are not sufficient to overcome the significant difference between the monetized benefits and costs of this rule." *Id.* Even accepting as true EPA's absurd and transparently false estimates of the cost and monetized benefits of the MATS rule, the non-monetized benefits are, as EPA puts it, "unquantified." On what basis then, can EPA possibly claim that they do not outweigh the costs of the rule? EPA certainly cannot claim to know that the non-monetized benefits are worth less in money value than the costs of the rule. And if the Agency believes they are worth less in some other sense, the Agency provides no clue as to its thinking.

Third, the Proposal fails to explain why "appropriateness" of regulation should turn on the extent to which real health and environmental benefits have been monetized. It fails to explain why the absence of monetized estimates should be understood as reflecting a lack of benefits for society, as opposed to the result of technical difficulties in measurement, a lack of sufficient scientific work, or lack of Agency effort. And it fails to explain why Congress, in directing EPA to regulate HAPs if "appropriate," would have wanted EPA to give no discernable weight to health and environmental benefits that are "substantial and important" simply because the Agency has not converted them to monetary values. EPA fails to explain why these unquantified benefits are too insubstantial to be worth pursuing, especially in light of Congress's clear intent to eliminate the harms of hazardous pollution to the most sensitive and most exposed individual. This failure is particularly notable given the vast record before EPA concerning the "serious hazards to public health and the environment" caused by mercury and other HAPs that are emitted in large amounts by EGUs.[20]

Fourth, EPA's approach contravenes the text of section 112(n)(1)(A), which specifies "hazards to public health" as a criterion that EPA must consider in making its determination. 42 U.S.C. § 7412(n)(1)(A). EPA interprets this term to include reasonably anticipated risks to human health, including risks of cancer and other health harms that EPA deems unacceptable, and the D.C. Circuit has upheld this interpretation. *See* 77 Fed. Reg. 9304 ("we do not interpret CAA Section 112(n)(1)(A) as providing Congressional license to ignore risks that Congress determined warranted regulation"); *White Stallion Energy Ctr.,* 748 F.3d at 1236. EPA's decision to exclude these grave health risks from its determination, or to give them no discernable weight, is contrary to statute and represents an unexplained and arbitrary change in position.

Fifth, EPA also fails to reconcile its new approach to whether regulation is "appropriate" with the fact that EPA has not proposed to revisit its 2012 finding (left undisturbed in *Michigan*) that regulation of EGU HAP emissions under section 112 is "necessary." *See* 77 Fed. Reg. at 9363. EPA has found and affirmed that regulation is necessary "because implementation of the other requirements of the CAA would not adequately address the serious hazards to public health posed by HAP emissions from EGUs and because CAA section 112 is the authority intended to regulate HAP emissions from stationary sources." 81 Fed. Reg. at 24,422; *see* 77 Fed. Reg. at 9363. EPA's myopic focus on an assertedly insufficient quantity of monetized HAP benefits to render regulation not "appropriate," is incongruous in light of EPA's judgment that EGU HAP emissions are a serious and unabated hazard.

[20] 84 Fed. Reg. at 24,422 (summarizing past EPA reviews of HAP impacts).

Sixth, EPA fails to reconcile its new approach with its own recognition that "the cumulative impacts of HAP emissions from EGUs and other sources" should be considered in determining whether regulation is appropriate—a determination which was upheld by the D.C. Circuit and not disturbed by the Supreme Court. Legal Memorandum at 4; *White Stallion Energy Ctr.*, 748 F.3d at 1243. EPA's RIA estimate does not purport to take these cumulative effects into account, and EPA has failed to account for the cumulative effects of EGU HAP emissions in combination with other HAP emissions and exposures in its appropriateness determination, and has not acknowledged or explained this change.

In a further attempt to minimize the non-monetized benefits of the MATS rule, EPA claims falsely that "[t]he MATS RIA accounts for all the monetized *and* unquantified benefits of the rule." 84 Fed. Reg. at 2678. This statement is false. The RIA fails to assess all the studies showing monetized benefits of mercury reductions that were available to EPA in 2011.[21] Far from purporting to identify all the unquantified benefits of the MATS rule, the MATS RIA states expressly that "[d]ue to methodology and data limitations, we were unable to estimate the benefits associated with the hazardous air pollutants that would be reduced as a result of these rules." RIA at 69.

EPA also falsely claims that the unquantified HAP-related benefits of MATS involve only "a limited set of mercury and other HAP-related morbidity effects in humans and ecosystems." 84 Fed. Reg. at 2678. To the contrary, they include nearly all the benefits of significantly reducing the HAP emissions of what has been the single worst-emitting source category. As EPA itself has pointed out, power plants emitted more hazardous air pollutants than any other source category and, for some hazardous air pollutants, more than every other source category put together. Indeed, the record is replete with evidence that power plant HAP emissions have been responsible for serious and significant hazards to public health—including cancer risks and other health hazards at levels that EPA itself deems unacceptable. EPA has determined that these hazards to public health are significant and has not purported to revise that determination. Further, even if what EPA currently knows about the benefits of reducing these emissions is "limited," *id.*, EPA's lack of information about the full suite of health effects from reducing power plants' hazardous air pollutant emissions does not mean the benefits are limited; it means only that EPA's knowledge is limited. Congress was well aware of the limits of EPA's knowledge on this issue, but it knew that hazardous air pollutants are a serious threat to human health and the environment. Congress rewrote section 112 in the Clean Air Act Amendments of 1990 and wanted to make sure that control of the pollutants it listed as hazardous in section 112(b) was not held hostage by EPA's ignorance or resource limitations.

[21] Glenn E. Rice, *et al*., A Probabilistic Characterization of the Health Benefits of Reducing Methyl Mercury Intake in the United States, 44 Envtl. Sci. & Tech. 5216 (2010) (Exh. 12).

II. THE PROPOSED RULE'S NEGATIVE APPROPRIATE AND NECESSARY FINDING IS AN UNAUTHORIZED EXERCISE; UNDER THE CLEAN AIR ACT, AND ON THE RECORD BEFORE IT, EPA CAN NEITHER REVERSE ITS EARLIER FINDING, DE-LIST EGUs, NOR RESCIND MATS.

EPA's Proposal requests comment on a number of different interpretations of its authority under section 112. One thing is clear: EPA cannot delist or deregulate EGUs without satisfying the section 112(c)(9) criteria. Any interpretation that contradicts this limitation is inconsistent with the statute and court precedent. Nor, under the current circumstances, does the statute permit EPA to revise the threshold appropriate and necessary finding; and even if it did, that revision could have no effect on the listing or regulation. EPA should abandon its misguided Proposal.

A. The Clean Air Act and court precedent make clear that EPA cannot, on the record before it, de-list or de-regulate EGUs (Comments C-1, C-3, C-6).

In section 112(c)(9), Congress established specific criteria that must be satisfied before any source category may be removed from the list of categories regulated under section 112. Essentially, EPA cannot deregulate a source category until emissions from none of its constituent sources pose a threat to human health or the environment. At a minimum, because EGUs have been listed by EPA, the Agency must at least satisfy the section 112(c)(9) criteria to deregulate them. In this proposal, EPA clearly states that it does not propose to make the section 112(c)(9) findings. 86 Fed. Reg. at 2679. If EPA wanted to attempt to demonstrate that EGUs meet the section 112(c)(9) standards (something that would be not be possible to accomplish because the factual record does not support such a finding), it would have to issue a new proposal. EPA does not—and cannot on the record it has before it—propose to make the section 112(c)(9) finding, so the listing and MATS must remain in place, even if EPA were to reverse the appropriate and necessary determination.

Consequently, EPA cannot finalize a rule that would de-list or deregulate EGUs. *See* 5 U.S.C. § 706(2); 42 U.S.C. § 7607(d). The situation presented here is identical in every material respect to the situation that the D.C. Circuit was presented with in *New Jersey*.[22] In both instances, the Agency made a final and effective finding that regulating EGUs under section 112 is "appropriate and necessary" and listed EGUs under section 112. The statute is clear that the only way that EPA may administratively de-list or de-regulate EGUs is by making the required delisting findings under section 112(c)(9). EPA may not de-list or deregulate EGUs merely by reversing its appropriate and necessary finding. EPA admits that it has not satisfied the section 112(c)(9) delisting requirements, and without satisfying the delisting criteria EPA cannot deregulate EGUs.

[22] Indeed, EPA Assistant Administrator William Wehrum said as much in a January 25, 2019 interview with E&E News. Environmental Change and Security Program, The 2019 Journalists' Guide to Energy and Environment, Wilson Center (Jan. 25, 2019), https://www.wilsoncenter.org/event/the-2019-journalists-guide-to-energy-and-environment (stating, at 30:20-30:39 of the recording, that EPA's actions to reverse the appropriate and necessary finding during the Bush Administration were "almost exactly what's happening now").

In *New Jersey*, EPA sought to de-list EGUs by reversing the 2000 final "appropriate and necessary" finding.[23] *See* 517 F.3d at 580. The Bush Administration EPA asserted "that it 'reasonably interpret[ed] Section 112(n)(1)(A) as providing authority to remove coal- and oil-fired units from the Section 112(c) list at any time that it makes a negative appropriate and necessary finding under the section.'" *Id*. It further argued that "it possesse[d] authority to remove EGUs from the Section 112 list under the 'fundamental principle of administrative law that an Agency has inherent authority to reverse an earlier administrative determination or ruling where an Agency has a principled basis for doing so.'" *Id.* at 582. The D.C. Circuit rejected this reasoning, concluding that "EPA's removal of these EGUs from the Section 112 list violates the CAA because Section 112(c)(9) requires EPA to make specific findings before removing a source listed under Section 112." *Id.* at 578. The court specifically rejected EPA's contention that it possesses inherent authority to reverse an earlier administrative determination such as the appropriate and necessary finding—a contention EPA repeats in the current Proposal, 83 Fed. Reg. at 2673 & n.3—holding that "Congress … undoubtedly can limit an Agency's discretion to reverse itself, and in section 112(c)(9) Congress did just that, unambiguously limiting EPA's discretion to remove sources, including EGUs, from the section 112(c)(1) list once they've been added to it." *New Jersey*, 517 F.3d at 582; *see id.* at 583 (under the "plain text enacted by Congress[,]" EPA is "prevented from correcting its own listing 'errors' except through Section 112(c)(9)'s delisting process or court-sanctioned vacatur").

The Clean Air Act's language and structure and *New Jersey* bar EPA from de-listing or de-regulating EGUs without making the section 112(c)(9) findings. Any differences between the circumstances presented in *New Jersey* and the Proposal are immaterial. First, while the statute precludes a challenge to EPA's appropriate and necessary finding until standards are in place, *see Util. Air Regulatory Grp. v. EPA*, D.C. Cir. No. 01-1074, 2001 WL 936363 at *1 (D.C. Cir. July 26, 2001), nothing in *New Jersey*'s determination that EPA could not administratively delist EGUs by reversing its earlier appropriate and necessary finding hinged on the fact that that finding was not yet reviewable. And nothing in the statutory text or the *UARG* Court's opinion suggests that Congress meant to give the Agency greater discretion to avoid the delisting mechanism found in 112(c)(9) *after* standards were put in place.[24] Indeed, the argument for any revision authority would appear to be stronger before a regulation is promulgated and implemented. *Unlike* in *New Jersey*, where the 2000 Finding was not yet subject to judicial review and EPA argued that EGUs inclusion on the 112(c)(1) list "was not 'final Agency action'," 517 F.3d at 580, no one has argued that the 2016 Supplemental Finding was not final or subject to judicial review. Instead, the court's reasoning in *New Jersey*—limiting EPA's discretion to reverse its 2000 appropriate and necessary finding—equally applies to the 2016

[23] Regulatory Finding on the Emissions of Hazardous Air Pollutants from Electric Utility Steam Generating Units, 65 Fed. Reg. 79,825, 79,830 (Dec. 20, 2000) (making both the regulatory finding, and a distinct listing decision). *See also* National Emission Standards for Hazardous Air Pollutants: Revision of Source Category List Under Section 112 of the Clean Air Act, 67 Fed. Reg. 6521, 6524 & Table 1 (Feb. 12, 2002) (affirming the listing).

[24] Indeed, the fact that the emissions standards are already in place, complied with, and enforced, further demonstrates the irrationality and illegality of attempts to undo them where the Section 112(c)(9) delisting criteria cannot be met.

Supplemental Finding. Second, the fact that the 2016 Supplemental Finding has been challenged does not affect the finality or effectiveness of the Supplemental Finding, as the Clean Air Act makes clear. *See* 42 U.S.C. § 7607(b)(1). Accordingly, *New Jersey* squarely forbids EPA from de-listing or de-regulating EGUs by reversing its appropriate and necessary finding.

B. EPA also cannot revise the appropriate and necessary finding (Comments C-1, C-3).

Not only is EPA precluded from delisting and deregulating EGUs without satisfying the delisting criteria, but the text, structure, and case law construing the statute also preclude EPA from revising its threshold appropriate and necessary finding under the circumstances presented here.

1. The appropriate and necessary finding is a threshold determination.

Section 112(n)(1)(A) requires EPA to "perform a study of the hazards to public health reasonably anticipated to occur as a result of emissions by EGUs," report the results of that study to Congress by 1993, and requires that the Agency "shall regulate [EGUs] under this section, if the Administrator finds such regulation is appropriate and necessary after considering the results of the study." 42 U.S.C. § 7412(n)(1)(A). This language indicates that Congress intended EPA to make a prompt, threshold determination whether or not to regulate EGUs under section 112. If that determination was made in the affirmative, Congress directed that EGUs must be listed and regulated as any other source would be under the Act, including being subject to section 112(c)(9)'s delisting criteria. There is no indication that Congress intended EPA to have authority to administratively reverse this threshold determination at any time, and such authority would be inconsistent with the section 112(c)(9) delisting criteria. Indeed, where Congress wanted EPA to review and revise determinations made under the Act, it explicitly granted that authority. *See*, *e.g.,* 42 U.S.C. § 7410(k)(6) (allowing EPA to revise its prior approval or disapproval of a state plan submission whenever it determines the action "was in error"). No similar language appears in section 112(n), reinforcing the point that the 112(n) determination is a threshold one, not one subject to ongoing administrative review and revision.

In the same vein, EPA was to consider whether such regulation was necessary "after imposition of the requirements of this Act." 42 U.S.C. § 7412(n)(1)(A). If the Agency has the authority to revisit its determination under section 112(n)(1)(A) after implementing and enforcing regulations applicable to EGUs under section 112, the section 112 regulations themselves would be "requirements of this Act" under section 112(n). It would make no sense for the Agency to be looking at EGUs already regulated by section 112 to decide whether it remained "appropriate and necessary" to regulate them under section 112. This is a bizarre and untenable reading of the statute—which provides a process for delisting sources that are regulated under section 112. The language "after imposition of the requirements of this Act" points to the near-term reductions from the Acid Rain Program, and implies that EPA cannot revoke a positive finding many years later simply because new and improved Clean Air Act pollution-reduction requirements—including those designed to reduce HAP from EGUs under section 112 itself—have taken effect. This language too suggests that the appropriate and necessary finding is a threshold one not subject to administrative revision.

EPA's lack of authority to revisit or alter a previous positive appropriate and necessary finding is confirmed by the logic of how the statute functions. Although Congress did not itself decide whether to regulate EGUs under section 112 in 1990, its objective to eliminate the harms of HAP is unambiguous. The ever-present possibility of the reversal of an appropriate and necessary finding would impermissibly depart from Congress's focus on rapidly and permanently reducing the harms inflicted by the pollutants it identified in 1990.

2. Court decisions confirm that EPA may not administratively revise the appropriate and necessary determination under the circumstances presented here.

As we have just discussed, EPA does not possess the authority to rescind an appropriate and necessary finding. Alternatively, we note that Court decisions have interpreted the statute to mean that once an affirmative appropriate and necessary finding is made and EGUs are listed (and subject to the section 112(c)(9) delisting criteria), EPA may not administratively reverse its appropriate and necessary determination. As the D.C. Circuit explained in *New Jersey*, "[a]n Agency can normally change its position and reverse a decision, and prior to EPA's listing of EGUs under section112(c)(1), nothing in the CAA would have prevented it from reversing its *determination* about whether it was 'appropriate and necessary' to do so." 517 F.3d at 582 (emphasis added); see also *Ivy Sports Med. LLC v. Burwell*, 767 F.3d 81, 86 (D.C. Cir. 2014) ("any inherent reconsideration authority does not apply in cases where Congress has spoken"). But once sources were added to the list, the *New Jersey* court explained, Congress did "limit [the] Agency's discretion to reverse itself." 517 F.3d at 582; *see id.* at 583 (vacating *both* EPA's delisting and EPA's revised appropriate and necessary determination, and noting "[b]ecause we agree [that the delisting was unlawful], we do not reach [petitioners'] alternative contention that even if this delisting was lawful, EPA was arbitrary and capricious in reversing its determination that regulating EGUs under Section 112 was 'appropriate and necessary.'"); *cf. Util. Air Regulatory Grp.*, 2001 WL 936363 at *1 ("Section 112(e)(4) of the Clean Air Act provides that judicial review of the *listing* of a source category under Section 112(c) of the Act is not available until after emission standards are issued. This court therefore lacks jurisdiction at this time to review the *determination* of the Environmental Protection Agency ("EPA") that regulation of coal- and oil-fired electric utility steam generating units is *appropriate and necessary*, and that such units should be listed as a source category under § 112(c).") (emphasis added) (internal citations omitted).

C. Even if EPA was not statutorily barred from administratively reversing its appropriate and necessary finding, EPA presents no reasoned basis for doing so (Comment C-1).

EPA acknowledges that it cannot, by administratively reversing the appropriate and necessary finding, de-list or de-regulate EGUs. Nonetheless, it claims authority to reverse the appropriate and necessary determination. But even if EPA could administratively reverse that finding, the Proposal is fundamentally flawed. In addition to the many flaws discussed elsewhere in these comments (i.e., the Proposal ignores information on benefits, relies on outdated cost projections, etc.), the Proposal is arbitrary and capricious because EPA fails to explain why it is

proposing to reverse the determination when doing so cannot result in delisting or deregulation of EGUs.

If EPA believes that it has authority to reverse the appropriate and necessary finding, but not to delist or deregulate EGUs, EPA must provide a reasoned basis for its proposed reversal of the appropriate and necessary finding—i.e., cogently explain *why* it is expending Agency and public resources on a revised determination that legally cannot result in de-listing or de-regulation of EGUs. *See Michigan*, 135 S. Ct. at 2706 ("Federal administrative agencies are required to engage in 'reasoned decisionmaking.'" (citing *Allentown Mack Sales & Servs., Inc. v. NLRB*, 522 U.S. 359, 374 (1998)); *U.S. Telecomm. Ass'n v. FCC*, 227 F.3d 450, 460 (D.C. Cir. 2000) ("It is well-established that an Agency must cogently explain why it has exercised its discretion in a given manner and that explanation must be sufficient to enable us to conclude that the Agency's action was the product of reasoned decisionmaking.") (internal quotation marks and alterations omitted). EPA has not explained what its Proposal is intended to accomplish or analyzed the effects that it could have.

And to the extent EPA believes that the Proposed Rule's revised finding *may* somehow lead directly or indirectly to delisting and deregulation,[25] EPA *must* explain that, and examine the consequences and costs of not regulating HAP emissions from EGUs and disclose these to the public. 42 U.S.C. §§ 7607(d)(3) & (6); *see also* E.O. 12,866 (Agency must disclose and assess costs and benefits of its action); *compare* 84 Fed. Reg. at 2703 (asserting that there "would not be any cost, environmental, or economic impacts as a result of this proposed action"). EPA may not ignore, as the Proposal does, the fact that the 2016 Finding is currently under review in the D.C. Circuit, and that EPA has asked that Court to hold those challenges in abeyance pending its review of its position. EPA must consider the impacts of its proposed action here upon that litigation, including positions that EPA itself or petitioners Murray Energy Corporation may take in litigation based on its proposed action.

EPA must fully analyze the *current* effects of vacating or rescinding the MATS standards on human health, the environment and the economy, and it must prepare a Regulatory Impacts Analysis that fully documents its analysis. EPA therefore cannot lawfully finalize a rule that purports to delist EGUs and/or rescind MATS unless it first issues, and takes and responds to comment on a re-proposal or supplemental proposal disclosing these impacts to the public. As explained elsewhere in these comments, the costs and consequences of rescinding MATS would be enormous. Eliminating regulatory standards for emissions of mercury and numerous other toxics substances from the nation's largest-emitting sources of these contaminants would have very significant public health costs to the U.S. economy and significantly undermine environmental protections.

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[25] *See, e.g.*, Petitioner's Response ISO EPA's Motion to Continue Oral Argument at 5-6 & n. 2; *Murray Energy Corp. v. EPA*, D.C. Cir. No. 15-1127, ECF 1672435 (Apr. 24, 2017); Cody Nett, Assistant General Counsel for Murray Energy Corp., Public Hearing Comments on "Reconsideration of Supplemental Finding and Residual Risk and Technology Review for Coal- and Oil-Fired Utility Steam Generating Units" at 2 (Mar. 18, 2019), Doc. ID No. EPA-HQ-OAR-2018-0794-0523 [Murray Energy Comments] (arguing that EPA "must also take the only logical and defensible next step by rescinding MATS altogether").

D. The Proposal's alternative interpretations are unlawful and unreasonable (Comments C-1, C-4, C-6, C-7, C-8).

The Proposed Rule offers two "alternative interpretations" pursuant to which a negative appropriate and necessary finding could (EPA asserts) result in the delisting of EGUs as a source category under section 112 or a rescission of the MATS Rule, or both. Neither interpretation has merit. Under the first alternative, EPA suggests that the Supreme Court's decision in *Michigan* distinguishes the situation here from *New Jersey*. That is incorrect. As explained in detail above, the two scenarios are materially indistinguishable. In *New Jersey*, the court was clear that once EGUs are listed, the Clean Air Act does not permit EPA to administratively delist EGUs without making the required findings under section 112(c)(9).

The Supreme Court's decision in *Michigan* was limited to the finding that EPA erred by failing to consider costs in the 2000 appropriateness finding, as reaffirmed in 2012; the Court expressly declined to review MATS or the listing of EGUs under section 112(c)(1). Furthermore, on remand from the Supreme Court, the D.C. Circuit, after receiving extensive briefing and hearing oral argument on whether to remand to the Agency or to vacate MATS, left the listing and the MATS Rule intact.[26] Nor did EPA on remand seek to delist the industry; rather, it finalized the 2016 Supplemental Finding, concluding that regulating EGUs under section 112 *remains appropriate and necessary*, and maintaining the listing and the MATS. Therefore, the Agency faces a situation materially identical to that in 2005, when both an affirmative appropriate and necessary finding and listing were in place. Under these circumstances, EPA cannot delist or deregulate EGUs without satisfying the section 112(c)(9) delisting requirements.

Accordingly, EPA now finds itself in exactly the same place it found itself in 2005 in *New Jersey*. Unless and until the Agency could, on the record before it, seek to delist the industry in accordance with section 112(c)(9)'s requirements, it could not administratively delist or deregulate EGUs and remained subject to a duty to regulate under section 112(d). Here, EPA's authority to delist and deregulate EGUs is no less constrained at this point than it was in *New Jersey*—both because of the nature of the appropriate and necessary finding, and because the EGU industry is listed and the section 112(c)(9) criteria for delisting have not been met.

Moreover, the Proposed Rule is in no legally relevant way a "continuation of the Agency's response to the Supreme Court's remand," as EPA mistakenly asserts. 84 Fed. Reg. at 2679. The 2016 Supplemental Finding concluded the Agency's response to the remand. *See* 81 Fed. Reg. at 24,420 (noting that with this "[f]inal supplemental finding" the Agency "responds to the U.S. Supreme Court decision in *Michigan v. EPA*"). The Supplemental Finding is the Agency action that represented the culmination of the remand, and that action took effect on April 25,

[26] After full briefing and argument, the D.C. Circuit (including then-Judge Kavanaugh, who had earlier dissented in part on the merits) declined to vacate the MATS standard during the Agency's response to the decision on remand, Order, *White Stallion Energy Ctr.*, D.C. Cir. No. 12-1100, ECF 1588459 (Dec. 15, 2015), and the Supreme Court denied petitions for *certiorari* challenging that decision, *Michigan v. EPA*, No. 15-1152 (denied June 13, 2016), which suggests that the courts believed EPA could promulgate an affirmative supplemental finding consistent with the Supreme Court's charge.

2016. *Id.*; *see id.* at 24,421 ("Under section 307(b)(1) of the CAA, judicial review of this final supplemental finding is available…."). Under the Clean Air Act, neither the challenge filed to the Supplemental Finding, nor the Agency's unlawful reconsideration of it, renders the Supplemental Finding any less final or effective. *See* 42 U.S.C. § 7607(b)(1) ("The filing of a petition for reconsideration by the Administrator of any otherwise final rule or action shall not affect the finality of such rule or action for purposes of judicial review nor extend the time within which a petition for judicial review of such rule or action under this section may be filed, and shall not postpone the effectiveness of such rule or action."); *id.* § 7607(d)(7)(B) (administrative "reconsideration shall not postpone the effectiveness of the rule"); *see also id.* § 7412(d)(10) ("Emissions standards or other regulations promulgated under this section shall be effective upon promulgation.").[27] The Proposal is no more a "continuation of the Agency's response to the Supreme Court's remand" than the Bush-era attempt to revise the 2000 finding was a continuation of the Clinton-era's appropriate and necessary rulemaking and the listing decision. To the contrary, if finalized, the Proposal would be a new final Agency action purporting to revise an earlier final Agency action, albeit without any statutory authority to do so.

(Comment C-4, C-6, C-8). The Proposed Rule's second alternative interpretation—that EPA could keep EGUs on the section 112(c) list of sources, but rescind regulation of EGUs under section 112—is squarely foreclosed by the text of the Clean Air Act.

Section 112(d)(1) states that "[t]he Administrator *shall* promulgate regulations establishing emissions standards for each category or subcategory of major sources and area sources of hazardous air pollutants listed for regulation pursuant to subsection (c) in accordance with the schedules provided in subsections (c) and (e)." 42 U.S.C. § 7412(d)(1); *see White Stallion Energy Ctr.,* 748 F.3d at 1243–44, *rev'd sub nom. Michigan*, 135 S. Ct. 2699 ("Under section 112, the statutory framework for regulating HAP sources appears in § 112(c), which covers listing, and § 112(d), which covers standard setting."). Unless and until they are delisted under section 112(c)(9), EGUs are a "category … of major sources … of hazardous air pollutants listed for regulation pursuant to subsection (c)." 42 U.S.C. § 112(d)(1). Accordingly, the text of the statute requires that EPA regulate them pursuant to section 112(d).

EPA complied with this statutory requirement, albeit ten years after it was required to by the statute),[28] when it issued the MATS regulation. EPA cannot now rescind that regulation. EPA has neither "inherent authority" nor the authority under the Clean Air Act's general rulemaking provision, section 301, to repeal a regulation that fulfills a statutory mandate without replacing it with another regulation that fulfills the statutory mandate. *See, e.g.*, *Clean Air Council v. Pruitt*, 862 F.3d 1, 9 (D.C. Cir. 2017); *Nat. Res. Def. Council v. Reilly*, 976 F.2d 36, 41 (D.C. Cir. 1992) (CAA section 301 does not authorize EPA to promulgate a rule that is inconsistent with the Act's "clear statutory command"). In sum, EPA may not administratively

[27] Indeed, *unlike* in *New Jersey*, where the 2000 Finding was not yet subject to judicial review and EPA argued that EGUs inclusion on the 112(c)(1) list "was not 'final Agency action'," 517 F.3d at 580, no one has argued that the 2016 Supplemental Finding was not final or subject to judicial review.

[28] 42 U.S.C. § 7412(c)(5) requires the promulgation of standards within 2 years of the listing decision, which occurred Dec. 20, 2000.

delist the industry in order to eliminate MATS or otherwise deregulate it without adhering to the statutory requirements contained in section 112(c)(9) under the circumstances presented here.

In addition to being statutorily foreclosed, such an action would be arbitrary and capricious, given a record showing that MATS greatly reduces serious hazards to public health; that it prolongs lives and avoids thousands of serious adverse health effects; that it provides enormous benefits to the environment; and that it does so at a fraction of the cost originally forecast. In the Proposal, EPA has not conducted analysis of the health and environmental impacts of deregulating EGUs, and could not do so in this proceeding, even if it had legal authority to take such a step (which it does not).

(Comment C-5). EPA is not obligated to rescind MATS if it impermissibly finalizes the revised supplemental finding. Indeed, as explained above, it is *prohibited* from doing so. Unless and until EPA concludes that EGUs meet the section 112(c)(9) standards EPA *cannot* administratively delist or deregulate EGUs. While the section 112(n)(1)(A) finding is a threshold determination made prior to setting CAA section 112 standards for EGUs, now that it has been made in the affirmative, EPA simply may not delist and deregulate EGUs through its (unlawful) "negative appropriate and necessary finding[.]" *New Jersey*, 517 F.3d at 580.

III. THE PROPOSAL'S ESTIMATE OF THE BENEFITS OF REDUCING AIR TOXICS CONTRADICTS THE STATUTE, EPA'S 2012 RECORD, AND THE CURRENT RECORD.

A. EPA fails to acknowledge Congress' determination in Section 112 that reductions in emissions and associated public health harms of mercury and other HAPs are of great value (Comment C-2).

EPA's proposed finding depends upon, *inter alia,* its assertion that it may decide whether regulation is "appropriate," under 42 U.S.C. § 7412(n)(1)(A), by weighing the entirety of the costs to the regulated industry against its own assessment of the benefits to the public of reducing emissions of mercury and other listed hazardous pollutants from coal- and oil-fired power plants, 84 Fed. Reg. at 2675. EPA makes that assertion without regard to the core statutory purposes of section 112 of the Act, and without considering its own record, which shows that the 2011-2012 figure for monetized HAP benefits was only a small fraction of the total monetizable HAP-specific benefits[29] of the MATS rule (too small for EPA to draw any meaningful conclusions about the HAP-specific benefits, or the proportionality of those benefits to the costs to industry). EPA's conclusion that it may consider only HAP-specific benefits has no basis in law or reason, as discussed in Part IV, below. The second point is equally untenable—EPA is neither free to overwrite the value Congress placed on eliminating HAP benefits with its own extra-statutory view of those benefits' value, nor may it ignore its own record in changing its position. Indeed, if EPA now argues it *must* necessarily use its 2011-2012 record as the basis for evaluating costs and benefits in response to *Michigan*, it must use *all* of that record – including information

[29] EPA does not define what it means by benefits "specific" to the pollutants listed in section 112, lending additional arbitrariness to its proposal. We use the term here to refer to those benefits described in Chapter 4 of the RIA.

available to it in 2011-2012 that it declined to fully evaluate at the time, either because of a lack of funding or staff, or the "inclination" to do so.[30]

1. EPA has unlawfully ignored the core purposes of Section 112.

EPA claims authority, in the Proposal, to cherry pick from the data it had then, and has now, to construct its own, arbitrarily defined view of the health benefits associated with regulation of hazardous air pollutants—the very purpose of section 112. 84 Fed. Reg. 2677. But Congress itself listed these pollutants, 42 U.S.C § 7412(b)(1), subjecting emitters to stringent regulation on strict deadlines, *id.* § 7412 (b), (c), (d). The listed pollutants "are known to be, or may reasonably be anticipated to be, carcinogenic, mutagenic, teratogenic, neurotoxic, … cause reproductive dysfunction," or are "acutely or chronically toxic" or have "adverse environmental effects." 42 U.S.C. § 7412(b)(2). Congress in 1990 knew that it was necessary to target even relatively small quantities of these emissions because of their "potent" and "especially serious health risks," including "birth defects, damage to the brain or other parts of the nervous system, reproductive disorders, and genetic mutations," and cancer. Leg. Hist. at 2524 (House Debate); *see also id.* at 8472 (stating in S. Rept. No. 101-228 at 132, that "[r]outine and episodic releases of hundreds" of air toxics "pose a significant threat to public health in the United States."). Importantly, in providing that list, Congress deliberately *withdrew* EPA's authority to judge the importance of the harms threatened by the listed pollutants. *Id*. at 8496 (Congress listed pollutants to "overcome the inertia that has plagued" EPA's efforts to assign "health-based" value to regulation of these substances); *see also* 42 U.S.C. § 7412(b)(3) (listed substance may be removed only if "there is adequate data" to determine that it "may not be reasonably anticipated to cause *any* adverse effects to the [sic] human health or adverse environmental effects" (emphasis added)); *Sierra Club v. EPA,* 353 F.3d 976, 979 (D.C. Cir. 2004)(emphasizing that Congress listed these pollutants).

Congress' action stripping EPA of the authority to insert its own view of the relative health costs of these pollutants manifests itself throughout the 1990 rewrite of section 112. In section 112(c)(9), for example, Congress provided specific thresholds for delisting sources responsible for toxic emissions—removing EPA's authority to decide what sorts of health harms should be subject to regulation. Similarly, the statute provides a specific risk threshold as its overall goal—denying EPA the authority to determine, on its own, what harms should be eliminated. 42 U.S.C. § 7412(f). *See* Leg. Hist. at 8250 ("'[u]nreasonable risk' has not served as [a] solid foundation for health protection"). EPA's current effort to substitute its judgment (that only certain monetizable benefits of HAP controls can be considered in determining whether to regulate the largest industrial source of listed HAPs, and its free-floating conclusion, untethered to statutory purposes, that monetized HAP benefits must be "moderately commensurate" with costs to justify regulating), for Congress' judgment, flies in the face of Congress's purpose for the 1990 overhaul.[31]

[30] *See* Comments of Save EPA on EPA's Proposal to Find that it is "Not Appropriate or Necessary" to Regulate Hazardous Air Pollutants from Coal- and Oil-fired Electric Generating Units (EGUs), at 1-3 (Mar. 27, 2019), EPA-HQ-OAR-2018-0794-0578 ("Save EPA Comments").

[31] Congress rejected proposals that would have allowed EPA to balance "health and economic considerations" against each other. Leg. Hist. at 8746-47 (S. Rep. No. 101-228) (Sen.

The statute evinces two further clear congressional instructions. First, section 112 demonstrates Congress' intent to address harms that are concentrated within particular communities or populations; it requires EPA to address health risks to the "individual most exposed to emissions." 42 U.S.C. § 7412(f)(2)(A). *See also* 42 U.S.C. § 7412(n)(1)(C) (directing EPA to consider power plant mercury harms to sensitive fish-consuming populations); Leg. Hist. at 8501 (in assessing whether a pollutant's harm warrants regulation, EPA "is to consider individuals who are sensitive to a particular chemical"). Second, the statute emphasizes the weight that Congress placed upon uncertain harms. Congress understood that the harms posed by toxic substances would be difficult to quantify and define *ex ante;* and it firmly directed that even so, *potential* harms are of sufficient importance to warrant regulation. *See, e.g.,* 42 U.S.C. § 7412(b)(2) (requiring EPA to add to list substances that "may present" adverse effects); *id.* § 7412(c)(9), (d)(4) & (f)(2) (demanding "adequate margin of safety"); *see* Leg. Hist. at 8520 ("known, probable[,] or possible carcinogens" are all of concern).

Other portions of the Clean Air Act feature a similar congressional decision that certain identified harms are of extraordinary importance. Where, under those circumstances, the Act calls for EPA to consider costs, the Agency has consistently understood that it must do so in a manner that defers to Congress' statutory goals. For that reason, where EPA considers costs under section 111, 42 U.S.C. § 7411, it asks whether the costs are reasonable—fulfilling the task prescribed by Congress – i.e. achieving the maximum feasible emissions reductions while avoiding exorbitant costs for the industry in question. *See Lignite Energy Council v. EPA,* 198 F.3d 930, 933 (D.C. Cir. 1999). That approach, upon which EPA patterned its 2016 Finding, avoids the agency's error here—assuming the authority to second-guess Congress' assessment of the importance of the harms caused by air toxics. 81 Fed. Reg. at 24,424 (noting "Congress's determination that HAP emissions are inherently harmful, and the instruction from Congress to protect the most sensitive populations from those harms.").

EPA's approaches to other cost analyses under the Clean Air Act demonstrate additional means of considering cost while respecting Congress' statutory determinations. Under the Act's Prevention of Significant Deterioration provisions, for example, EPA examines the comparative cost-effectiveness of controls. *See In re Mississippi Lime Co.,* 15 E.A.D. 349, 357 (E.A.D. 2001) (noting that the agency "evaluates the economic impacts by estimating the average and incremental cost-effectiveness of the control technologies" necessary to meet an emission standard, "measured in dollars per ton of pollutant emissions removed."). States applying similar standards to assess costs of regulating air toxics have concluded that requirements substantially

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Lautenberg); *id*. (EPA would "fail[] to protect public health" in such balancing). That choice reflected difficulties Congress saw as peculiar to air toxics: "[t]he public health consequences of substances which express their toxic potential only after long periods of chronic exposure will not be given sufficient weight in the regulatory process when they must be balanced against the present day costs of pollution control and its other economic consequences." Leg. Hist. at 8522 (S. Rep. No. 101-228 at 182).

similar to MATS are appropriate.[32] Likewise, under other statutes reflecting firm congressional desires such as those evident in section 112, agencies have taken equally deferential approaches to cost consideration. *See American Iron & Steel Inst. v. OSHA,* 939 F.2d 975, 982 (D.C. Cir. 1991) (describing OSHA approach to weighing costs, by determining whether "the industry could either pass on the costs or absorb the costs without threatening the competitive structure of the industry.").

Attempting to dismiss the relevance of its approach to cost consideration under section 111, EPA now argues that under section 111, "[c]osts of control technologies for new sources are borne as each source is added to the fleet of existing sources and are not imposed on the entire fleet of existing sources within a period of a few years, as is required under CAA section 112." 84 Fed. Reg. at 2675. But that is true only for pollutants regulated elsewhere under the Act – for pollutants not so regulated, section 111(d) does impose existing source requirements, a point which EPA disregards. Additionally, EPA's cost-reasonableness test developed in the revised "appropriate" finding after the *Michigan* decision allows the Agency to address that concern—if MATS imposes short-term costs greatly out of proportion to those routinely borne by industry, or if industry faces constraints in its ability to finance those costs or pass them on, a cost-reasonableness test allows EPA to take those factors into account. *See* 80 Fed. Reg. at 75,034 (assessing impact of annual capital costs required to comply on industry as a whole); *see also* 81 Fed. Reg. at 24,424. Moreover, EPA overlooks the fact that section 111(d) in fact does cover existing sources, and under section 111(d) state plans the entire fleet would be affected. EPA considers cost under section 111(a)(1) to identify the *best* system of emission reduction for both new and existing sources ensures that both will be able to comply with their respective standards. The Agency's present attempt to dismiss longstanding cost considerations under section 111 as irrelevant to the "appropriate" determination rings especially hollow because, as evidenced by the Clean Air Mercury Rule EPA attempted to put in place in 2005, if EGUs are not regulated under section 112 their otherwise hazardous emissions will be regulated under section 111. If costs are deemed reasonable using the well-established test under section 111, they are necessarily reasonable and appropriate under section 112(n)(1)(A) because a decision not to regulate EGUs under section 112 would result in regulation under section 111.

EPA's newly devised monetized cost-benefit test, in contrast, does not permit the agency to address any effects that might follow from the need to comply over a short time industry-wide; it offers no means by which EPA might distinguish smaller industries that might be unable to bear large capital expenditures over a short period, or for whom plant-by-plant compliance makes a meaningful difference, from larger industries (like electric utilities) that routinely undertake very large capital projects over compressed time periods.[33] The monetized test selected by EPA here obscures, rather than illuminates, the effect of the statutory time frame. Nor does the compliance timeline differentiate the benefits of reducing mercury from power

[32] TCEQ Findings of Fact and Conclusions of Law Approving Preconstruction Permit for White Stallion Energy Center (Oct. 19, 2010) (Exh. 9 to Comments of the American Academy of Pediatrics, *et al.*, EPA-HQ-OAR-2009-0234-20558 (Jan. 15, 2016)).

[33] If EPA intends to address the regulated sector's ability to pay, it must do so symmetrically—that is, it cannot reserve the ability to address an industry's *in*ability to bear costs while simultaneously ignoring an industry's ability to bear costs.

plants from the benefits of reducing emissions from other, smaller emitters. The 4-year installation time frame for MATS provides no support (and could not provide any support) for EPA's unlawful decision to reassess Congress' view of the benefits of reducing public exposure to air toxics.

The harms associated with mercury, arsenic, and other air toxics are not meaningfully different, whether those toxics originate in coal- and oil-fired power plants, or some other industrial source category that is listed and regulated under the section 112(c) and (d) requirements. There is no plausible reason that Congress might have, by inserting section 112(n)(1)(A), authorized EPA to reassess the benefits of reducing those harms in the context of electric generating units. Neither EPA's Utility and Mercury studies, nor any other study, suggest that HAPs from EGUs are of any different character or pose less harm by their nature than HAPs emitted by any other industrial source category.

In a clear attempt to undermine the MATS rule's benefits, however, EPA now employs a methodology that suggests the whole of the regulatory structure Congress put in place in section 112—most of which seeks to address benefits that EPA has not independently quantified—is itself inappropriate. *See, e.g.,* Regulatory Impact Analysis: Final Brick and Structural Clay Products NESHAPS (2015) at 4-22 (finding HAP-specific benefits to be unquantifiable);[34] Memorandum from Tom Walton to Jim Eddinger, at 7-40 to 7-57 (Dec. 19, 2012) (same, Industrial and Commercial Boilers).[35] The proposal amounts to a determination that Congress was misguided in adopting section 112.

Michigan does not authorize (much less compel) EPA to revise section 112's legislative priorities. The Court instructed EPA to consider costs—it did not tell EPA to decide for itself what the benefits of eliminating air toxics might be. That EPA must "meaningfully consider cost" is distinct from any instruction to consider benefits in a particular way—much less in a way that is inconsistent with congressional intent and the structure of section 112. 84 Fed. Reg. at 2675. And, as noted above, even when the Clean Air Act *expressly* instructs EPA to consider costs, it does not thereby require or permit EPA to reassess benefits. Indeed, EPA and other agencies have consistently and routinely considered costs in ways that do not unlawfully revisit the worthiness of Congress' statutory goals. EPA can ensure that the standards do not impose "costs far in excess of benefits," *id.*, while appropriately deferring to Congress' determination of those benefits' value (as it did in the 2016 Finding's "cost reasonableness" test). *Michigan* emphatically did not prescribe a "cost-benefit analysis," 135 S. Ct. at 2711, in which EPA privileges its own opinion over the unambiguous statutory objectives. The Court's reference to the "advantages and disadvantages," of regulation does not suggest that EPA has the ability to override Congress' view of the harm posed by hazardous air pollutants; it indicates that EPA was obligated to consider all consequences of regulation (a command EPA's Proposal does not obey).

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[34] Available at https://www3.epa.gov/ttnecas1/docs/ria/nonmetallic-mineral_ria_final-brick-neshap_2015-07.pdf.

[35] Available at https://www3.epa.gov/ttn/ecas/docs/ria/ici-boilers_ria_reconsider-neshap_2012-12.pdf.

Nor can the word "appropriate" be understood to encompass a reassessment of statutory goals. *See American Textile Mfrs. Inst. v. Donovan,* 452 U.S. 490, 512-13 (1981) (refusing to read "appropriate" to permit cost-benefit analysis that would allow agency to override statutory goals, and noting that where Congress wishes cost-benefit analysis, it says so expressly). Congress has used the word "appropriate" throughout the United States Code; it cannot have meant to allow agencies to decide, in the first instance, whether the aims of the statutes in question were, in fact, worthwhile.[36]

EPA claims the authority not just to revisit Congress' determination regarding the value of eliminating harms from air toxics, but to conclude that—based on a limited effort to quantify benefits that Congress deemed unquantifiable—those harms are not sufficiently important to be worth an investment which the Agency has previously deemed to be reasonable for the industry in question. EPA's reliance on nationwide quantification and monetization betrays Congress's emphasis on the potential harms of air toxics, its concern with concentrated impacts on disadvantaged communities, and its determination that the harms of air toxics were a matter for legislative, rather than agency, judgment. Many of the air toxics addressed by MATS are carcinogens, and mercury exposure poses a "wide array of neuropsychological effects," including "delay in verbal skills, learning and short-term memory." Revised Technical Support Document: National-Scale Assessment of Mercury Risk to Populations with High Consumption of Self-caught Freshwater Fish in Support of the Necessary and Appropriate Finding for Coal- and Oil-Fired Electric Generating Units, Docket ID No. EPA-HQ-OAR-2009-19913, at 10 n.16 (December 2011). The weight to be given those harms is a value judgment, best made (as Congress recognized in section 112) by the legislature through law, rather than by an agency through technical analysis.

The Proposal contradicts several other central elements of section 112. As originally enacted, section 112 required EPA to list HAPs that should be regulated and directed EPA to establish standards for these pollutants. In the 1990 CAA amendments, Congress completely revised section 112 because of the lack of progress in regulating and reducing emissions of air toxics. As Congress noted, "[t]he law has worked poorly. In 18 years, EPA has regulated only some sources of only seven chemicals." Leg. Hist. at 8468 (S. Rep. No. 101-228 at 128); *ee also* Leg. Hist. at 3175 (H.R. Rep. No. 101-490 at ("[i]n the 20 years since this section was enacted, EPA has acted to establish standards under section 112 for seven hazardous air pollutants. This is only a small fraction of the many substances associated … with cancer, birth defects, neurological damage, or other serious health impacts."). Frustrated by this "slow pace of EPA's regulation of HAPs," *New Jersey*, 517 F.3d at 578, Congress itself listed in the statute 189 air pollutants that it deemed hazardous. *See* CAA § 112(b)(1).

Congress specifically rejected the type of approach embraced in the Proposal that would pit the purported costs of compliance against the narrowly defined benefits of the MATS rule. *See* Leg. Hist. at 8746-47 (S. Rep. No. 101-228 at 406-07), (rejecting a proposal to "balance … health and economic considerations" because it not only "fails to protect public health" but also

[36] *See, e.g.,* 21 U.S.C. § 360d(b)(1)(B)(i) (Food, Drug, & Cosmetic Act provision requiring finding that standard is "appropriate and necessary to provide reasonable assurance of the safety and effectiveness of the [medical] device").

"ignores the environmental threats posed by these pollutants") (Statement of Senator Lautenberg). As Congress explained:

> The public health consequences of substances which express their toxic potential only after long periods of chronic exposure will not be given sufficient weight in the regulatory process when they must be balanced against the present day costs of pollution control and its other economic consequences.

Leg. Hist. at 8522 (S. Rep. No. 101-228 at 182).

Section 112 on its face reflects Congress's objective to protect the public, including the most vulnerable and sensitive individual, from hazardous air pollutants. For example, section 112(c)(9) prohibits EPA from deleting a source category if *any* source emits hazardous air pollutants in quantities that "may cause a lifetime risk of cancer greater than one in one million to the individual in the population who is most exposed to emissions of such pollutants from the source." § 112(c)(9)(B)(i). *See* Leg. Hist. at 3177 (H.R. Rep. No. 101-490 at 153) (stating that "EPA's goal is to protect the greatest number of people possible from cancer risks greater than 1 in 1,000,000."). And, for potential adverse health impacts other than cancer, or adverse environmental impacts, EPA may only delete a source category if *no* source emits hazardous air pollutants that "exceed a level which is adequate to protect public health with an ample margin of safety and [if] no adverse environmental effect will result" from such emissions. § 112(c)(9)(B)(ii). *See also* Leg. Hist. at 8507 (S. Rep. No. 101-228 at 167)(recognizing that stringent emissions limitation under section 112(d) "is appropriate as this program is for the control of extremely harmful air pollutants"); Leg. Hist. at 3339 (H.R. Rep. No. 101-490 at 315) (stating that hazardous air pollutants "pose especially serious health risks.").

Further, under section 112(n)(1), one of the studies that Congress directed be prepared was a study by the National Institute of Environmental Health Sciences "to determine the threshold level of mercury exposure below which adverse human health effects are not expected to occur." Congress further directed that the study "shall include a threshold for mercury concentrations in the tissue of fish which may be consumed (*including consumption by sensitive populations*) without adverse effects to public health." § 112(n)(1)(C) (emphasis added). Once again, congressional intent to protect the most vulnerable and sensitive individuals from the risks associated with HAP emissions is manifest.

Congress recognized that the risks of harm from exposure to emissions of hazardous air pollutants are not borne equally across the population. *See*, *e.g.*, Leg. Hist. at 8472 (S. Rep. No. 101-228 at 132)([t]he risk of adverse health effects, principally excess cancers, from exposure to toxic air pollutants is not distributed evenly across the population."). EPA in the Supplemental Finding specifically took into account "distributional concerns . . . as part of the agency's risk assessments … that found more severe risks from EGU HAP emissions to the most sensitive individuals, particularly subsistence fishers." 81 Fed. Reg. at 24,429. These impacts to society, EPA stated, "are not easy, or in some cases are impossible, to quantify or monetize, but are no less real than any other advantage of regulation." *Id*.

In particular, EPA acknowledged the disproportionate impacts from mercury emissions on Native American tribes where fishing is a vital part of tribal culture and where tribal members traditionally consume fish at higher rates than the general population, or engage in other practices, such as rice cultivation, that are adversely affected by mercury pollution. *See* 81 Fed. Reg. at 24,442; *see also* 81 Fed. Reg. at 24,429 n.18 ("the interests raised by the federally-recognized Indian tribes and inter-tribal organizations—such as the cultural impacts to tribes and the furtherance of the United States' treaty obligations to tribes—are an example of the type of societal value that cannot be monetized."). EPA also identified disproportionately high potential risks of mercury exposure for other minorities, including African-Americans living below the poverty line in the southeast who rely on fish they catch for food. *See* RIA at 7-40 through 7-44; Proposed MATS rule, 76 Fed. Reg. at 25,018 (noting that "populations with high levels of self-caught fish consumption are likely to be disproportionately affected" by exposure to mercury, and that those include African-American communities).

In addition, EPA recognized that children and developing fetuses are especially vulnerable to health hazards from HAP emissions from power plants—risks that EPA claimed could not be quantified, with the exception of lost income due to IQ loss in children born to mothers in households where recreationally caught freshwater fish is a protein source. As EPA stated in the proposed MATS rule:

> Children are at greatest risk of adverse health effects from exposures to Hg, and this risk is amplified for children in minority and low income communities who subsist on locally-caught fish. … Even before birth, the developing fetus may be exposed to HAP through the mother that affect development and permanently harm the individual.

Id. As EPA noted in the Supplemental Finding "[t]here are many societal values—such as protecting the most vulnerable among us—that could never be reduced to a monetary value." 81 Fed. Reg. at 24,430.

In stark contrast, in the Proposal, while claiming to "fully acknowledge[] the existence and importance" of HAP-related benefits that cannot be quantified, *see* 84 Fed. Reg. at 2678, EPA refers to such benefits only in passing and gives no discernible weight to them. EPA's focus on only those benefits that can be monetized unlawfully places the risk of harm on the public, contrary to congressional intent.

In *Portland Cement Ass'n v. Ruckelshaus*, 486 F.2d 375 (D.C. Cir. 1973), the court, in construing the CAA requirement that EPA take "into account the costs" of achieving reductions in air pollutant emissions under section 111, rejected the claim that the provision required EPA to prepare "a quantified cost-benefit analysis, showing the benefit to ambient air conditions as measured against the cost of the pollution devices." *Id.* at 387. As the court stated: "[t]he difficulty, if not impossibility, of quantifying the benefit to ambient air conditions, further militates against the imposition of such an imperative on the agency." *Id.* (footnote omitted). The analogy to EPA's proposal is clear: the "difficulty, if not impossibility," of quantifying more

than a small subset of the mercury-related health benefits in the MATS RIA amply demonstrates the lack of a reasoned basis for the Proposal.[37]

Northwest Resource Information Center, Inc. v. Northwest Power Planning Council, 35 F.3d 1371 (9th Cir. 1994), involved challenges to the Columbia River Basin fish and wildlife program, established pursuant to the Northwest Power Act, to address the alarming decline of salmon resulting in large part from the Basin's hydropower system, through the adoption of measures to mitigate and improve the survival of anadromous fish. *See id.* at 1375-77, 1390-93, 1395. The court rejected industry's claim that the statute mandated a cost-benefit analysis,[38] finding that the statute instead simply required a cost-effectiveness standard. *Id.* at 1395. In distinguishing the two approaches, the court stated that a cost-benefit analysis "measures only the magnitude of costs and benefits; it does not assess the distribution, or equity, of the resulting gains and losses." *Id*. (internal citation and quotation omitted). As the court explained, "[i]n other words, non-economic values the Program seeks to further, such as equity, ecology, conservation, and culture, would be ignored." *Id*. Moreover, the court found that a cost-benefit analysis "of each program measure intended to protect, mitigate, and enhance fish and wildlife would work against such efforts." *Id.* at 1394-95.[39] Here too, EPA's proposed specially truncated and myopic cost-benefit approach would impermissibly work against Congressional intent to protect the public and the environment, from the inherent, serious risks of harm from HAP emissions from power plants.[40]

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[37] EPA's attempt in the Proposal to dismiss precedent decided under CAA section 111, *see* 84 Fed. Reg. at 2675, thus misses the mark. Nor does *Entergy Corp. v. Riverkeeper, Inc.*, 556 U.S. 208 (2009), indicate a different result. In that case, the Court held only that it was reasonable for EPA to conclude that a "cost-benefit analysis [was] not categorically forbidden" under the Clean Water Act in the adoption of a rule regulating cooling water intake structures at power plants. *Id.* at 223. The Court also noted that "[o]ther arguments may be available to preclude such a rigorous form of cost-benefit analysis as that which was prescribed under the statute's former … standard … [b]ut that question is not before us." *Id.*

[38] The industry challenger pointed to two requirements in the statute in support of its claim, namely that the overall program assure "'an adequate, efficient, economical, and reliable power supply,'" and that, in the event of alternative mitigation measures that would achieve the same end, "'the alternative with the minimum cost'" should be selected. *See Nw. Res. Info. Ctr.*, 35 F.3d at 1394 (citations omitted).

[39] Moreover, the court noted that applying a cost-benefit analysis to the Act's fish and wildlife provisions would not otherwise allow for scientific uncertainty to be factored in. *See Nw. Res. Info. Ctr.*, 35 F.3d at 1395.

[40] *See also, e.g.*, *American Iron & Steel Inst.*, 939 F.2d at 982 (under OSHA approach, "economic feasibility" for compliance with worker exposure standard was shown "if the industry could either pass on the costs or absorb the costs without threatening the competitive structure of the industry"); *Chippewa & Flambeau Improvement Co. v. FERC*, 325 F.3d 353, 357-58 (D.C. Cir. 2003) (rejecting challenge to FERC licensing decision involving determination that reservoir was "'necessary or appropriate' to the maintenance and operation" of licensed power plants located downstream, where petitioner alleged, *inter alia*, that there was "no evidence … suggesting that the downstream plants would not be financially viable in the absence of the reservoir.").

2. EPA has unlawfully ignored its own record.

EPA's current narrow focus on a very small subset of the quantifiable benefits from regulating HAP emissions from power plants is inconsistent with the statutory objective of protecting the public, including the most vulnerable individuals, from these harmful emissions. As EPA is well aware, the RIA quantifies and monetizes only a small fraction of the public health benefits attributable to reductions in mercury emissions alone—namely, lost income due to "IQ loss in children born to a subset of recreational fishers who consume fish during pregnancy." 84 Fed. Reg. at 2677; *see also* 80 Fed. Reg. at 75,040. That decision was apparently due to staff and funding constraints, as well as limitations in data and the metrics available at the time. According to EPA's independent Science Advisory Board, IQ loss "is not the most potentially significant health effect associated with mercury exposure as other neurobehavioral effects, such as language, memory, attention, and other developmental indices, that are more responsive to mercury exposure." 80 Fed. Reg. at 75,040 (footnote omitted); *see also* 81 Fed. Reg. at 24,441-42 (describing other benefits of mercury reductions that the Agency claimed could not be quantified or monetized). In addition, none of the environmental benefits from reductions in mercury emissions could be quantified, or any of "the health or environmental benefits attributable to reductions in other HAP." 81 Fed. Reg. at 24,441.

The Agency claimed an inability at that time to quantify more than a narrow subset of health benefits attributable to reductions in power plants' mercury emissions "because data and methods for monetizing these benefits are largely unavailable in scientific literature." *Id.* In addition, EPA at the time pointed to "gaps in toxicological data, uncertainties in extrapolating results from high-dose animal experiments to estimate human effects at lower doses, limited monitoring data, difficulties in tracking diseases such as cancer that have long latency periods, and insufficient economic research to support valuation of the health impacts often associated with exposure to individual HAP." *Id*. Thus, EPA in 2016 acknowledged that "the monetized mercury health benefits in the MATS RIA significantly underestimate the HAP health benefits associated with MATS." *Id.*

However, in the RIA, EPA had also qualitatively accounted for the numerous and substantial benefits from MATS. *See id*. at 24,222-23, 24229-30; 80 Fed. Reg. at 75,040 & n.54; 2011 MATS RIA, ES-9 to ES-13, chapter 4, at 4-6 to 4-9, 64-66, 68-79. As EPA stated in the proposed Supplemental Finding, the benefits from HAP reductions "are vital and further the goals of the statute." 80 Fed. Reg. at 75,040. Moreover, "[b]ecause the subset of mercury-only benefits that the EPA could quantify from MATS does not account for many of the important benefits associated with reducing HAP emissions from EGUs," EPA concluded that "it would be unreasonable to draw any conclusions from a comparison of the [monetized] mercury-only benefits to the full costs of MATS." *Id*.

Yet that is exactly what EPA does now in this proposal. *But cf. Fox,* 556 U.S. at 516 (holding that a failure to provide "reasoned explanation" for agency's departure from facts and circumstances that underlay the prior policy is arbitrary and capricious). In addition, as discussed Part V of these comments, EPA arbitrarily relies on outdated cost projections in concluding that "the costs of such regulation grossly outweigh the HAP benefits," 84 Fed. Reg. at 2676, while completely ignoring the fact that the actual costs of MATS compliance have been far lower than

projected. As explained below, the Proposal also ignores information that EPA had in 2011, as well as more recent research submitted in the Supplemental Finding record, indicating that the monetized mercury benefits are far greater than the $4 to $6 million estimated in the MATS RIA. EPA stated in the Supplemental Finding that each of the studies "indicate[s] that the monetized mercury benefits from MATS could be in the hundreds of millions to billions of dollars per year." 81 Fed. Reg. at 24,441, *id. at* n.44. And, if EPA now asserts it must rely on the record before it in 2011-2012, if its analysis is to be "reasonable," it logically also must consider all of the information contained in that record, including studies available to the Agency at the time and which indicate a much higher expected benefits value from controlling mercury than was relied on by the Agency in the RIA.

EPA's lack of concern for unquantified HAP benefits is also evident from errors in the Agency's Memorandum to the EPA-HQ-OAR-2018-0794 docket entitled: Compliance Cost, HAP Benefits, and Ancillary Co-Pollutant Benefits for "National Emission Standards for Hazardous Air Pollutants: Coal-and Oil-Fired Electric Utility Steam Generating Units -- Reconsideration of Supplemental Finding and Residual Risk and Technology Review" (Dec. 14, 2018) ("Memorandum to Docket"), *available at:* https://www.epa.gov/sites/production/files/2018-12/documents/mats-an-cost-benefit_memo12-2018.pdf. In addition to failing to explain its treatment of unquantified HAP benefits, EPA makes glaring mistakes in Table 3 of the Memorandum to Docket. Despite EPA's insistence on separating HAP benefits from co-benefits, the Agency carelessly mixes unquantified HAP benefits with unquantified co-benefits throughout Table 3 by using "B" to represent all unquantified benefits and disbenefits. Thus, EPA carelessly and mistakenly includes unquantified co-benefits in its "Target HAP Benefits" and "Net Target Pollutant Benefits," and unquantified HAP benefits in "Ancillary Co-benefits." These mistakes strongly suggest EPA has not seriously considered the unquantified HAP benefits of MATS in its analysis.

B. EPA's 2012 record demonstrates that its 2012 $4-$6 million monetized benefits figure dramatically under-counts even the subset of monetizable benefits of mercury reductions under the MATS Rule (Comment C-2).

The $4-6 million benefits figure so frequently repeated by opponents of the MATS rule is not, and was not intended to be, an estimate of the total benefits of reducing air emissions of mercury, never mind of reducing all hazardous air pollution, under MATS. The figure approximates only the lost earnings due to IQ loss from mercury exposure in children born to mothers who consumed recreationally caught freshwater fish, and then only in a subset of U.S. watersheds. That is, it is a subset of a subset of a subset of the value of the mercury reductions, alone, from the MATS rule.

EPA itself has previously and consistently recognized that this figure, included in the 2011 RIA, quantified and monetized only "a small subset of the health and environmental benefits attributable to reducing mercury and none of the health and environmental benefits attributable to reductions in other HAP." 81 Fed. Reg. at 24,441; *see also* 77 Fed. Reg. at 9428. EPA noted that this monetized amount "significantly underestimated" the monetary benefits of regulating power plant air toxics. 81 Fed. Reg. at 24,441. EPA well understood that the monetized benefits of mercury reductions reported by the Agency represented only a fraction of

the benefits of reducing mercury, and that mercury is only one of the many air toxics reduced by the rule.

Among the mercury-specific benefits that EPA recognized would occur, but that it acknowledged it had failed to monetize in 2011-2012 are:

> (1) benefits from reducing adverse health effects on brain and nervous system development beyond IQ loss;
> (2) benefits for consumers of commercial (store-bought) fish (*i.e.,* the largest pathway to mercury exposure in the U.S.);
> (3) benefits for consumers of self-caught fish from oceans, estuaries or large lakes such as the Great Lakes;
> (4) benefits for the populations most affected by mercury emissions (*e.g.,* children of women who consume subsistence-level amounts of fish during pregnancy);
> (5) benefits to children exposed to mercury after birth; and
> (6) environmental benefits from reducing adverse effects on birds and mammals that consume fish.

Id. EPA cited the lack of time, funding, and staffing to do these assessments, *see, e.g.,* RIA at 5-9 (noting that EPA does not have the resources to do the valuation work itself (or seemingly, to evaluate all studies it had before it at the time)). EPA also asserted its view that data and methods for monetizing these benefits were "largely unavailable in the scientific literature." 81 Fed. Reg. at 24,441. EPA identified the following obstacles that had influenced its decision to refrain from attempting to fully quantify and monetize all of the benefits of the HAP reductions from MATS: Agency resource deficits, gaps in toxicological data, uncertainties in extrapolating results from high-dose animal experiments to estimate human effects at lower doses, limited monitoring data, difficulties in tracking diseases such as cancer that have long latency periods, and insufficient economic research to support the valuation of the health impacts often associated with exposure to individual HAP. *Id.*

Even if EPA could lawfully restrict its view to the 2012 record, EPA understood in 2012 that the monetized values for mercury benefits it included in the RIA significantly underestimated the benefits of mercury reduction and other benefits of the MATS rule. EPA's Responses to Public Comments on EPA's National Emission Standards for Hazardous Air Pollutants from Coal- and Oil-Fired Electric Utility Steam Generating Units, Vol. 2 of 2, Docket ID No. EPA-HQ-OAR-2009-0234-20126 (December 2011), at 622, 624 ("2011 RTC Vol. 2"). A review of EPA's 2012 record shows that EPA had this new research in its possession at the time MATS was finalized, and that had it factored in these studies, it would have concluded that the annual value of just the mercury reductions associated with MATS was 100s of times higher than the $4-6 million figure that has subsequently been seized on by opponents of MATS.

The 2012 record included several studies presenting a more fulsome analysis of the benefits of mercury reduction. One study estimated the monetary value of a 10 percent reduction in U.S. population exposure to methylmercury at $860 million per year, considering not only reduced income due to I.Q. losses, but also the cardiovascular health improvements associated with lessened mercury exposures. Glenn E. Rice, *et al.*, A Probabilistic Characterization of the

Health Benefits of Reducing Methyl Mercury Intake in the United States, 44 Envtl. Sci. & Tech. 5216, 5216 (2010), Exh. 12. While Rice, *et al*. was before the Agency at the time MATS was finalized (*see* RIA at 89), its monetized benefits were not even discussed in the RIA, nor did EPA respond in its Response to Comments document to commenters' discussion of them. *See, e.g.,* 2011 RTC Vol. 2 at 621 (describing the fact that the comments of Improving Kids' Environment, EPA-HQ-OAR-2009-0234-17921 had placed the Rice, *et al.* study in the record, along with a study by Leonardo Trasande, *et al.,* Public Health and Economic Consequences of Methyl Mercury Toxicity to the Developing Brain, 113 Envtl. Health Persp. 590, 592 (2005), but not evaluating either study), Exh. 41.

The Trasande, *et al.* study showed that mercury emissions cost the U.S. economy an estimated $1.3 billion annually, taking into account the effects only of lower IQ on schooling, probability of workforce participation, and lifetime earnings. EPA acknowledged the submission of this work but recognized it only insofar as it corroborated the Agency's conclusions.

EPA did recognize that its $4-$6 million RIA figure failed to—indeed, was never intended to—capture all benefits of mercury reduction. 77 Fed. Reg. at 9428. EPA recognized that the figure left many important benefits unquantified and unmonetized, including other mercury benefits and all non-mercury HAP benefits. For one thing, EPA noted that the figure did not capture the value of neurological benefits that will occur as a result of reduced levels of mercury in self-caught saltwater fish, and commercially purchased fresh and saltwater fish. EPA also recognized that mercury exposure in utero is also linked with impacts on motor skills, cognitive function, attention and behavior, and that IQ loss is relatively less sensitive to mercury exposure than other cognitive and developmental capacities, but EPA declined to consider evidence in the record monetizing those other cognitive and developmental harms. RIA at 4-1, 4-2, 4-25, 4-30, 64, 4-49. EPA also acknowledged the immune system and cardiovascular damage that can be caused by methylmercury, as well as cognitive effects that emerge after childhood, but did not monetize or consider monetizing those harms. *Id.* at ES-11. EPA argued that it reasonably chose not to include additional monetized values of these mercury reduction benefits, because the monetized benefits of the MATS rule already far exceeded its projected costs, by three to nine times. As EPA explained in the preamble to the 2012 final MATS rule:

> The benefits of this rule outweigh costs by between 3 to 1 or 9 to 1 depending on the benefit estimate and discount rate used. The co-benefits are substantially attributable to the 4,200 to 11,000 fewer $PM_{2.5}$-related premature mortalities estimated to occur as a result of this rule. The EPA could not monetize some costs and important benefits, such as some Hg benefits and those for the HAP reduced by this final rule other than Hg. Upon considering these limitations and uncertainties, it remains clear that the benefits of this rule … are substantial and far outweigh the costs.

77 Fed. Reg. at 9306; *see also* RIA at ES-1, 4-1 to 4-3 (presenting same idea); 2011 RTC Vol. 2, at 641, 644-45 (same).

Moreover, EPA also recognized that Congress was concerned in section 112 with protecting the "most exposed individual," 42 U.S.C. § 7412(c)(9), a priority not adequately

captured in calculations of total benefits to the economy from reducing HAPs (even if EPA had made them). 77 Fed. Reg. at 9362-64; *see also* 84 Fed. Reg. at 24,421. EPA also clearly understood that even for the small subset of mercury-reduction benefits that was being estimated, the estimate was too low. RIA at 4-49 ("[e]xcluding potentially exposed populations from the analysis because of missing/unavailable mercury concentration data reduced the total exposed population estimate by roughly 44%.").

In 2012, EPA also acknowledged that it had not estimated the benefits of other HAP reductions expected to be achieved by MATS. 77 Fed. Reg. at 9306 (asserting that EPA simply could not monetize some important benefits of the rule, including those associated with the non-mercury HAP reductions expected due to MATS). These HAPs, including PM-associated arsenic, cadmium, hexavalent chromium, other metals, dioxins, and acid gases like hydrofluoric and hydrochloric acids, are extremely harmful even in small amounts, as Congress recognized in 1990 when adding them to the list. They include toxic metals, some of which are carcinogens, as well as gases causing acute respiratory problems in exposed populations, particularly persons living near the plants.[41]

EPA's record shows that the Agency did not believe it was required to quantify or monetize all of these non-mercury HAP reduction benefits, and in any event, that it felt it didn't have the tools to do so. *See* RIA at ES-9 (noting that it did not quantify these benefits although they could be "substantial"), 72 (asserting that methodology and data limitations limited the Agency's ability to monetize the benefits and that EPA would not spend resources attempting to do so). Instead EPA provided an in-depth qualitative assessment and listing of the benefits it expected would accrue to health and the environment. RIA § 4.9. The Agency recognized, as it must, that just because these benefits cannot be reduced to a dollars and cents value does not mean they will not occur, nor does it mean that achieving them is not important and central to Congress's objective in section 112.

Given EPA's position, it was reasonable for EPA to conclude, in 2011-2012, that such quantification was not a requirement of the rulemaking, and that qualitative assessments of the many additional benefits of reducing power plant HAP emissions were sufficient for the Regulatory Impact Analysis, particularly as the total quantified, monetized benefits of the rule, including the monetized values of the fine particulate emissions reductions associated with acid gas controls, were valued at between 3 and 9 times the projected costs of the rule. 77 Fed. Reg. at 9306.

Similarly, it was reasonable for the Agency in 2016 to use this approach for EPA's Supplemental Finding. Given that reductions of acid gases required for compliance would necessarily also reduce fine particulates that form in the atmosphere after those pollutants are

[41] *See generally* 76 Fed. Reg. at 25,011 (discussing cancer risks from non-mercury metals, including chromium and nickel, emitted by EGUs) & 77 Fed. Reg. 9318-19. *See also* 76 Fed. Reg. at 25,003-4 (power plants continue to be a significant source of these and other toxic metals, such as arsenic and cadmium, which have serious health effects), 25,006 Table 5 (arsenic and cadmium with serious health effects), 25,004-5 (discussing health harms from EGU emissions of the acid gases hydrogen chloride and hydrogen fluoride).

emitted by an uncontrolled plant, it was reasonable to "count" those reductions as benefits of HAP control, no matter how they are otherwise labelled. EPA said:

> As noted in the proposed supplemental finding (80 FR 75041), '$PM_{2.5}$ emissions are comprised in part by the mercury and non-mercury HAP metals that the MATS rule is designed to reduce. The only way to effectively control the particulate-bound mercury and non-mercury metal HAP is with PM control devices that indiscriminately collect all PM along with the metal HAP, which are predominately present as particles. Similarly, emissions of the acid gas HAP (hydrogen chloride, hydrogen fluoride, hydrogen cyanide, and selenium oxide) are reduced by acid gas controls that are also effective at reducing emissions of SO2 (also an acid gas, but not a HAP).' … In the MATS RIA, the $PM_{2.5}$ co-benefits estimates included reducing exposure to both directly emitted particles as well as secondarily-formed sulfate particles.

81 Fed. Reg. at 24,438 n.29.

EPA also acknowledged in its 2016 Supplemental Finding that it had before it at that time new research that "demonstrates the potential extent of" the prior underestimation of the benefits of reducing mercury. *Id*. at 24,441. At that time, EPA merely noted that this new information further corroborated the conclusion the Agency was making that the benefits of the MATS rule far outweigh its costs. Now, however, where EPA proposes to rescind the appropriateness determination based only on a partial comparison of monetized costs and benefits, and putting aside the unlawfulness of EPA's decision to ignore benefits that cannot be monetized, it is unlawful, unreasonable, and arbitrary for EPA to ignore the full record before it by failing to count *at least* the full monetized benefits of reducing exposures to hazardous air pollution. In other words, now that EPA is making monetized costs versus monetized HAP benefits the core of its analysis, EPA must at least demonstrate that it has (1) made all reasonable efforts to monetize HAP benefits wherever possible, and (2) taken full account of all existing monetized estimates of such benefits. The Proposal does neither.

C. Available information post-2012 indicates much higher value for HAP reductions, including benefits from reducing mercury that alone exceed the total cost of the Rule (Comment C-2).

Not only was EPA provided with studies in 2011-2012 that showed much higher monetized values of mercury reductions than the Agency included in its RIA, but additional studies were provided to the Agency during the 2016 Supplemental Finding comment period, pointing out additional confirmed harms from air toxics that are alleviated by MATS. And, scientific and technical work has been done since that time, providing yet more evidence that the value of the HAP emissions reductions achieved under the MATS rule well exceed even EPA's initial, overestimated costs. The available evidence now demonstrates that the monetizable benefits of mercury reductions from MATS—by themselves, without taking into account any of the benefits of MATS' reductions in other HAP and non-HAP pollutants or the non-monetizable benefits of reducing mercury—are comparable in magnitude to the 2011 RIA's projected costs and exceed the actual costs of implementing the rule. At a minimum, the available evidence on

monetizable benefits demonstrates that the Proposal's claim of a "gross imbalance" and "gross disparity," 84 Fed. Reg. at 2677 between costs and monetized benefits is incorrect.

1. Current scientific evidence supports mercury emissions reductions benefits far in excess of those monetized by the Agency in 2011.

As noted above, EPA in 2012 was presented with the Rice, *et al.* (2010) study, Exh. 12, showing the monetized benefits of a *10 percent* reduction in U.S. methylmercury to be $860 million per year, and the Trasande, *et al*. (2005) study, Exh. 41, showing a $1.3 billion annual benefit from eliminating mercury emissions from U.S. power plants.

In comments on the Proposed Supplemental Finding in 2016, commenters again submitted these studies and others showing that the 2011 RIA's monetized mercury benefits were extremely low. For example, researchers at the Harvard T.H. Chan School of Public Health, and other institutions, provided the Agency with comments compiling work showing that EPA had vastly understated the benefits associated with the MATS rule's mercury reductions.

Specifically, Sunderland, *et al.* provided research demonstrating that quantified societal benefits associated with declines in mercury deposition attributable to implementation of MATS are vastly larger than the amount estimated by the EPA in 2011, and that in particular, EPA had significantly underestimated the contribution of EGUs to locally deposited mercury. Comments of Sunderland (Harvard), Charles Driscoll (Syracuse University), James K. Hammitt (Harvard), Philippe Grandjean (Harvard), John S. Evans (Harvard), Joel D. Blum (University of Michigan), Celia Y. Chen (Dartmouth College), David C. Evers (Biodiversity Research Institute), Daniel A. Jaffe (University of Washington-Bothell), Robert P. Mason (University of Connecticut), EPA-HQ-OAR-2009-0234-20547 (Jan. 25, 2016) ("Comments of Sunderland, *et al.*").

Also among the work submitted to EPA was a peer-reviewed published study by Amanda Giang and Noelle Selin of the Massachusetts Institute of Technology. *See* Comments of Giang, Mulvaney, and Selin, MIT, EPA-HQ-OAR-2009-0234-20544 ("Giang & Selin Comments"), Exh. 1 (attaching A. Giang & N.E. Selin, Benefits of mercury controls for the United States, 113 PNAS 286 (Jan. 12, 2016) ("Giang & Selin, Benefits"), Exh. 2. These authors found that compared to a scenario without additional mercury and air pollution controls, MATS was projected to yield (by 2050) cumulative lifetime benefits of $147 billion (2005 USD, discounted at a 3percent interest rate) for individuals affected, and cumulative economy-wide benefits (also by 2050) of $43 billion (2005 USD, discounted at a 3 percent interest rate Giang & Selin Comments at 1. The authors note that "annualized, [their] estimates out to 2050 are $3.7 billion/year in lifetime benefits for affected individuals, and $1.1 billion/year in economy-wide benefits." *Id.* at 3. Notably, this study further illustrates the issue with EPA's initial monetization: it not only did not consider the full range of mercury reductions benefits, but also underestimated the contribution of local sources to U.S. mercury deposition and resulting public health impacts. *Id.; see also* Comments of Sunderland, *et al*. at 5-6 (citing multiple studies, some predating the RIA's publication, showing that human and ecological health risks associated with

utility-derived mercury emissions are greatest in regions that are most affected by locally deposited mercury).[42]

Giang and Selin's published estimate of mercury benefits has been embraced by a wide range of experts. Driscoll, *et al.,* Harvard C-Change, Mercury Matters (December 2018), *available at* https://www.hsph.harvard.edu/c-change/news/mercury-matters-2018-a-science-brief-for-journalists-and-policymakers/. Their work recognizes that while there is some remaining uncertainty in the association between methylmercury consumption and cardiovascular impacts, the association is real and these heart-health impacts are significant. Giang and Selin built their work on other peer-reviewed studies discussing the evidence for an association, and that also are in EPA's record, and they follow the recommendation of these studies to include cardiovascular effects in the accounting of mercury-related health effects.[43] Indeed, EPA in 2011 well-understood and supported this, having convened a workshop of experts whose participants concluded in a published study that in 2011 there was a sufficient body of epidemiological, animal, and in vitro evidence to support the development of a dose-response relationship between dietary methylmercury exposure from fish consumption and heart attacks. *See* H.A. Roman, *et al*., Evaluation of the cardiovascular effects of methylmercury exposures: current evidence supports development of a dose-response function for regulatory benefits analysis, 119 Envtl. Health Persp. 607 (2011) (Exh. 11).

The Proposal's claim that the monetizable benefits of reducing HAPs are in "gross" disproportion to the compliance costs therefore is contrary to a large body of peer-reviewed scientific studies in the Agency's record as far back as 2011, and is plainly incorrect.

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[42] Sunderland, *et al.* cite: Y. Zhang, *et al*., Observed decrease in atmospheric mercury explained by global decline in anthropogenic emissions, 113 PNAS 526 (Jan. 19, 2016) Exh. 4; M.S. Castro & J. Sherwell, Effectiveness of emission controls to reduce the atmospheric concentrations of mercury, 49 Envtl. Sci. & Tech. 14,000 (2015) (Exh. 5); F.A. Cross, *et al*., Decadal declines of mercury in adult bluefish (1972-2011) from the mid-Atlantic coast of the U.S.A., 49 Envtl. Sci. & Tech. 9064 (2015) (Exh. 6); M.S. Hutcheson, *et al*., Temporal and spatial trends in freshwater fish tissue mercury concentrations associated with mercury emissions reductions, 48 Envtl. Sci. & Tech. 2193 (2014) (Exh. 7); P.E. Drevnick *et al.,* Spatial and temporal patterns of mercury accumulation in lacustrine sediments across the Great Lakes region,161 Envtl. Pollution 252 (2012) (Exh. 8); D.C. Evers, *et al.*, Biological mercury hotspots in the northeastern United States and southeastern Canada, 57 Bioscience 29 (2007) (Exh. 9).

[43] Giang & Selin, Benefits cites the following: M.R. Karagas, *et al.*, Evidence on the human health effects of low-level methylmercury exposure, 129 Envtl. Health Persp. 799 (2012)(Exh. 10); H.A. Roman, *et al*., Evaluation of the cardiovascular effects of methylmercury exposures: Current evidence supports development of a dose-response function for regulatory benefits analysis, 119 Envtl. Health Persp. 607 (2011)(Exh. 11); G.E. Rice, J.K. Hammitt, & J.S. Evans, A probabilistic characterization of the health benefits of reducing methyl mercury intake in the United States, 44 Envtl. Sci. & Tech. 5216 (2010)(Exh. 12); G.E. Rice & J.K. Hammitt, Economic Valuation of Human Health Benefits of controlling Mercury Emissions from U.S. Coal-Fired Power Plants (Northeast States for Coordinated Air Use Management, Boston, MA, 2005)(Exh. 13).

2. Recent work also shows that the adverse public health impacts of non-mercury HAPs are more significant, and that the benefits of reducing them are greater, than EPA's RIA suggests.

Environmental and public health groups submitted comments in 2016 documenting the adverse public health impacts of acid gases and other non-mercury HAPs. Comments of the American Academy of Pediatrics, *et al.,* EPA-HQ-OAR-2009-0234-20558 (Jan. 15, 2016). Additionally, the American Thoracic Society (ATS) filed a brief in the 2017 Murray Energy challenge to the Supplemental Finding, D.C. Cir. No. 16-1127 (Doc. No. 1657674) (Jan. 25, 2017) citing to work done since 2011 supporting the significant adverse public health impacts of non-mercury HAPs, including acid gases and non-mercury metal HAPs. For example, ATS cites Aisha S. Dickerson *et al*., Autism spectrum disorder prevalence and associations with air concentrations of lead, mercury, and arsenic; 188 Envtl. Monitoring and Assessment 407 (2016), *available at* https://www.ncbi.nlm.nih.gov/pubmed/27301968 (Exh. 14); Aisha S. Dickerson *et al*., Autism spectrum disorder prevalence and proximity to industrial facilities releasing arsenic, lead or mercury, 536 Sci. of the Total Env. 245 (2015), *available at* https://www.ncbi.nlm.nih.gov/pubmed/26218563 (Exh. 15).

Recent studies continue to show the tremendous cost of mercury exposure on society. A 2017 study links mercury exposure to extensive cardiovascular harms including hypertension, coronary heart disease, myocardial infarction, cardiac arrhythmias, carotid artery obstruction, cerebrovascular accident, and generalized atherosclerosis. G. Genchi, *et al.,* Mercury Exposure and Heart Diseases, 14 Int'l J. Envtl. Res. Pub. Health, 74 (Jan. 12, 2017) (Exh. 16). Another 2017 study calculates the disease burden of mercury exposure at $4.8 billion per year. P. Grandjean & M. Bellanger, Calculation of the disease burden associated with environmental chemical exposures: application of toxicological information in health economic estimation, 16 Envtl. Health 123 (Dec. 5, 2017) (Exh. 3).

Also since 2016, more work has been done to assess the benefits specific to children's health of reducing air pollution from fossil-fuel fired power plants, including polycylic aromatic hydrocarbons (PAH), toxic metals associated with coarse (PM_{10}) particles, and also the fine particulates controlled when acid gas emissions are controlled. Perera, *et al*. completed a comprehensive review of work done between 2000-2018, including since 2011, that further confirms significant adverse public health harms to children from exposure to coal-fired power plant HAPs. The authors identify adverse birth outcomes, impairment of cognitive and behavioral development (including increased incidence of ADHD, autism, and addictive behaviors), respiratory illnesses, and potential childhood cancers, as among the adverse impacts on children of exposure to the air toxic emissions from coal-fired power plants. F. Perera, *et al.,* Towards a Fuller Assessment of Benefits to Children's Health of Reducing Air Pollution and Mitigating Climate Change Due to Fossil Fuel Combustion, *accepted manuscript* 8 December 2018, *to appear in* 172 Envtl. Health 55 (May 2019), *available at:* https://doi.org/10.1016/j.envres.2018.12.016 (Exh. 17).

3. The Proposal unreasonably ascribes no value to reducing massive contamination of waters throughout most of the United States and related limitations on the safe consumption of fish.

Nor are the wide array of health benefits of controlling HAP mentioned above the only important benefits that EPA's proposal arbitrarily assigns no weight. As EPA previously recognized, as a result of methylmercury contamination, waters throughout the United States are subject to mercury advisories warning all people, or those in sensitive groups (such as pregnant individuals), not to eat fish caught in those waters.[44] In 2012-2103, in some states, all, or nearly all, waters were unsafe for fish consumption due to mercury contamination.[45] These warnings, while necessary to avoid some of the health burden associated with mercury, obviously have very substantial economic costs – by diminishing recreational opportunities, reducing property values, and preventing people who heed the warnings from access to what would (absent the methylmercury) be a ready and affordable source of nutritious food. EPA's Proposal gives zero value to this ubiquitous and consequential pollution of much of the Nation's waters – and on that basis too is arbitrary and capricious.

D. EPA's proposed analysis fails to address distributional issues at the heart of Section 112's purpose and requirements (Comment C-2).

As EPA has previously stated, "national-level benefit-cost analysis may not account for important distributional effects, such as impacts to the most exposed and most sensitive individuals and populations." 80 Fed. Reg. at 75,040. Yet the analysis in EPA's proposal includes only such a "national-level" analysis, which ignores the localized, but severe, harms of power-plants' toxic emissions.

The record demonstrates that the harms caused by power plant air toxics are not evenly distributed; they are, instead, concentrated and localized, often within communities that face a variety of other risks, and are thus especially vulnerable to these harms. RIA at 4-48 to 4-53; Mercury Risk TSD at 55-65; Supplement to Non-mercury Case Study Chronic Inhalation Risk Assessment for the Utility MACT Appropriate and Necessary Analysis, Docket ID No. EPA–

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[44] *See* 65 Fed. Reg. at 79,827; U.S. EPA, EPA-820-F-13-058, 2011 National Listing of Fish Advisories (2013), https://www.epa.gov/fish-tech/national-listing-fish-advisories-2011

[45] *See* Br. of State and Local Government Respondents in *Michigan v. EPA*, No. 14-46, at 8 & n.7 (filed Feb. 25, 2015) (citing North Carolina Mercury Total Maximum Daily Load (2012) (North Carolina TMDL) at 20, *available at*: https://files.nc.gov/ncdeq/Water%20Quality/Planning/TMDL/FINAL%20TMDLS/Statewide/NCMercuryTMDL_EPASubmit.pdf (all state waters impaired for Large Mouth Bass consumption due to mercury contamination); Statewide Michigan Mercury Total Maximum Daily Load: Public Review Draft (2013) (Michigan Draft TMDL) at 9, *available at*: https://www.michigan.gov/documents/deq/wrd-swas-hgtmdl-draft_415360_7.pdf at 9 (all inland lakes and several hundred river miles subject to mercury-related fish consumption advisories)).

HQ– OAR–2009–0234–19912 (Nov. 2011) (noting cancer risks from EGUs in excess of the section 112(c)(9) delisting threshold of 1-in1-million cancer risk).

Individuals and communities who live near coal- and oil-fired power plants—and who experience the highest air pollution burden from the plants—are disproportionately members of racial and ethnic minorities. Of the 8.1 million people living within three miles of a coal-fired plant in the year 2000, 39 percent were people of color, a percentage significantly higher than the proportion of people of color in the U.S. population as a whole.[46] These people also had average per capita incomes significantly lower than the national average. Sixty-eight percent of African Americans lived within 30 miles of a coal-fired power plant.[47] By comparison, about 56 percent of the white population lived within 30 miles of a coal-fired power plant. Moreover, coal plants that have been built in urban areas are overwhelmingly located in communities of color.[48]

The people most exposed to power plant pollution are the least likely to be able to afford the health care costs imposed by exposure to pollution: the per capita income of the 8.1 million people who live within three miles of a coal-fired power plant is $18,594, significantly lower than the national average. Socially disadvantaged populations are also at greater risk of adverse health effects from air pollution, with one study finding that nearly 50 percent of the risks for premature mortality from power plant-related exposures were borne by the 25 percent of the population lacking a high school education. Socially disadvantaged populations also are more likely to lack access to health care and to live in conditions associated with asthma exacerbations.

People exposed to methylmercury that results from power plant emissions through the consumption of recreationally caught fish are also more likely to be non-white than the general population. Native Americans are especially likely to consume larger portions of fish, including from waterbodies polluted with methylmercury. African Americans are disproportionately likely to be avid anglers, and they eat fish more often and in larger portions than whites.[49]

As EPA has also previously acknowledged, these localized and disproportionate impacts are central to section 112's text and design. *See* Legal Memorandum at 9-11 (noting statutory goal of "limiting the risk to the most exposed and most sensitive members of the population"). The statutory text evinces the importance of localized, severe impacts within section 112's overall scheme. 42 U.S.C. § 7412(c)(9) (source category may not be delisted if pollutant emissions cause cancer risk above threshold to "the individual in the population who is most exposed" to emissions). The legislative history, likewise, confirms the weight Congress assigned to "the very high risk of health problems experienced by individuals living near large industrial facilities or in highly developed urban corridors." Leg. Hist. at 8469 (S. Rep. No. 101-228) (noting that section 112 intended to address these risks, not just those to "the general

[46] NAACP, *Coal Blooded* (April 2016) at 15, https://www.naacp.org/wp-content/uploads/2016/04/CoalBlooded.pdf (Exh. 18).

[47] Black Leadership Forum, *et al.*, *Air of Injustice: African Americans and Power Plant Pollution* at 3 (2002), http://www.energyjustice.net/files/coal/Air_of_Injustice.pdf (Exh. 19).

[48] *Coal Blooded* at 15.

[49] *Air of Injustice* at 3.

population"); *id. at* 8518 (emphasizing priority of eliminating risk "experienced by the individual most exposed to emissions," over "simultaneous balancing of costs and benefits").

These impacts are central to the statute, and to EPA's decision, and the Agency cannot ignore them when determining whether regulation is appropriate. *Michigan*, 135 S. Ct. at 2707 (word appropriate "naturally and traditionally includes consideration of all the relevant factors"). In addition to section 112 itself, Executive Order 12,898 (Feb. 11, 1994) establishes that "disproportionately high and adverse human health or environmental effects" of EPA decisions "on minority populations and low-income populations in the United States and its territories and possessions," are of central concern to EPA's decision-making, with specific emphasis upon "subsistence consumption of fish and wildlife." Executive Order 13,035 (April 21, 1997), amplifies the centrality of these concerns where "environmental health risks" may "disproportionately affect children."

EPA previously has recognized the importance of distributional impacts for the regulation of hazardous pollution from power plants. 77 Fed. Reg. at 9445; 81 Fed. Reg. at 24,439 n.34 ("distributional concerns, such as impacts to the most exposed and sensitive individuals in a population, are important for [power plant regulations]"). Yet EPA's current Proposal ignores these distributional impacts entirely. In the Proposal, EPA has made no assessment of the consequences of not regulating HAPs from EGUs under section 112 for *anyone,* nevermind for the vulnerable groups and sensitive individuals at the center of the statute's concern. EPA has failed to acknowledge, explain, or justify its change in position with respect to the significance of distributional concerns and environmental justice for the appropriate and necessary finding. EPA has also failed to explain how its failure to give significant weight to these concerns under the appropriate and necessary finding is consistent with the Clean Air Act. To finalize this Proposal would be unlawful, arbitrary and capricious on these grounds as well.

IV. EPA'S ANALYSIS OF COSTS AND BENEFITS FOR THE SECTION 112 APPROPRIATE AND NECESSARY FINDING MUST INCLUDE ALL BENEFITS RESULTING FROM REGULATION, INCLUDING BENEFITS FROM PARTICULATE MATTER REDUCTIONS (Comment C-2).

While a formal cost-benefit analysis for the appropriate and necessary finding is not required by the statute or *Michigan*, if EPA chooses to do one, it must include all of the relevant benefits and costs. Instead, the Proposal adopts a gerrymandered parody of cost-benefit analysis in which EPA arbitrarily excludes major items that do not suit its policy objective. Even if EPA could rationally distinguish between 'direct' and 'indirect' benefits, there is no basis for its decision to consider some of the rule's consequences (the cost to industry of full compliance with the rule) while ignoring other consequences (for example, the health benefits to the public of the particulate matter reductions resulting from those investments in full compliance). For nearly forty years, Federal agencies have been required to perform cost-benefit analyses when promulgating new regulations, reviewing existing regulations, and developing legislative proposals concerning regulation. While early cost-benefit analyses only focused on the direct effects of a regulation, academic, administrative, and judicial attention quickly turned to the need

to address the indirect effects of regulatory action.[50] The guiding reasoning for this shift was that "all regulations undertaken to minimize or eliminate certain health risks often have the perverse effect of promoting other risks."[51] For this reason, any reasonable cost-benefit analysis of a regulation must not only address the regulation's primary effects in reducing the target risk, but also the secondary effects, or co-benefits and indirect costs, of the regulation. This principle is enshrined in the Office of Management and Budget's Circular A-4, which explicitly instructs agencies like the EPA to consider co-benefits and indirect costs.[52]

Despite the clear regulatory history of accounting for both co-benefits and indirect costs (*i.e.*, ancillary benefits and ancillary costs) in cost-benefit analyses, EPA now proposes to find to the contrary, that it was improper for the agency to have considered the monetized benefits associated with reductions in particulate matter emissions that result from the implementation of MATS.[53] In particular, EPA asserts that giving equal weight in the RIA and the Supplemental Finding, to the particulate matter air quality projected to occur as a result of the reductions in HAPs was flawed because the focus of Clean Air Act section 112(n)(1)(A) is only on HAP emission reductions.[54] EPA goes on to suggest in the proposed rule that because the HAP-related benefits (as monetized in the RIA) were not at least moderately commensurate with the cost of HAP controls, no amount of co-benefits should be able to offset this purported imbalance for purposes of a determination under section 112(n)(1)(A) that it is appropriate to regulate EGUs under section 112.[55] These assertions are wrong.

EPA's Proposal, if finalized, would be not only unlawful, but also arbitrary, capricious, and otherwise not in accordance with the law. This Part IV will demonstrate that EPA's proposed failure to consider co-benefits (1) conflicts with four decades of regulatory analysis, EPA practice, the legislative record, and case law; (2) treats avoided public health effects differently from industry compliance costs without a legal basis or reasoned analysis; (3) ignores or dismisses basic principles of reasonable economic analysis and existing authorities requiring EPA to consider all consequences of its decisions; (4) excludes certain direct benefits of HAP reduction by excluding many benefits attributable to HAP pollution controls; and (5) erroneously suggests that CAA section 110 and section 112 require exclusivity with respect to reducing particulate matter emissions.

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[50] *See generally* John D. Graham & Jonathan Baert Wiener, Risk versus Risk: Tradeoffs in Protecting Health and the Environment (John D. Graham *et al.*, eds., 1997); Samuel J. Rascoff & Richard L. Revesz, *The Biases of Risk Tradeoff Analysis: Towards Parity in Environmental and Health-and-Safety Regulation*, 69 UNIV. CHI. L. REV. 1763, 1765 (2002).

[51] Samuel J. Rascoff & Richard L. Revesz, *The Biases of Risk Tradeoff Analysis: Towards Parity in Environmental and Health-and-Safety Regulation*, 69 UNIV. CHI. L. REV. 1763, 1765 (2002).

[52] Circular A-4 (Exh. 20); *see also* Office of Mgmt. & Budget, Office of Info. and Reg. Aff., Executive Off. of the President, Reg. Impact Analysis: A Primer 7 (Aug. 15, 2011)("Primer")(Exh. 21), https://www.reginfo.gov/public/jsp/Utilities/circular-a-4_regulatory-impact-analysis-a-primer.pdf.

[53] 84 Fed. Reg. at 2675-76.

[54] *Id.*

[55] *Id.* at 2676.

A. There is a bipartisan history of considering co-benefits and indirect costs (Comment C-2).

1. Bipartisan federal regulatory history over the course of several decades has consistently accounted for both co-benefits and indirect costs as part of comprehensive and balanced cost-benefit analyses.

The implementation of virtually every regulation results in collateral consequences which can either be defined as co-benefits or indirect costs. Ancillary benefits (or co-benefits), are officially defined by the Office of Management and Budget as benefits that are "typically unrelated or secondary to the purpose of the action."[56] In the case of MATS, these "co-benefits" include particulate matter pollution reductions that are not the purpose of MATS, but that nevertheless result from the technological or operational changes made to comply with the rule. They are thus not "unrelated" to the purpose of the action, although they may be considered "secondary" to it, in the sense that they result from actions taken to control HAPs.

Under longstanding, uncontroversial practice, Presidential administrations of both parties have stressed that regulatory analysis should focus on the overall societal benefits and costs expected to result from regulatory action. The first effort to establish comprehensive and centralized regulatory review came in 1971, when President Nixon initiated the "Quality of Life Program."[57] This program established a procedure for agencies to consider information related to environmental quality and public health and safety.[58] In 1974, President Ford issued Executive Order 11,821,[59] which required detailed economic impact analyses for proposed regulations.[60]

President Carter further expanded the requirement for a comprehensive economic impact analysis in Executive Order 12,044, which required agencies to consider "unnecessary burdens on the economy, on individuals, on public or private organizations, or on State and local governments."[61] President Carter also signed the Paperwork Reduction Act, which established the Office of Information and Regulatory Affairs within the Office of Management and Budget.[62]

In 1981, President Reagan signed Executive Order 12,291, which not only required agencies to refrain from regulatory action unless potential benefits to society outweigh potential costs, but also required agencies to set regulatory priorities with the aim of maximizing the

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[56] Primer at 7.

[57] John D. Graham, Paul R. Noe, & Elizabeth L. Branch, *Managing the Regulatory State:* The Experience of the Bush Administration, 33 FORDHAM URB. L.J. 953, 956 (2006) ("Managing the Regulatory State").

[58] *Id.*

[59] Exec. Order No. 11,821, 39 Fed. Reg. 41,501 (Nov. 27, 1974), https://www.govinfo.gov/content/pkg/FR-1974-11-29/pdf/FR-1974-11-29.pdf.

[60] Managing the Regulatory State at 957.

[61] *Id.* at 958; Exec. Order No. 12,044, 43 Fed. Reg. 12,661 (Mar. 23, 1978), https://www.foreffectivegov.org/sites/default/files/regs/library/eo12044.pdf.

[62] Paperwork Reduction Act of 1980, 44 U.S.C. §§ 3501–3521.

aggregate net benefits to society.[63] In addition, Executive Order 12,291 required agencies to prepare a Regulatory Impact Analysis (RIA) for every major rule and required the Office of Management and Budget to review all proposed major rules before publication in the Federal Register.[64]

President Clinton rescinded Executive Order 12,291 and issued Executive Order 12,866 in 1993, which created the foundation for the current regulatory review process.[65] Executive Order 12,866 highlights the need for agencies to "assess *all* costs and benefits of available regulatory alternatives, including the alternative of not regulating" and to consider non-quantifiable effects including potential economic, environmental, public health, and safety benefits.[66] Perhaps most importantly, Executive Order 12,866 recognizes that as "some costs and benefits are difficult to quantify, [each agency shall] propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify its costs."[67] Therefore, under this Executive Order, quantified benefits do not have to outweigh costs, but an agency must consider all regulatory benefits (quantified and unquantified), in deciding whether regulation is justified.

The George W. Bush Administration took this commitment to a full accounting of societal effects a step further in the most formal, and still governing, guidance for agency RIAs in OMB Circular A-4, which details what the Office of Information and Regulatory Affairs expects to see in a regulatory analysis for its purposes.[68] Circular A-4, which is discussed in further detail below, specifically notes that agencies should "look beyond the direct benefits and direct costs of [a] rulemaking and consider any important ancillary and countervailing risks."[69] In addition, Circular A-4 states that agencies should "subtract the monetary estimate of the ancillary benefits from the gross cost estimate to yield an estimated net cost."[70]

Most importantly, Circular A-4 emphasizes the need for agencies to account for co-benefits that have the capacity to change the outcome of a regulatory analysis. In particular, Circular A-4 states that "[a]nalytic priority should be given to those ancillary benefits and countervailing risks that are important enough to potentially change the rank ordering of the main alternatives in the analysis."[71] Circular A-4 goes on to provide that "[i]n some cases the mere consideration of these secondary effects may help in the generation of a superior regulatory alternative with strong ancillary benefits and fewer countervailing risks."[72] There is nothing in

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[63] Exec. Order No. 12,291, 46 Fed. Reg. 13,193 (Feb. 17, 1981), https://www.archives.gov/federal-register/codification/executive-order/12291.html.

[64] *Id.*

[65] Exec. Order No. 12,866, 58 Fed. Reg. 51,735 (Sept. 30, 1993), https://www.archives.gov/files/federal-register/executive-orders/pdf/12866.pdf.

[66] *Id.* at 51,735.

[67] *Id.*

[68] Circular A-4.

[69] *Id.* at 26.

[70] *Id.* at 12.

[71] *Id.* at 26.

[72] *Id.*

Circular A-4 to suggest that co-benefits should not be given equal consideration with costs or that benefits that fall outside of the intended statutory scope of regulation are not appropriate to consider. Instead, Circular A-4 directs agencies to consider all effects of regulatory action. Failing to adequately consider all consequences of regulatory action would result in an inaccurate and unreasonable assessment of the overall impacts of a regulation.

Overall, decades of agency practice demonstrate that regulatory analysis should focus on the full complement of societal benefits and costs expected to result from regulatory action. *Michigan* specifically invoked "this established administrative practice" among the bases of the cost-consideration requirement it discerned in the word "appropriate."[73]

2. EPA's own cost-benefit guidelines direct the agency to consider indirect costs and benefits.

For the reasons outlined above, EPA's own cost-benefit guidelines, adopted after extensive peer review, instruct the agency to assess "*all* identifiable costs and benefits," including both direct effects "as well as ancillary benefits and costs."[74] The assessment of both direct and indirect effects is needed to "inform decision-making" and allow meaningful comparisons between policy alternatives."[75]

Accordingly, under multiple Presidential administrations of both parties, EPA has consistently taken indirect benefits into account when evaluating regulations.[76] EPA has also recognized that ancillary effects such as reducing or increasing emissions of other pollutants are part of any proper cost-benefit analysis.

3. Legislative history supports full consideration of indirect costs and benefits.

The legislative history of the 1990 Clean Air Act Amendments indicates that Congress specifically contemplated that "[w]hen establishing technology-based standards" to regulate

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[73] 135 S. Ct. at 2708.

[74] EPA, Office of Policy, National Center for Environmental Economics, Guidelines for Preparing Economic Analyses, at 11-2 (2010) ("Guidelines for Preparing Economic Analyses").

[75] *Id.* at 7-1.

[76] *See e.g.*, 52 Fed. Reg. 25,399, 25,406 (July 7, 1987) (in issuing advance notice for new source performance standards for municipal waste combustors, noting intent to "consider the full spectrum of the potential impacts of regulation," including "indirect benefits accruing from concomitant reductions in other regulated pollutants"); 56 Fed. Reg. 24,468, 24,469 (May 30, 1991) (in proposing performance standards and emission guideline for landfill gases, justifying the regulation partly on "the ancillary benefit of reducing global loadings of methane"); 63 Fed. Reg. 18,504, 18,585-86 (Apr. 15, 1998) (analyzing the indirect benefits of reducing co-pollutants like volatile organic compounds, particulate matter, and carbon monoxide from emissions standards addressing HAP emissions from pulp and paper producers); 72 Fed. Reg. 8428, 8430 (Feb. 26, 2007) ("Although ozone and $PM_{2.5}$ are considered criteria pollutants rather than 'air toxics,' reductions in ozone and $PM_{2.5}$ are nevertheless important co-benefits of this proposal."); 75 Fed. Reg. 51,570, 51,578 (Aug. 20, 2010) (considering indirect benefits of regulating HAP emissions from combustion engines).

HAPs under section 112(d), EPA would "consider the benefits which result from control of air pollutants that are not listed but the emissions of which are, nevertheless, reduced by control technologies or practices necessary to meet the prescribed limitation."[77] Congress noted that these "other compounds, although not listed [under section 112], would be precursors of ozone pollution," and their "control, even in attainment areas, may produce substantial health and environmental benefits."[78] The same can be said for the particulate matter ancillary benefits of the MATS rule. Section 112's purposes thus encompass the benefits associated with reducing those pollutants. Congress understood the purpose of section 112 to encompass reductions in pollutants other than the listed pollutants; there is no basis for EPA's proposal to ignore such reductions in its assessment of whether regulation is appropriate.

The Proposal suggests that because section 112(n)(1)(A) is a "special provision written by Congress to address the unique circumstances facing EGUs," EPA can ignore this legislative history (as well as the congressional purposes underlying "the remainder of CAA Section 112").[79] That suggestion is incorrect, for at least five reasons. First, basic principles of statutory interpretation preclude EPA from viewing section 112(n)(1)(A) in isolation.[80] That is especially (though not only) true where the agency is interpreting broad statutory terms.[81] Second, EPA's entire rationale for its blinkered approach to benefits is based on its characterization that "section 112 … is expressly designed to deal with HAP;"[82] the agency cannot ignore Congress's own characterization of what it "designed" section 112 to deal with. Third, EPA cites nothing—beyond its own preferences—to support its assertion that section 112(n)(1)(A)'s reference to the regulation of "electric utility steam generating units" allows it to disregard a portion of the consequences of its decision. The statutory reference to EGUs has no plausible impact on whether the word "appropriate" requires EPA to consider *all* the consequences of regulating EGUs, or some narrow subset of the consequences of regulating EGUs. Fourth, section 112(n)(1)(A) requires EPA to decide whether regulation "under this section" is appropriate;[83] that express reference to the "remainder of section 112" precludes any effort to ignore "the remainder of CAA section 112."[84] And fifth, EPA cites no "unique circumstance" associated with EGUs that could plausibly justify its decision to interpret the word "appropriate" as it has—nor could it. EGUs are a predominant source of particulate matter and other air pollutants; controlling EGU emissions of those pollutants offers benefits equal in kind, and greater in magnitude, than would be true of other sectors. The nature of HAP controls on EGUs necessarily requires the control of other pollutants. There is, in short, nothing about EGUs that could justify the blinkered approach put forward by the Proposal.

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[77] Leg. Hist. 8512 (S. Rep. No. 101-228, at 172)(cited at 81 Fed. Reg. at 24,439).

[78] *Id.*

[79] 84 Fed. Reg. at 2677.

[80] *See Tataranowicz v. Sullivan,* 959 F.2d 268, 276 (D.C. Cir. 1992) ("[C]ongressional intent can be understood only in light of the context in which Congress enacted a statute and of the policies underlying its enactment.").

[81] *Samantar v. Yousuf*, 560 U.S. 305, 319 (2010) (courts do not "construe statutory phrases in isolation; we read statutes as a whole" (internal quotation marks and citation omitted)).

[82] 84 Fed. Reg. at 2676.

[83] 42 U.S.C. § 7412(n)(1)(A).

[84] 84 Fed. Reg. at 2677.

4. Case law supports comprehensive consideration of indirect benefits and costs.

Case law also strongly supports the conclusion that indirect benefits and costs, where identifiable, should be included in an agency's cost-benefit analysis. For example, in *American Trucking Associations v. EPA,* the U.S. Court of Appeals for the D.C. Circuit held that EPA must consider both the direct and indirect effects of pollutants, rather than only "half of a substance's health effects."[85] In addition, when EPA attempted to ban asbestos-based brakes under the Toxic Substances Control Act, the U.S. Court of Appeals for the Fifth Circuit held that the agency had to consider the indirect safety harm that could result from the use of the substitute, non-asbestos brakes.[86] Similarly, the U.S. Court of Appeals for the D.C. Circuit remanded a National Highway Traffic Safety Administration rule for failing to consider whether benefits from more-fuel-efficient cars outweighed the potential increased safety risks.[87]

Furthermore, in *U.S. Sugar,* the U.S. Court of Appeals for the D.C. Circuit upheld the EPA's consideration of co-benefits in regulating the effects of reducing HAPs from boilers, process heaters, and incinerators.[88] Specifically, the court held that EPA properly considered not only the direct benefits of reducing hydrogen chloride, but also the co-benefits of reducing other HAPs.[89] The court reasoned that the use of co-benefits conformed with the Clean Air Act's purpose, finding that "EPA was . . . free to consider potential co-benefits that might be achieved" from enforcing the more stringent standard.[90]

Most importantly, in *Michigan v. EPA*, Justice Scalia's opinion for the Court highlighted the importance of conducting a balanced regulatory analysis.[91] In holding that the EPA must consider costs when determining whether regulation was appropriate and necessary, the Court reasoned that "[c]onsideration of cost reflects the understanding that reasonable regulation ordinarily requires paying attention to the advantages *and* the disadvantages of agency decisions."[92] And, as discussed above (Part I.B), the Court's opinion offered a hypothetical in which regulation under section 112, while serving to control HAP emissions, would have the collateral effect of causing new health harms—a factor that, according to the Court, EPA would necessarily have to consider in deciding whether regulation is "appropriate."[93]

While the *Michigan* hypothetical and many of the other cases cited focus on indirect costs, it would be illogical for agencies to treat indirect benefits any differently from indirect

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[85] *Am. Trucking Ass'ns, Inc. v. EPA*, 175 F.3d 1027, 1051-53 (D.C. Cir. 1999), rev'd on other grounds sub nom. *Whitman v. Am. Trucking Ass'ns, Inc*., 531 U.S. 457 (2001).

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

[87] *Competitive Enter. Inst. v. Nat'l Highway Traffic Safety Admin.*, 956 F.2d 321, 326-27 (D.C. Cir. 1992).

[88] *U.S. Sugar,* 830 F.3d at 591, 625.

[89] *Id.* at 624-625.

[90] *Id.* at 625.

[91] *See* 135 S. Ct. at 2707.

[92] *Id.*

[93] *See id.*

costs. Benefits and costs are just opposite sides of the same coin: positive and negative numbers on the same scale.[94] Indeed, insofar as EPA's proposal here is an (unlawful) proposal to rescind MATS (or establish preconditions for its rescission), then the very same particulate-matter benefits EPA now classifies as co-benefits would naturally be classified as indirect costs of rescission. As DeMuth and Ginsburg have noted, "[t]here appear to be no legal, political, or intellectual … impediments to treating ancillary benefits and countervailing risks equally in cost-benefit analysis and regulatory design."[95]

Overall, the regulatory history, legislative record, and case law all direct agencies to fully account for *all* costs and benefits of regulatory action. To fail to account for indirect costs and benefits would be "put[ting] a thumb on the scale by undervaluing the benefits and overvaluing the costs of more stringent standards."[96]

B. There is no legal basis for, and EPA fails to provide a reasoned analysis or explanation for, proposing to treat avoided public health effects differently from industry compliance costs (Comment C-2).

EPA's proposal devalues significant health benefits from particulate matter reductions and fails to provide a reasonable and persuasive explanation for ignoring these benefits. EPA claims that "[t]he statutory text of CAA section 112(n)(1)(A) and the *Michigan* decision both support focusing the 'appropriate and necessary' determination on HAP-specific benefits and costs."[97] However, as described above, the agency's citations to both the statutory language and *Michigan* do not actually provide any support for EPA's new proposed approach. Without support from the statute and *Michigan*, EPA fails to provide a reasoned explanation for this change in course.

There is no statutory basis, and also no practical or scientific basis, for separating out the particulate matter benefits of MATS and designating them as less worthy of consideration because they are "indirect."[98] The reductions in fine particulate matter emissions are a direct result of HAP emissions controls, and there is no way to reduce the HAP emissions without reducing particulate matter emissions. This is most obvious for the acid gas HAPs. Air pollution controls for acid gases also effectively reduce sulfur dioxide emissions, which are a primary

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[94] Dan Farber, *The Case for Co-Benefits: Ignoring Co-Benefits Violates Well-Established Legal Principles*, Legal Planet (Sept. 24, 2018)(Exh. 22), https://legal-planet.org/2018/09/24/the-case-for-co-benefits/.

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

[96] *Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Amin.*, 538 F.3d 1172, 1198 (9th Cir. 2008).

[97] 84 Fed. Reg. at 2677.

[98] In fact, EPA itself has had difficulty separating co-benefits from HAP benefits, as seen in Table 3 of the agency's memorandum on Compliance Cost, HAP Benefits, and Ancillary Co-Pollutant Benefits, where the agency unintentionally mixes unquantified HAP benefits with unquantified co-benefits. Memorandum to Docket for rulemaking dated Dec. 14, 2018, https://www.epa.gov/sites/production/files/2018-12/documents/mats-an-cost-benefit_memo12-2018.pdf.

contributor to the formation not only of acid gases but $PM_{2.5}$. Indeed, sulfur dioxide was established by EPA as a surrogate for controlling acid gases. Additionally, the non-mercury metal HAPs, many of which are carcinogenic, are emitted as particulate matter. The fact that many of the metal HAPs are emitted as particulate matter, which when reduced would necessarily result in both HAP and $PM_{2.5}$ reduction, shows that the distinction EPA attempts to draw is unreasonable.

1. The statutory language of Section 112 contradicts EPA's position that particulate matter benefits should be treated differently from compliance costs for the appropriate and necessary finding.

In the Proposal, EPA asserts that monetized HAP benefits were not "at least moderately commensurate with the cost of HAP controls" and that "no amount of co-benefits can offset this imbalance for purposes of a determination that it is appropriate to regulate under CAA section 112(n)(1)(A)."[99] EPA essentially claims that co-benefits cannot affect the appropriate and necessary determination unless quantified HAP benefits are "moderately commensurate" with compliance costs. This standardless claim must be rejected. EPA does not provide any clarity regarding the point at which HAP benefits would be "moderately commensurate" and allow it to rely on co-benefits, or what effect co-benefits would have on the appropriate and necessary finding. Nor does it explain why it would be logical to ignore co-benefits completely, up to a point, but, when HAP benefits cross some undefined threshold, suddenly add potentially massive (and real) co-benefits to the balance, dramatically altering and possibly even reversing the outcome of its cost-benefit analysis simply because one more ton of HAP is reduced. EPA argues that the finding "is necessarily governed by the particular statutory language and context of this provision," and that "the statutory text strongly supports the use of a different approach,"[100] but provides no support in either context or text, and no standard for the analysis it claims is correct. While EPA apparently believes the capacious word "appropriate" in this section "strongly supports" a limited consideration focused only on costs and the monetized benefits of mercury reduction for freshwater recreational fishers, it must find some support for such belief, and fails to do so.

The language of section 112 provides no support for treating $PM_{2.5}$ benefits differently from compliance costs in the appropriate and necessary finding. In fact, as EPA recognized in the 2016 Supplemental Finding, and as discussed above, legislative history indicates that Congress understood that MACT standards under section 112 would have the collateral benefit of reducing criteria pollutants and that Congress viewed this outcome as an important benefit of the air toxics program. Yet EPA now wrongly suggests that the statutory language of section 112 supports the use of a standardless process that is inherently biased against regulation for the appropriate and necessary determination. Specifically, EPA points to language in section 112 directing that "[t]he Administrator shall regulate electric utility steam generating units under this section, if the Administrator finds such regulation is appropriate and necessary after considering the results of the study required by this subparagraph."[101]

[99] 84 Fed. Reg. at 2676.
[100] *Id.*
[101] 42 U.S.C. § 7412(n)(1)(A).

EPA mistakenly suggests that this language indicates that Congress wanted the appropriate and necessary determination to focus solely on one narrow segment of the benefits of HAP reduction (because, according to EPA, the study was to address health harms "after" imposition of other requirements of the Act that would reduce HAP emissions).[102] That argument recapitulates an argument rejected in *Michigan*—that EPA may read the scope of the "study" described in section 112(n)(1)(A) to limit the scope of the obligations imposed by the word "appropriate." Any argument that the statutory language requires EPA's appropriate and necessary determination to focus exclusively on the results of the utility HAP study would suggest that both costs and non-HAP benefits should be *excluded* from consideration. Yet both the Court in *Michigan*, and EPA now, emphasize the importance of considering cost in the appropriate and necessary determination despite its absence from the utility HAP study. Thus, the statutory language referring to the utility HAP study provides as much support for limiting consideration of co-benefits as it does for limiting consideration of compliance costs in the appropriate and necessary determination, and certainly no support for EPA's decision to treat them differently.[103]

Moreover, the word "after" does not offer any support for the proposition that Congress intended that EPA ignore the consequences of its decision for every pollutant regulated by some other "provision" of the Clean Air Act. That word merely shows that Congress understood that the Act's provisions necessarily interact, and that EPA was not at liberty to ignore reductions in HAP produced by programs that targeted other pollutants. Moreover, the phrase "after imposition of the requirements of this Act" goes to the "necessary" prong and concerns remaining HAP emissions—it does not pertain to whether regulation is appropriate in light of potential co-benefits.[104] Even if that phrase implied that EPA must consider reductions of co-pollutants from future or ongoing CAA programs when deciding whether regulation is

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[102] 84 Fed. Reg. at 2677.

[103] *Michigan* discussed that the question whether EPA must consider costs when making an "appropriate and necessary" determination is that the mercury study required by Section 112(n)(1)(B) requires consideration of the costs of mercury controls. *Michigan,* 135 S. Ct. at 2708. However, the costs included in the study required under Section 112(n)(1)(B) are only those related to mercury controls—not controls of other HAPs. Under *Michigan,* though, the Court was clear that in the appropriate and necessary determination EPA needed to consider not just cost of controlling mercury, but also the costs of controlling other HAPs—and, indeed, all the costs of the rule. *Id.* at 2711 ("The Agency must consider cost — including, most importantly, cost of compliance — before deciding whether regulation is appropriate and necessary."). Under the same principle, EPA must consider all the benefits of regulation. Effectively, the scope of the utility study required by Section 112(n)(1)(A) cannot be read to constrain the consideration of costs and benefits, as the information included in this study—like the mercury study—is incomplete for assessing either the full costs (including costs of controlling HAPs other than mercury) or the full benefits (including co-benefits) of controlling hazardous emissions from power plants under Section 112.

[104] *See* 77 Fed. Reg. at 9329 ("EPA maintains that it may be necessary to regulate EGUs under CAA Section 112 if we identify a hazard to public health or the environment that is appropriate to regulate today and our projections into the future do not clearly establish that the imposition of the requirements of the CAA will address the identified hazard in the future.").

appropriate, the agency already incorporated those into its RIA and did not double count the potential co-pollutant reductions from MATS.[105] Given the breadth of the word "appropriate"— and given that clear textual acknowledgement that the controls required to reduce HAPs would, in many cases, overlap with those that reduce other pollutants— EPA is required to address the impacts of MATS on other pollutants when making an appropriate and necessary determination.

2. EPA's position contradicts existing legal precedent, including *Michigan*, which directed EPA to address all advantages and disadvantages of regulation.

As discussed above, the federal courts have a long history of upholding and even requiring consideration of indirect costs and benefits in agency rulemaking. In *Michigan*, the Supreme Court made clear that "[c]onsideration of cost reflects the understanding that reasonable regulation ordinarily requires paying attention to the advantages *and* the disadvantages of agency decisions."[106] The Court emphasized the "capaciousness" of the phrase "appropriate and necessary," and went on to describe "appropriate" as "the classic broad and all-encompassing term that naturally and traditionally includes consideration of all the relevant factors."[107] Judge Kavanaugh's dissent in *White Stallion*, which was quoted by the *Michigan* Court for this assertion, elaborated that the relevant factors included "health and safety benefits on the one hand and costs on the other."[108] Judge Kavanaugh, who referred to the $4 million to $6 million in HAP benefits in his dissent, also acknowledged that "EPA may be able to conclude that the benefits outweigh the costs in determining whether it is 'appropriate' to regulate electric utilities under the MACT program."[109]

The Court in *Michigan* quoted *State Farm* in noting that "an agency may not 'entirely fai[l] to consider an important aspect of the problem' when deciding whether regulation is appropriate."[110] EPA's proposal fails to consider the co-benefits of regulation in its "direct comparison of the rule's costs and benefits" for what it refers to as the "Agency's primary consideration."[111] EPA's narrow and arbitrarily exclusive approach contrasts with the Court's language in *Michigan* which makes clear that the agency should be taking a broader and more inclusive approach to the appropriate and necessary finding.

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[105] *See* 81 Fed. Reg. 24,420, 24,440 (Apr. 25, 2016) ("The EPA further disagrees that the monetized $PM_{2.5}$ health benefits from MATS are double-counted with the health benefits achieved by other regulations, such as the Cross-State Air Pollution Rule or the NAAQS. The EPA's standard practice for its rules is to estimate, to the extent data and time allow, all benefits of the emissions reductions achieved by a rule beyond control requirements for other rules. . . . Any emission changes expected as a result of MATS are additional emission reductions beyond previous regulations. Therefore, the benefits from reducing $PM_{2.5}$ are not double counted—they are real additional health benefits from emissions reductions achieved by MATS alone.").

[106] 135 S. Ct. at 2707.

[107] *Id.* (internal quotation marks and citation omitted).

[108] *White Stallion Energy Ctr.,* 748 F.3d at 1266 (Kavanaugh, J., concurring in part and dissenting in part), rev'd by *Michigan v. EPA*, 135 S. Ct. 2699 (2015).

[109] *Id.* at 1263.

[110] 135 S. Ct. at 2707 (quoting *State Farm*, 463 U.S. at 43).

[111] 84 Fed. Reg. at 2676.

To support this proposal's vague, arbitrary, and unjustified limitation regarding these benefits, EPA cites the *Michigan* Court, which stated that "[o]ne would not say that it is even rational, never mind 'appropriate,' to impose billions of dollars in economic costs in return for a few dollars in health or environmental benefits."[112] That citation, however, provides no support for EPA's argument, as the *Michigan* Court did not limit the scope of "health or environmental benefits" to a subset of the benefits that result from mercury reductions alone, as EPA does here. It is both rational and appropriate to promulgate a standard with $9.6 billion (or less) in costs in return for $90 billion in benefits, as EPA found in 2016.

EPA also points to references in *Michigan* to a direct comparison of costs to benefits of reducing emissions of HAPs. However, the *Michigan* Court was merely emphasizing the significance of the costs, and never stated that such a comparison was required or even recommended. EPA admits that "the decision established no bright-line rules."[113] Indeed, the *Michigan* Court explicitly stated that it "need not and do[es] not hold that the law unambiguously required the Agency, when making this preliminary estimate, to conduct a formal cost-benefit analysis in which each advantage and disadvantage is assigned a monetary value."[114]

In the current proposal, EPA makes a weaker version of an argument it made in *Michigan*, now attempting to exclude particulate matter benefits from primary (or any) consideration. In *Michigan*, EPA argued that because other sections of the CAA expressly mention costs while section 112(n)(1)(A) does not, costs should not be considered in the appropriate and necessary finding. Here, EPA asserts that because section 112 does not focus on or mention co-benefits, they should not receive primary (or indeed any) consideration. However, EPA does not even attempt to (and indeed, cannot) point to other CAA provisions with express language regarding consideration of co-benefits to prove this point, in contrast to the argument made in *Michigan*.

The *Michigan* Court noted that a lack of express mention of a factor "shows only that §7412(n)(1)(A)'s broad reference to appropriateness encompasses *multiple* relevant factors (which include *but are not limited to* cost)."[115] The Court also noted that "[o]ther parts of the Clean Air Act also expressly mention environmental effects, while §7412(n)(1)(A) does not. Yet that did not stop EPA from deeming environmental effects relevant to the appropriateness of regulating power plants."[116] Turning this point on its head, EPA now argues that because this section of the CAA does not mention or focus on (particulate matter) co-benefits they should not receive primary (or indeed, any) consideration. But the *Michigan* Court made clear that EPA, which at the time had focused exclusively on the risks of HAP emissions and the availability of controls, *must* consider more than just the HAP emission reductions in making the appropriate and necessary finding. *Michigan* suggests that even if Congress did not enact section 112 for the

[112] 135 S. Ct. at 2707.
[113] 84 Fed. Reg. at 2675.
[114] 135 S. Ct. at 2711.
[115] *Id.* at 2709 (second emphasis added).
[116] *Id.*

primary purpose of producing industry compliance costs or "co-benefits" that are not the target of section 112, both should be given equal consideration.

3. EPA fails to provide a reasoned explanation or justification for this abrupt reversal and dramatic change in its approach to considering benefits.

When changing positions, federal agencies must provide a reasoned explanation for the change and justification for the new position.[117] This is especially true where an existing policy has engendered serious reliance interests.[118] Both EPA's reversal of the appropriate and necessary finding and its treatment of co-benefits in this proposal represent dramatic departures from its previous positions, as well as longstanding practice for regulatory analysis across a range of issues. The utility industry relied heavily on MATS, including the appropriate and necessary finding, when making significant investments in control technologies. Because of these reliance interests, EPA must provide a more detailed justification for the change than would be required of a new policy.[119] EPA bases this change in position on the statutory language and *Michigan*, neither of which support, much less mandate, the Proposal's position.[120] EPA has failed to provide a reasoned justification for the change of course.

Perhaps aware that it cannot rationally ignore co-benefits, EPA claims it is merely refusing to place "equal" reliance on the benefits of reducing HAPs and the benefits of reducing other pollutants.[121] To the extent EPA is claiming that it gives some non-zero weight to the latter, the agency does not say what that weight is or how the agency chose it. That too is understandable, given EPA's transparent desire to make the facts fit its predetermined decision. Even if EPA gave the benefits of reducing non-HAPs just one quarter of the value EPA itself ascribes to them, they still vastly outweigh even the grossly inflated costs that EPA ascribes to the MATS rule. If EPA is claiming that it considered the benefits of reducing non-HAPs at all,[122] the agency's wholly unexplained claim is arbitrary and capricious.

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[117] *Fox,* 556 U.S. at 515.

[118] *Id.*

[119] *Id.*

[120] *Prill*, 755 F.2d at 947-48 ("[A]n agency regulation must be declared invalid, even though the agency might be able to adopt the regulation in the exercise of its discretion, if it was not based on the [agency's] own judgment but rather on the unjustified assumption that it was Congress' judgment that such [a regulation is] desirable." (internal quotation marks and citation omitted)); *see also U.S. Postal Serv. v. Postal Regulatory Comm'n*, 640 F.3d 1263, 1264 (D.C. Cir. 2011) (remanding the Commission's interpretation of the Postal Accountability and Enhancement Act of 2006 because it incorrectly concluded the plain meaning of the statutory language required a particular result); *NextEra Desert Ctr. Blythe, LLC v. FERC*, 852 F.3d 1118, 1122 (D.C. Cir. 2017) (remanding order to Commission because its decision rested "on an erroneous assertion that the plain language of the relevant wording is unambiguous" (internal quotation marks and citation omitted)).

[121] 84 Fed. Reg. at 2676.

[122] *Id.*

C. Basic principles of reasonable economic analysis and existing authorities require EPA to consider all effects of regulation (Comment C-2).

Even if one were to accept EPA's claim that the health benefits of criteria pollutant reductions that are the result of HAP emissions control should be considered "indirect," this designation does not warrant devaluing or ignoring them as EPA does in this proposal. Rather, executive orders, OMB guidance, and EPA guidelines require and support assigning these benefits the same weight as costs.

1. EPA has failed to satisfy basic requirements for proper regulatory analysis as described in OMB Circular A-4 and EPA guidelines.

EPA's approach to cost-benefit analysis in this proposal clearly contradicts the longstanding bipartisan Executive Branch approach enshrined in the guidance issued in 2003 in OMB Circular A-4 under Executive Order 12,866, as discussed above. Circular A-4 instructs agencies on how to perform regulatory cost-benefit analysis, and according to Administrator Wheeler "OMB Circular A-4 embodies the best practices for conducting regulatory cost-benefit analysis."[123]

OMB's instructions on how to treat ancillary benefits are clear: Circular A-4 states that "[t]he same standards of information and analysis quality that apply to direct benefits and costs should be applied to ancillary benefits and countervailing risks."[124] Ancillary benefits are an analytic priority where they "are important enough to potentially change the rank ordering of the main alternatives in the analysis."[125] The ancillary benefits of MATS would clearly qualify for analytic priority under Circular A-4, as benefits valued at up to $90 billion are more than enough to affect EPA's analysis. EPA's claim that a different standard of analysis should apply to co-benefits in this proposal, particularly one that makes $90 billion in ancillary benefits a lower priority, stands in stark contrast to the instructions of Circular A-4.

Circular A-4 has been followed so consistently by agencies conducting cost-benefit analysis that it has become heavily relied upon, and it is irrational and arbitrary and capricious to depart from it so sharply without a well-reasoned explanation—particularly for a proposal that EPA claims must be centered around cost-benefit analysis. In fact, EPA's determination in this proposal that regulation is not appropriate relies on a 2011 RIA that was prepared in accordance with Circular A-4.[126] That RIA was never intended to be used for the appropriate and necessary

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[123] Hearing on the Nomination of Andrew Wheeler to be Administrator of the Environmental Protection Agency, Questions for the Record For Mr. Andrew Wheeler, at 144. Circular A-4 has also been cited by the U.S. Court of Appeals for the Ninth Circuit as an authority in the context of cost-benefit analysis. *Ctr. for Biological Diversity*, 538 F.3d at 1200 n.48.

[124] Circular A-4 at 26.

[125] *Id.*

[126] The RIA included "methodological errors that resulted in undercounting some benefits, and [the Agency at the time] lacked the data, resources and time to count other important benefits." Save EPA Comments, at 1. Where, as here, the Agency asserts that it must now base the ultimate decision whether or not to regulate on the 2011-2012 record, the Agency has an

finding, but to the extent that EPA can use the RIA as it currently stands for this purpose, any analysis relying on those numbers should follow Circular A-4 as well, to the extent that it is consistent with section 112. It is arbitrary, capricious, and an abuse of discretion to cherry-pick numbers from an RIA compiled in accordance with Circular A-4 to use in a biased analysis that contradicts the principles in Circular A-4. Furthermore, because the approach in the 2016 Supplemental Finding that relied on the 2011 RIA followed Circular A-4's guidance regarding co-benefits, EPA's refusal to follow Circular A-4 in this proposal represents an abrupt change in position for which EPA has not provided a well-reasoned explanation.

EPA's own economic analysis guidelines also support consideration of ancillary benefits in economic analysis, and following Circular A-4. EPA's Guidelines for Preparing Economic Analyses state that "[a]n 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."[127] The guidelines also note that "Circular A-4 is intended to define good regulatory analysis and standardize the way benefits and costs of federal regulatory actions are measured and reported."[128] EPA has failed to give a reasoned explanation for ignoring these guidelines, which it had previously complied with for the appropriate and necessary finding. Without a reasoned explanation, this change of course is arbitrary and capricious.

2. Treating these "indirect" effects differently creates a biased analysis against regulation.

The *Michigan* Court was clear that it contemplated a reasonable regulatory analysis as one weighing the advantages (benefits) and disadvantages (costs) to assist EPA in determining whether the positive effects of regulation justify its negative effects. While not all benefits may be quantifiable or monetizable, where EPA chooses and is able to monetize benefits and costs, they should be compared directly, as the point of monetizing both benefits and costs is to allow a comparison to made. But, in order to conduct as comprehensive an analysis as possible, *all* costs and benefits must be considered, including those that can only be qualitatively described, and including those that are monetizable ancillary or "co-benefits." Arbitrarily excluding any of the costs or benefits of a proposal creates a biased analysis, and should not be done unless Congress explicitly requires it. In this case, there is no indication that either Congress or the *Michigan* Court intended EPA to exclude *any* benefits from the appropriate and necessary determination.

EPA has consistently recognized and relied upon the value of co-benefits in other contexts, including in regulatory proceedings contemporaneous with this proposal. The proposed Safer Affordable Fuel-Efficient Vehicles rule (SAFE)[129] would revise greenhouse gas emission standards established under section 202(a) of the CAA. In justifying the proposed weakening of the standards in the SAFE proposal, EPA relied heavily on the fatalities it projected would result

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obligation to consider the full record, not a partial, error-ridden analysis completed for an entirely different purpose.

[127] Guidelines for Preparing Economic Analyses at 11-2.

[128] *Id.* at 2-2.

[129] 83 Fed. Reg. 42,986 (Aug. 24, 2018).

from the original standards. Those fatalities, the Administration claimed, were from delayed turnover of the vehicle fleet due to an increase in vehicle prices[130]—although the Administration's analysis showed the fatalities actually resulted from an increase in driving of both new and existing vehicles that the Administration projected would result under the original standards. The Clean Air Act directs the EPA Administrator to promulgate "standards applicable to the emission of any air pollutant from any class or classes of new motor vehicles or new motor vehicle engines, which in his judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare."[131] This provision is explicitly directed at mitigating air pollution that may endanger public health or welfare. The concept of safety is not mentioned—nor the effects on vehicle fatalities of fleet turnover or the amount of driving that Americans choose to engage in. Existing vehicles are not even regulated under section 202.[132] Any safety impacts would therefore be considered ancillary effects. Yet EPA relied heavily on alleged ancillary safety benefits, or co-benefits, as justification for the SAFE proposal. EPA's proposal here to ignore the benefits of co-pollutant emission reductions is wholly inconsistent with not only its longstanding historical approach, but also its current approach to regulatory analysis. EPA's favored approach appears to be to rely on co-benefits whenever doing so would serve its desired outcome—an approach that does not amount to reasoned decision making.

The SAFE proposal also serves as an example of how easily interchangeable costs and benefits are, including ancillary costs and benefits, depending on whether an action is regulatory or deregulatory. The asserted safety co-benefits of the SAFE proposal to weaken the vehicle emission standards would be considered disadvantages (costs) of a proposal to put in place stronger standards. Similarly, $PM_{2.5}$ benefits are co-benefits of MATS but must be considered disadvantages (costs) of rescinding MATS. Indeed, the *Michigan* Court was particularly concerned with the issue of countervailing or ancillary risks, noting that the government had conceded 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."[133] If, as the *Michigan* Court indicated, countervailing risks are important and must be considered in the appropriate and necessary finding, then their counterpart, ancillary benefits, must be considered important too. Contrary to *Michigan*, EPA now proposes to ignore increased $PM_{2.5}$ emissions that could stem from its potentially deregulatory action, leading to an increase in premature deaths. This is a direct violation of the Court's direction in *Michigan*. EPA clearly seeks comment on its authority (even obligation) to rescind MATS if the reversal of the appropriateness determination were finalized.[134] Increased $PM_{2.5}$ emissions and associated health impacts therefore must be considered a cost of that deregulatory action that negate any savings in compliance costs, dollar-for-dollar. Without accounting for these indirect effects, it is impossible to know whether this

[130] *See id.* at 42,995.
[131] 42 U.S.C. § 7521(a)(1).
[132] *Id.*
[133] 135 S. Ct. at 2707.
[134] 84 Fed. Reg. at 2670, 2672-73.

Proposal "does significantly more harm than good"[135]—as seems highly likely—and would therefore not be considered "appropriate" under *Michigan*.

3. EPA's proposal fails to comply with applicable Executive Orders.

Several Executive Orders apply to regulatory analysis by federal agencies, including Executive Order 12,866, as mentioned above. This proposal includes a section regarding compliance with Executive Order 12,866 despite conducting a cost-benefit analysis that clearly contradicts Circular A-4, which implements Executive Order 12,866. Executive Order 12,866 states that:

> Within OMB, the Office of Information and Regulatory Affairs (OIRA) is the repository of expertise concerning regulatory issues, including methodologies and procedures that affect more than one agency, this Executive order, and the President's regulatory policies. To the extent permitted by law, OMB shall provide guidance to agencies and assist the President, the Vice President, and other regulatory policy advisors to the President in regulatory planning and shall be the entity that reviews individual regulations, as provided by this Executive order.[136]

EPA admits in this Proposal that "an analysis of all benefits and costs in accordance with generally recognized benefit-cost analysis practices is appropriate for informing the public about the potential effects of any regulatory action, as well as for complying with the requirements of Executive Order 12866."[137] EPA is proposing that "direct comparison of the rule's costs and benefits is a reasonable approach, if not the only permissible approach, to considering costs in response to *Michigan*."[138] However, the agency then suggests that "formal benefit-cost analysis does not dictate how cost should be considered under CAA Section 112(n)(1)(A)."[139] EPA fails to provide a reasoned explanation for exempting an appropriate and necessary determination in the form of a "direct comparison of the rule's costs and benefits" from the requirements of Executive Order 12,866.

EPA argues that formal benefit-cost analysis should not dictate the appropriate and necessary determination because "the statutory provision indicates Congress' particular concern about risks associated with HAP and the benefits that would accrue from reducing those risks."[140] However, as noted above, the statute's reference to the utility HAP study provides as much support for considering compliance costs as it does for considering co-benefits in the appropriate and necessary finding. EPA tries to avoid the inconvenient principles for cost-benefit analysis by characterizing the appropriate and necessary determination as a "cost consideration assessment."[141] The Court in *Michigan* never characterized the appropriate and necessary

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[135] *Michigan*, 135 S. Ct. at 2707.
[136] Exec. Order No. 12,866, 58 Fed. Reg. at 51,737.
[137] 84 Fed. Reg. at 2676.
[138] *Id.*
[139] *Id.*
[140] *Id.*
[141] *Id.*

determination as a "cost consideration assessment," and for good reason. This characterization suggests that the primary consideration for the appropriate and necessary determination is cost, while all other considerations are secondary. This is inconsistent with the statutory language, which is most concerned with pollutant emissions. Perhaps most importantly, this characterization is inconsistent with the actual analysis EPA is doing, which includes consideration of at least some monetized benefits in addition to costs. It is clear that EPA's proposed approach is not a "cost consideration assessment," but rather a cost-benefit analysis on terms the agency finds favorable.

Even if EPA's proposed approach was somehow considered not a cost-benefit analysis, EPA fails to provide a strong explanation for why the appropriate and necessary determination is beyond the reach of Executive Order 12,866. Executive Order 12,866 was intended to "enhance planning and coordination with respect to both new and existing regulations" and states that "agencies should assess all costs and benefits of available regulatory alternatives."[142] Therefore, the requirements of Executive Order 12,866 do not appear to be limited to any particular type of regulatory analysis, except where explicitly precluded by law. The argument for following Circular A-4 is particularly compelling in this case, as EPA has not done an RIA for this proposal. The only cost-benefit analysis being done for this proposal is in the context of the appropriate and necessary finding, which should be subject to Executive Order 12,866.

EPA cannot disregard the requirements of Executive Order 12,866. "To the contrary, as an agency under the direction of the executive branch, it must implement the President's policy directives to the extent permitted by law."[143] Executive Order 13,771, signed by President Trump, reaffirms Executive Order 12,866, and its implementing guidance supports Executive Order 12,866 and OMB Circular A-4 while discussing consideration of costs and benefits. EPA admits this proposal is an Executive Order 13,771 regulatory action, so this guidance is clearly relevant and applicable. The guidance for Executive Order 13,771 states the following:

> EO 13771 does not change the requirements of EO 12866, which remains the primary governing EO regarding regulatory review and planning. In particular, EO 13771 has no effect on the consideration of benefits in informing any regulatory decisions. For all EO 13771 regulatory actions and EO 13771 deregulatory actions, except where prohibited by law, agencies must continue to assess and consider both benefits and costs and comply with all existing requirements and guidance, including but not limited to those in EO 12866 and OMB Circular A-4.[144]

This Proposal is arbitrary and capricious because EPA claims to be in compliance with the applicable executive orders despite admitting its analysis is inconsistent with Executive Order 12,866, and the agency fails to explain why Executive Order 12,866 should not apply to its analysis.

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[142] Exec. Order No. 12,866, 58 Fed. Reg. at 51,735.

[143] *Sherley v. Sebelius*, 689 F.3d 776, 784 (D.C. Cir. 2012).

[144] Guidance Implementing Executive Order 13771, Titled "Reducing Regulation and Controlling Regulatory Costs," at 13.

D. By excluding all benefits of particulate matter reduction from equal consideration, EPA's Proposal excludes targeted pollutants of MATS and direct benefits of HAP reduction (Comment C-2).

In this Proposal, EPA claims to be giving targeted pollutants (or direct benefits) of regulation primary consideration. However, by excluding all of the particulate matter reduction benefits of MATS, EPA is actually excluding pollutants that are targeted by MATS as well as direct benefits of HAP reduction.

1. MATS targets surrogate pollutant emissions and power plants have targeted and reduced criteria pollutant emissions to comply with MATS.

EPA claims to be comparing costs to the direct or targeted benefits of MATS, but in doing so draws an artificial boundary between "direct" benefits, which are given primary consideration, and "co-benefits" which are not. Not only is this artificial boundary not supported by science or best economic practices, but it is also not a clear or logical distinction. EPA also refers to the direct benefits as "target pollutant benefits." However, if EPA defines direct benefits as those that result from reducing pollutants that are the targets of MATS, then all of the "co-benefits" should be considered direct benefits. Furthermore, HAPs are not the only targeted pollutants in MATS, as the standards incorporate criteria pollutants as surrogates for HAPs.

The utility industry advocated for the option of criteria pollutant surrogate standards to be included in MATS, and in fact every regulated power plant currently uses at least one of these surrogate standards to achieve MATS compliance. Thus, plants have reduced and relied on their criteria pollutant emissions to achieve compliance with MATS because the rule directly targets these non-hazardous pollutants as surrogates for HAPs. Specifically, the filterable particulate matter standard (which all affected EGUs use) serves as a surrogate for non-mercury HAP metals and the SO_2 standard (which more than half of affected EGUs use) serves as a surrogate for acid gas HAPs.[145] If EPA believes only the benefits of pollutant reductions targeted by MATS should qualify for primary consideration, all of the benefits of controlling filterable particulates and SO_2 satisfy that requirement and are actually used to comply with MATS.

2. EPA must at least give benefits from particulate matter reductions that result from particulate HAP reductions primary consideration.

Particulate matter benefits result directly from HAP reductions because some of the HAPs are emitted as particles, (non-mercury HAP metals), and others likely contribute to fine particulate formation in the ambient air (some fraction of HCl emissions is expected to form chloride). The reason a filterable particulate matter surrogate can be used for non-mercury metallic HAPs is because these HAPs are directly emitted and are captured by particulate matter controls in the same manner as non-HAP particulates. EPA has acknowledged that, "$PM_{2.5}$ emissions are comprised in part by the mercury and non-mercury HAP metals that the MATS rule is designed to reduce."[146] EPA has also stated that "[i]n the MATS RIA, the $PM_{2.5}$ co-

[145] 84 Fed. Reg. at 2690.
[146] 80 Fed. Reg. 75,025, 75,041 (Dec. 1, 2015).

benefits estimates included reducing exposure to both directly emitted particles as well as secondarily-formed sulfate particles."[147] Even under EPA's warped reconsideration of its own analysis, non-mercury metallic HAPs must be considered directly responsible for some amount of premature mortality reduction benefits associated with reducing $PM_{2.5}$ emissions. That reduction in premature mortality is clearly a direct benefit of reducing the particulate HAPs and of reducing filterable particulates.

E. EPA provides no support for its claim that the Agency cannot provide equal consideration to co-benefits from reduction in emissions of co-pollutants that are regulated under the National Ambient Air Quality Standards (Comment C-2).

Despite arguments in the proposed rule suggesting that section 112 particulate matter benefits are inappropriate in light of particulate matter regulation under section 110,[148] there is no basis to ignore the benefits of reducing pollutants merely because they happen to be the subject of regulation under state and federal plans to implement the National Ambient Air Quality Standards.

Any suggestion that section 110 and section 112 are mutually exclusive regulatory avenues is not legally supportable. Suggesting that EPA can only have an impact on particulate matter concentrations through one regulatory channel is a false choice. Neither section 110 nor section 112 requires exclusivity. EPA is not forced to pick only one avenue through which regulations can have an impact on particulate matter, even if the two sections have differing objectives. For example, the Clean Air Act's provisions addressing attainment of the NAAQS (including interstate transport of particulate matter pollution) and clearing of regional haze may both reduce particulate matter emissions despite their distinct goals.[149] Regulations promulgated under CAA sections 111 and 129 also limit emissions of particulate matter.[150] Section 112(d)(7) makes clear that hazardous air pollution requirements do not "diminish or replace" any "other applicable requirement" under the Clean Air Act.[151] Furthermore, Congress specifically envisioned that regulation under section 112 would have collateral impacts, observing that EPA "may consider the benefits which result from control of air pollutants that are not listed but the emissions of which are, nevertheless, reduced by control technologies or practices necessary to meet the prescribed limitation."[152]

Recognizing that control technologies can reduce multiple pollutants, EPA encourages states in their implementation planning for NAAQS to consider assessing and selecting controls

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[147] 81 Fed. Reg. at 24,438.

[148] 42 U.S.C. § 7410.

[149] *See WildEarth Guardians v. Jackson*, No. C 09-2453 CW, 2011 U.S. Dist. LEXIS 148378, at *2-3 (N.D. Cal. Dec. 27, 2011) (citing 42 U.S.C. §§ 7410(a)(2)(D)(i), 7491, 7492).

[150] *See, e.g.*, 62 Fed. Reg. 48,348 (Sept. 15, 1997) (new source performance standards and emission guidelines for hospital/medical/infectious waste incinerators); 60 Fed. Reg. 65,387 (Dec. 19, 1995) (new source performance standards and emission guidelines for municipal waste combustors).

[151] 42 U.S.C. § 7412(d)(7).

[152] Leg. Hist. at 8512 (S. Rep. No. 101-228, at 172).

that will control multiple pollutants, including criteria pollutants and HAPs. For example, in the implementation rule for the 2008 ozone NAAQS, EPA stated:

> An integrated air quality control strategy that reduces multiple pollutants can help ensure that reductions are efficiently achieved and produce the greatest overall air quality benefits. … States may also find it desirable to assess the impact of ozone, $PM_{2.5}$ and/or regional haze control strategies on toxic air pollutants regulated under the CAA or under state air toxics initiatives. Given the relationships that exist between toxic air pollutants and the formation of ozone and $PM_{2.5}$, states and sources may find that controls can be selected to meet goals for ozone and/or $PM_{2.5}$ attainment as well as those of specific toxic air pollutant programs.[153]

EPA's suggestion that regulation of $PM_{2.5}$ is exclusive to the NAAQS program is also undercut by the RIA for the 2012 $PM_{2.5}$ NAAQS.[154] In the 2012 $PM_{2.5}$ NAAQS RIA, the baseline used to assess the cost associated with the NAAQS incorporates reductions resulting from MATS compliance.[155] MATS was among the federal policies expected to result in almost all nonattainment areas' meeting the $PM_{2.5}$ NAAQS without additional significant action.[156] It is absurd for EPA to suggest that there should be some kind of artificial separation between the effects of these two programs despite the fact that the agency has already incorporated the effects of MATS in the $PM_{2.5}$ NAAQS RIA.

Similarly, in the proposed implementation rule for the 2012 PM NAAQS, EPA again reiterates the benefits of control strategies that concurrently reduce criteria pollutants and HAPs and the relationships between the two:

> An integrated air quality control strategy that reduces multiple pollutants can help ensure that reductions are efficiently achieved and produce the greatest overall air quality benefits. For example, it is widely known that certain control measures that reduce emissions of NO_x and VOC, and thus reduce ambient $PM_{2.5}$ levels, can also result in reduced ambient concentrations of ground-level ozone. Many VOC are also hazardous air pollutants (HAP), so a control strategy for a $PM_{2.5}$ nonattainment area that reduces VOC emissions may provide the additional benefit of reducing air toxics. It is also widely known that many sources of $PM_{2.5}$

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[153] 80 Fed. Reg. at 12,295.

[154] Joseph Goffman, *Rolling Back the Mercury and Air Toxics Standards: Proposed Withdrawal of "Appropriate and Necessary,"* Harvard Law School, Environmental & Energy Law Program, 12 (2019), Exh. 24, http://eelp.law.harvard.edu/wp-content/uploads/MATS-Analysis-Goffman-final.pdf.

[155] EPA, Regulatory Impact Analysis for the Final Revisions to the National Ambient Air Quality Standards for Particulate Matter (Dec. 2012), https://www3.epa.gov/ttnecas1/regdata/RIAs/finalria.pdf.

[156] *Id.* at ES-9.

> also emit toxic metals as particulates, so controlling directly emitted $PM_{2.5}$ emissions from these sources would also reduce the emissions of toxic metals.[157]

Overall, it would be perverse to conclude that co-benefits of HAP regulations cannot be considered in weighing whether regulation is "appropriate," given that section 112(n)(1) itself was predicated upon the recognition that environmental regulations aimed at one set of pollutants may have significant collateral benefits by simultaneously reducing emissions of another set of pollutants.[158] The interconnectedness of air quality regulation means that cross-pollutant impacts are unavoidable. The equal consideration of co-benefits was a core reason for the adoption of section 112, and to finalize a rule suggesting otherwise would be an unlawful, and arbitrary and capricious reading of the Clean Air Act.

Furthermore, EPA cannot claim that co-benefits should not be counted merely because they may lead to reductions exceeding the NAAQS. As EPA has previously noted:

> It is important to emphasize that NAAQS are not set at a level of zero risk. . . . While benefits occurring below the standard may be less certain than those occurring above the standard, EPA considers them to be legitimate components of the total benefits estimate.[159]

The MATS RIA was based upon an extensive review of peer-reviewed epidemiological studies as well as expert opinion requested by EPA concerning health effects of particulate matter.[160] The scientific literature and expert responses support using a no-threshold model,[161] meaning that there is no concentration above zero (including concentrations below the NAAQS) for which health risks do not exist. These are real benefits, including real premature deaths and serious illnesses avoided as a result of MATS, and there is no legitimate basis for ignoring them as part of EPA's determination whether regulation is appropriate.

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[157] 80 Fed. Reg. at 15,448.

[158] EPA now asserts that "while [Section 112(n)(1)(A)] acknowledges the existence of the phenomenon of co-benefits by referencing the potential for ancillary reductions of HAP emissions by way of CAA provisions targeted at other pollutants, acknowledgement of that fact does not address whether ancillary reductions of criteria pollutants should be part of the Administrator's determination under CAA Section 112(n)(1)(A), which is undeniably focused on hazards resulting from HAP-specific emissions." 84 Fed. Reg. at 2677. Congress did not, however, idly note the "phenomenon" of co-benefits; instead, it required EPA to consider them in determining whether regulation of EGUs is appropriate under Section 112. 42 U.S.C. § 7412(n)(1)(A). The fact that Congress focused on HAP reductions from other CAA programs (in a study concerned with HAP emissions from EGUs) does not diminish the higher-level directive to consider how various provisions of the statute interact and reinforce one another when making the appropriate and necessary determination.

[159] 77 Fed. Reg. at 9431.

[160] RIA at 5-26 to 5-27.

[161] *Id.* at 5-98; 77 Fed. Reg. at 9430-31.

V. EPA HAS NOT PROVIDED A REASONABLE ESTIMATE OF THE STANDARDS' COSTS.

A. Readily available information indicates that the central assumptions of EPA's cost estimate are incorrect. (Comment C-2, C-24).

The Proposal's conclusion that the benefits of regulation are outweighed by the compliance costs is based on the Regulatory Impact Analysis's projection of MATS costs: "$9.6 billion in 2015, and $8.6 billion and $7.4 billion in 2020 and 2030, respectively." 84 Fed. Reg. at 2676. That projection has proven incorrect.[162] EPA's assessment of costs was based on a model indicating that "[t]he requirements under MATS [would be] largely met through the installation of" specific "pollution controls." RIA at 3-14. EPA's cost estimate was based on its belief that those controls would include: "20 GW [(gigawatts)]" of capacity using "dry FGD (dry scrubbers);"[163] "99 GW of additional [activated carbon injection];" "44 GW of [dry sorbent injection];" "102 GW of additional fabric filters;" "63 GW of scrubber upgrades;" and "34 GW of [electro-static precipitator] upgrades." RIA at 3-15. Of the controls forecast by EPA in 2011-2012, the most expensive were the projected scrubber, dry sorbent injection, and fabric filter installations. *See* 77 Fed. Reg. at 9412-13.[164] Those estimates were produced through EPA's modeling of the electric generation system; it analyzed both "incremental operation of dispatchable controls" as well as "new retrofit construction," to determine that the Standards would cause the capital installations described above, and the associated costs for the complying utilities. RIA at 3-15.

EPA's own data indicates that the pollution-control projections that are the foundation of the RIA's cost estimate are incorrect. EPA's RIA projected that MATS would require the installation of baghouses on 102 GW of generation. RIA at 3-15. EPA's Clean Air Markets database (https://ampd.epa.gov/ampd/) indicates that *only 22 GW* of baghouses were actually installed between 2010 and 2017. *See* Sahu, Ron, *Estimated Capital Costs for MATS Compliance – Acid Gas and Non-Mercury Metals* at 1 ("Sahu Report") (Exh. 25)& Exh. 1 to Sahu Report. EPA's model estimated that MATS would require installation of dry sorbent injection on an additional 44 GW from plants using dry-sorbent injection, RIA at 3-15; *only 14 GW* of dry sorbent injection were installed between 2010 and 2017. Sahu Report 2 & Ex. 2 to Sahu Report. EPA's RIA projected 17 GW in net added scrubber-equipped generation, RIA at 3-15; EPA's database indicates *only 14 GW* of scrubbers were added between 2010 and 2017. Sahu Report at 2 & Ex. 2 to Sahu Report.

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[162] *See* Save EPA Comments at 1, 3-4 (noting that EPA's 2011-2012 costs analysis is not only "outdated" now, but was "overestimated" in 2011-2012, having been based on incorrect assumptions about controls, their costs, and the price of natural gas).

[163] EPA also forecast a slight reduction in the number of wet scrubbers that would be installed, so that the net change was 17 additional gigawatts of scrubber installations, by 2015. RIA at 6-10.

[164] The costs for each technology at the time of the RIA are available in the documentation for EPA's Base Case v.4.10. EPA, *EPA Base Case v410 Documentation Combined Report* (Aug. 30, 2010), https://www.epa.gov/sites/production/files/2015-07/documents/chapter_5_emission_control_technologies.pdf.

The Agency's own materials thus demonstrate that the control technology usage projections that are the foundation of the RIA's costs assessment are materially and substantially inaccurate. That inaccuracy is further demonstrated by the remainder of the record. *See, e.g.*, Declaration of James E. Staudt, Ph.D., CFA in *White Stallion Energy Center LLC, et al. v. EPA* (D.C. Cir. No. 12-1100), Dkt. #1574838, filed September 24, 2015 ("Staudt Decl.") (in docket at EPA-HQ-OAR-2009-0234-20549 (Jan. 15, 2016)); Ex. 2 to Staudt Decl., Andover Technologies Partners, *Review and Analysis of the Actual Costs of Complying with MATS in Comparison to Predicted in EPA's Regulatory Impact Analysis* ("Andover 2015 Review") (in docket at EPA-HQ-OAR-2009-0234-20549 (Jan. 15, 2016)) (examining compliance filings by plants and finding capital installations far below those predicted by EPA); Save EPA Comments at 2-3 (noting that the RIA costs assessment reflects incorrect and overly conservative assumptions about control technology choice, costs, and the price of natural gas). Indeed, the RIA itself anticipated the likelihood of these inaccuracies, stating that EPA had erred in the direction of "overstat[ing] costs" by not accounting for "further technological development" which could be anticipated during the compliance process. RIA at 3-33.[165]

Several other central elements of EPA's cost estimate have proven similarly incorrect. EPA did not account for likely "increase[d] investment in energy efficiency." RIA at 3-33 to 3-34 ("EIA analysis … indicated that the annualized costs of MATS may be overstated substantially by not considering demand response …."). Energy efficiency policies have, in fact, produced largely flat growth in electricity demand since MATS has been in place, and this historical trend is expected to continue. *See* U.S. Energy Information Administration, *Annual Energy Outlook 2019* at 89-90 (January 2019), https://www.eia.gov/outlooks/aeo/. EPA's model also presumed that natural gas costs would increase in the years following 2012. RIA at 3-25 to 3-26. Natural gas prices have instead dropped, allowing for lower-cost compliance by meeting demand with natural-gas-fired units instead of coal-fired units. Staudt Decl. ¶ 11, Save EPA Comments at 4.

Those errors vastly inflate the costs that EPA would ascribe to MATS in its Proposal. The costs of dry sorbent injection, baghouses, and scrubbers suggest that the errors in the RIA were material, and that MATS' actual costs were *a fraction* of the figure now relied upon by EPA in its Proposal. Sahu Report at 2-3. That result, too, is confirmed elsewhere in the record. *See, e.g.*, Andover Review at 11 (concluding that "the true cost of complying with the MATS rule is more than *$7 billion per year less* than estimated by EPA") (emphasis added); Staudt Decl. ¶ 5 (concluding that "the true cost of the Rule [is] approximately $2 billion").

For these reasons, EPA cannot reasonably use the cost figures contained in the Proposal.

B. EPA fails to distinguish between sunk and recoverable costs. (Comment C-2, C-24).

The Proposal fails to distinguish between costs that have been expended (and cannot be recovered) and costs remaining to be spent. Much of the costs associated with implementation of

[165] EPA further shaded its forecast towards the worst-case scenario by using conservative estimates of removal that might result within boilers themselves, 77 Fed. Reg. at 9413, and projecting that DSI would be used only for units burning lower-sulfur coal, *id.* at 9412.

MATS—the capital costs of the controls required to comply—are sunk. 80 Fed. Reg. at 75,033 ("Incremental annual capital expenditures represent approximately $2.4 billion of the $9.6 billion in annual costs in 2015"); *See* 81 Fed. Reg. at 24,436 ("[C]apital costs represent largely irreversible investments for firms that must be paid off regardless of future economic conditions, as opposed to other important variable costs, such as fuel costs, that may vary according to economic conditions and generation needs."). *See* Staudt Decl. ¶ 15 (noting that "almost half of [the] cost amortized capital" for MATS compliance had been spent by September 2015). Sunk costs cannot be reasonably conflated with avoidable costs. By doing so, EPA has obscured the consequences of its decision. In an assessment of costs, prompted by the need for "rational" agency decision-making, *Michigan,* 135 S. Ct. at 2707, the agency cannot treat sunk costs as equivalent to those that will actually be spent going forward. *See Fresno Mobile Radio v. FCC,* 165 F.3d 965, 969 (D.C. Cir. 1999). The controls that have been installed since 2012 are in place; the only question is whether utilities will be required to continue operating them. By conflating the costs of controls long-since installed with those avoidable operating costs, EPA has misstated—and starkly inflated—the costs of regulating air toxics from coal- and oil-fired power plants going forward. EPA cannot finalize an (unauthorized) new or revised finding of the appropriateness of regulating EGUs going forward without considering that much of the cost of compliance has already been spent.

C. EPA fails to consider the costs-per-ton of MATS in the context of other rules under Section 112. (Comment C-2, C-24).

EPA is now proposing to reverse its appropriate and necessary finding for regulating electric generating units under Clean Air Act Section 112 "after considering the cost of compliance relative to the HAP benefits of regulation," 84 Fed. Reg. at 2672, and concluding that "the costs of such regulation grossly outweigh the HAP benefits," *id.* at 2676. The cost-reasonableness test adopted by the Agency in its 2016 Finding avoids second-guessing the value Congress placed on the benefits of HAP regulation; there is no need to revise that approach. But if EPA were to undertake a revision of the appropriate and necessary finding—particularly one that takes such a dramatically different approach to assessing the benefits of the standards than the Agency took in its Supplemental Finding and the supporting analysis—the Agency must conduct a more thorough examination of costs and benefits than the examination provided in the Proposal. Previously EPA did not need to take a close look at the benefits of HAP reductions themselves, because the total benefits of the standards vastly outweighed the projected compliance costs. If EPA is no longer going to consider—or is going to give a different weight to—co-benefit pollution reductions, a much more searching examination of the benefits of HAP reductions is required.

One way to put the projected costs of MATS into context with those of other Section 112 rules is for EPA to examine the cost per ton or pound of pollutant emissions reduced by the rule and compare these costs to those of other MACT rules under Section 112. Congress provided for a specific process to be followed to mitigate emissions of specific hazardous air pollutants from listed sources under Section 112, and, as such, the pollutant removal costs that resulted from those statutorily-specified regulatory processes are clearly appropriate in Congress's estimation. Congress was aware of the potentially significant costs of mitigating extremely dangerous air

pollution across a variety of source categories in 1990, and it ultimately judged those costs to be acceptable and warranted as a matter of policy.[166]

Congress's policy judgment was that EPA should impose stringent standards to control HAPs because of their hazardous nature, in accordance with the standard-development process laid out in detail in the statute. Thus, Congress specified the level of costs that it deemed appropriate: the costs sources would incur to match the performance of the lowest-emitting sources in the category. *See* 42 U.S.C. § 7412(d)(3). Although Section 112 directs EPA to take costs into account when deciding whether it is achievable to set standards that go beyond this "floor," *see* 42 U.S.C. § 7412(d)(2), the Agency lacks discretion to balance costs against pollution reductions in identifying the minimum stringency of the standards—a key distinction from provisions of the CAA that address non-hazardous pollutants.[167]

Given the statutory context discussed extensively in these comments, the compliance costs of other Section 112 standards are a clear indication of what cost levels Congress itself deemed appropriate to reduce the risks of dangerous HAPs. When EPA proposed MATS in 2011, its analysis showed that the abatement cost per ton or pound fit within the range of analogous pollutant reduction costs from other MACT rules. 76 Fed. Reg. at 25,075, Table 25. Now that EPA is unlawfully proposing to undo its appropriate and necessary finding based on the anticipated costs of compliance with the regulation, EPA must revisit this comparison and justify the not-appropriate finding in the context of analogous pollutant reduction costs under Section 112.

EPA's calculation in the 2011 MATS Proposed Rule assessed the costs of each MATS pollution control measure relative to the quantity of pollutant it reduced and assigned the costs of the control to each pollutant according to the relative volumes reduced.[168] For example, if a given pollution control measure reduced $PM_{2.5}$ and Hg in similar percentages, the costs were assigned to each pollutant in similar proportions. *Id.* If a particular control measure primarily reduced emissions of a single pollutant, the majority of the control measure's costs were assigned to that pollutant. *Id.* The calculation focused on four different pollutants: acid gases (the combination of HCl, HCN, and HF), Hg, $PM_{2.5}$, and SO_2. After allocating the cost for each control between these pollutants, EPA summed each pollutant's control costs from the various pollution control measures applied under MATS to reach an overall cost for each pollutant. *Id.* EPA then divided the overall cost for each pollutant by the tons or pounds of pollutant expected

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[166] *See, e.g.*, 1990 CAA Leg. Hist. at 6949 (Apr. 3, 1990) (statement of Sen. Heinz) ("This is a tough bill. It will make significant improvements in the public health of millions of people. It will also impose significant costs on businesses. Should this legislation become law, it would represent the most stringent air pollution control law on the books in the world today.").

[167] *See* 42 U.S.C. § 7411(a)(1); *see also Lignite Energy Council,* 198 F.3d at 933 ("Because section 111 does not set forth the weight that be should [*sic*] assigned to each of these factors, we have granted the agency a great degree of discretion in balancing them.").

[168] 76 Fed. Reg. at 25,075, Table 25 (noting, for example, that the cost of activated carbon injection ("ACI") was split almost evenly between Hg (51%) and $PM_{2.5}$ (49%) because the reductions caused by ACI in those two pollutants are similar while the cost of fabric filters was primarily assigned to $PM_{2.5}$ (90%) and only marginally assigned to Hg (10%)).

to be reduced by MATS to produce a cost per ton or pound of pollution reduction. *Id.* For each pollutant, this cost per ton or pound was then compared to the range of costs per ton or pound figures from other MACT rules. *Id.*

EPA's calculation showed that the cost per ton or pound figures for the different pollutants mitigated by MATS fell within the range of other MACT rules: acid gas reductions were calculated to be $18,529/ton under MATS with a range of $2,500-$55,000/ton in other MACT rules; Hg reductions were calculated to be $40,428/pound under MATS with a range of $1,250-$55,200/pound in other MACT rules; $PM_{2.5}$ reductions were calculated to be $34,742/ton under MATS with a range of $1,600-$55,000/ton in other MACT rules; and SO_2 reductions were calculated to be $848/ton under MATS with a range of $540-$5,100/ton in other MACT rules. *Id.* These calculations help put the costs of MATS in the context of what Congress prescribed for other sources (and therefore these costs are by definition appropriate in Congress's judgment) and demonstrate that the cost of MATS was appropriate.[169]

EPA correctly concluded that, with Section 112, Congress was concerned primarily with setting standards that would achieve the greatest volume of HAP reductions achievable through maximum available controls.[170] It is therefore more appropriate under Section 112 to balance compliance costs against emission reductions, rather than against monetized benefits.[171] Indeed, even industry challengers to EPA's 2016 Supplemental Finding reaffirming the appropriateness of regulating EGUs under Section 112 admit that "[c]ost-effectiveness provides a standardized tool for EPA to gauge what emission reductions are being achieved for each dollar of compliance costs—in other words, it evaluates costs in terms of benefits." Pet'rs' Reply Br., *Murray Energy v. EPA*, No. 16-1127, at 11-12 (filed Mar. 24, 2017). The relevance of this cost metric to an appropriateness finding is plainly evident and undisputed even by MATS' detractors. EPA's failure to reexamine or even acknowledge these previous estimates before deeming the costs of regulating EGUs "grossly disproportionate" to HAP benefits renders its proposal arbitrary and capricious.

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[169] Although comparing the cost-effectiveness of different standards under Section 112 is relevant to an appropriateness finding, it is not the only possible approach. EPA, in its 2016 Supplemental Finding, did not rely primarily on such cost analogies; rather, it weighed compliance costs and the significant HAP reductions that MATS was projected to achieve, concluding that the industry could absorb compliance costs by examining annual revenues and capital expenditures, effects on the retail price of electricity, and potential reliability impacts. 79 Fed. Reg. at 24,424-25. Thus, the Agency appropriately ensured that the standards could be met by the regulated industry and that it was therefore reasonable to regulate fossil fuel-fired EGUs under Section 112. *Cf. Portland Cement*, 486 F.2d at 389-90; *see also* Legal Memorandum at 18-19 (discussing cost considerations under section 111).

[170] *See* Legal Memorandum at 10 ("[A] primary goal of section 112 is to reduce the inherent risk of exposure to such emissions by reducing the volume of HAP emissions entering the air."); *id.* at 11 ("[T]he benefit Congress sought in amending section 112 was permanent and ongoing reductions in the volume of HAP emissions."); *id.* at 17 (similar).

[171] *See* Legal Memorandum at 21; 81 Fed. Reg. at 24,423, 24,425 (describing the Agency's preferred approach of weighing compliance costs together with HAP reductions).

Although EPA did not include a similar calculation in the 2012 MATS Final Rule, 77 Fed. Reg. 9304 (Feb. 16, 2012) ("2012 MATS Final Rule"), it did provide the overall projected cost of the final rule, which itself is within the range of costs that would be expected from other MACT rules given the amount of projected reductions in air pollutants from MATS and the reduction cost per pollutant ratios of other MACT rules. In the RIA, EPA projected that the costs of compliance with the rule would be $9.6 billion.[172] The RIA also projected that the rule would reduce emissions of HCl (an acid gas)[173] by 39,800 tons, Hg by 20 tons, $PM_{2.5}$ by 52,000 tons, and SO_2 by 1,400,000 tons. RIA at 3-10. Multiplying these reductions by the range of reduction cost per pollutant values of other MACT rules provided in the 2011 MATS Proposed Rule provides a range of what the total costs of other Section 112 rules would have been if they had reduced an analogous quantity of these pollutants: $988,700,000 to $14,397,000,000.[174] The projected cost of compliance in the RIA of $9.6 billion (which severely overstates the actual costs of compliance, *see supra* Part VA) falls well within this range; indeed it is almost $5 billion below the high end of the range, which indicates that the cost of MATS is in line with historical MACT rules, given the enormous quantities of hazardous pollutants that are reduced, and is appropriate under the framework that Congress provided.

D. EPA has not attempted to separate the Non-HAP costs of MATS, which illustrates the arbitrariness of its selective consideration of benefits. (Comment C-2, C-24).

In addition to showing that the costs per ton or pound abated conform with previous MACT rules, EPA's 2011 breakdown of costs by pollutant also shows that EPA's current Proposal to ignore or discount the benefits of non-HAP pollution reductions is fatally flawed. EPA's proposed reversal of the appropriate and necessary finding turns on the contention that EPA improperly considered co-benefits from non-HAP emissions reductions when making and reaffirming the appropriate and necessary finding. 84 Fed. Reg. at 2675. The 2011 MATS Proposed Rule's breakdown of pollution control costs by pollutant, however, documents an additional reason why EPA must fully consider co-benefits: no pollution control reduces only HAPs. 76 Fed. Reg. at 25,075. A pollution control, as EPA acknowledged in its 2015 Legal Memorandum, "often necessarily results in reductions of other non-target pollutants." 2015 Legal Memorandum at 24. In the case of MATS, "the requirement to reduce metallic HAP

[172] RIA at ES-1.

[173] The 2011 MATS Proposed Rule combined HCl, HCN, and HF under the umbrella term "Acid Gases," but the 2012 MATS Final Rule focuses on HCl alone. For purposes of comparing the cost of the 2012 MATS Final Rule's reduction in acid gases with those of other MACT rules, we use the 2012 MATS Final Rule's reduction in HCl.

[174] SO_2 reductions of 1,400,000 tons with a cost range of $540-$5,100 per ton give a projected cost of $756,000,000 to $7,140,000,000 for SO_2 reductions; HCl reductions of 39,800 tons with a cost range of $2,500-$55,000 per ton give a projected cost of $99,500,000 to $2,189,000,000; $PM_{2.5}$ reductions of 52,000 tons with a cost range of $1,600-$55,000 per ton give a projected cost of $83,200,000 to $2,860,000,000; and Hg reductions of 20 tons, or 40,000 pounds, with a cost range of $1,250-$55,200 per pound give a projected cost of $50,000,000 to $2,208,000,000. In total, given the pollution reductions and the range of costs found in other MACT rules, the estimated analogous costs from MATS are between $988,700,000 and $14,397,000,000. The MATS RIA's projected costs of $9.6 billion falls within this range.

emissions necessarily results in reductions of $PM_{2.5}$ because the controls for particulate metal HAP indiscriminately reduce emissions of particulate matter without regard to whether the particulate matter is composed of hazardous or non-hazardous pollutants." *Id.* It would be arbitrary for EPA to ignore these additional reductions when they cannot be separated or forgone given the operational realities of pollution control technology.

If EPA ignores the benefits of non-HAP reductions, however, it would be consistent (though similarly illogical) to eliminate the costs associated with non-HAP reductions from its analysis as well. By allocating control costs to various pollutants, the 2011 MATS Proposed Rule demonstrated that only about $3.4 billion of the $8 billion projected cost of the rule (which itself was grossly overestimated, *see supra* V.A.) should be allocated to controlling HAPs because the other $4.6 billion should be allocated to $PM_{2.5}$ and SO_2. 76 Fed. Reg. at 25,075 Table 25. More than halving the projected costs of the rule seriously calls into question EPA's conclusion that the costs "grossly outweigh the HAP benefits." 84 Fed. Reg. at 2676. Yet, in reality, regulated entities cannot selectively divide costs any more than they can forego non-HAP reductions. Even if they could, however, this misguided exercise illustrates the intractable problems with EPA's novel theory that the Agency should not "give equal weight to" the benefits of non-HAP reductions. *Id.* If the Agency discounts non-HAP benefits (so as not to "give equal weight" to them), it must also discount the portion of costs appropriately assigned to non-HAP reductions. Yet EPA cannot identify—and has not attempted to identify—a non-arbitrary factor by which to discount either non-HAP benefits or non-HAP costs.[175] Indeed, EPA's silence on this problem indicates that the Agency is entirely ignoring non-HAP benefits—not just giving them lesser weight, as it suggests.[176] In sum, the Agency's decision not to perform the calculations that would eliminate or discount non-HAP control costs, consistent with what it claims is its approach for non-HAP benefits, demonstrates the fundamental inconsistencies in its approach. If either of these approaches were legally defensible, EPA would have performed the calculations and either eliminated compliance costs associated with reducing non-HAP pollutants or quantified the non-HAP pollutant reduction costs and benefits using the same (unspecified) discount factor that it claims to have used in assessing non-HAP pollutant reduction benefits.

In contrast to EPA's silence in the present proposal, in 2016 the Agency fully responded to commenters' objections that it had not provided a "sense of the relative weight or importance of the different factors considered under the agency's preferred approach." 81 Fed. Reg. 24,420, 24,431 (Apr. 25, 2016). EPA noted that, "[r]ather than requiring a quantification of the weight of each factor, courts have affirmed balancing tests where the agency provides an explanation of the relative significance of its considerations." *Id.* (citations omitted). Accordingly, the Agency relied on "Congress' determination in section 112 that HAP emissions are inherently harmful

[175] *Cf. Catskill Mountains Chapter of Trout Unlimited v. EPA*, 846 F.3d 492, 521 (2d Cir. 2017) ("An agency interpretation would surely be 'arbitrary' or 'capricious' if it were picked out of a hat, or arrived at with no explanation, even if it might otherwise be deemed reasonable on some unstated ground.").

[176] *Cf. Gulf Power Co. v. FERC*, 983 F.2d 1095, 1099 (D.C. Cir. 1993) ("FERC itself has acknowledged that the decision to deny … a retroactive waiver in this case demands a 'balancing of competing equities and interests.' Yet there is little evidence that FERC actually engaged in any meaningful balancing." (citations omitted)).

and the statutory goal of protecting the most sensitive populations from that harm" to conclude that "it was correct for the EPA to place importance on reducing the significant hazards to public health and environment posed by HAP emissions from EGUs." *Id.* Here, however, EPA is not using a "totality-of-the-circumstances test," *id.*, in which it weighs various cost-reasonableness metrics together with volumes of HAP reductions; instead, it is purporting to conduct a direct comparison of the costs and benefits of regulating EGUs under section 112. A diametric balancing of costs and benefits requires a more thorough and detailed attempt at quantification than a multi-factor weighing of qualitatively different considerations.[177] In any event, EPA has given no sense whatsoever of the relative weight it has assigned to HAP and non-HAP costs and benefits, and its Proposal therefore constitutes arbitrary and capricious decision making.[178]

E. EPA inconsistently gives the indirect costs of regulating EGUs under Section 112 full weight while discounting or ignoring indirect benefits. (Comment C-2, C-24).

EPA "proposes to primarily consider the costs of MATS in comparison with the HAP benefits of the hazardous pollution reductions from MATS" and concludes that "it is appropriate not to give equal weight to non-HAP co-benefits in this comparison." 84 Fed. Reg. at 2677. However, in its consideration of "the costs of MATS," EPA is including not only compliance costs incurred by the sources regulated under MATS, but also costs incurred by other power plants that are not regulated under MATS due to the effects on the power sector of regulated sources' investing in pollution abatement technologies or taking other steps to reduce emissions. These power plants—like the fine particulate matter reduction co-benefits EPA devalues in its analysis—are not listed for regulation under Section 112. If particulate matter is not a targeted pollutant, then unlisted power plants should not be considered targeted sources. In other words, EPA is considering indirect compliance costs. EPA never offers any reason why it would be appropriate to discount or ignore co-benefits while giving full weight to indirect compliance costs. As EPA explained in 2012:

> The power industry's "compliance costs" are represented in this analysis as the change in electric power generation costs between the base case and policy case in which the sector pursues pollution control approaches to meet the MATS emission standards. In simple terms, these costs are the resource costs of direct power industry expenditures to comply with the EPA's requirements.

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[177] *See, e.g.*, *High Country Conservation Advocates v. U.S. Forest Serv.*, 52 F. Supp. 3d 1174, 1191 (D. Colo. 2014) ("Even though [the statute] does not require a cost-benefit analysis, it was nonetheless arbitrary and capricious to quantify the *benefits* of the [decision] and then explain that a similar analysis of the *costs* was impossible when such an analysis was in fact possible …. In effect the agency prepared half a cost-benefit analysis, incorrectly claimed that it was impossible to quantify the costs, and then relied on the anticipated benefits to approve the project.").

[178] *See PDK Labs. v. U.S. DEA*, 438 F.3d 1184, 1194 (D.C. Cir. 2006) (indicating that a rule would be unlawful "where the agency has failed to explain the basis for its decision or the relative significance of the evidence before it").

> The EPA projects that the annual incremental compliance cost of MATS is $9.6 billion in 2015 ($2007). The annualized incremental cost is the projected additional cost of complying with the rule in the year analyzed, and includes the amortized cost of capital investment and the ongoing costs of operating additional pollution controls, needed new capacity, shifts between or amongst various fuels, and other actions associated with compliance.

77 Fed. Reg. at 9425. Thus, EPA appropriately considered the full range of responsive actions that both regulated entities and other power-sector participants would take when calculating the costs of complying with MATS—rather than having a blinkered consideration only of the costs of installing and running pollution controls. As EPA has explained in its Guidelines for Preparing Economic Analysis, costs incurred by non-regulated entities can conceptually be viewed as indirect costs and distinguished from direct costs, which "fall directly on regulated entities as the result of the imposition of a regulation." Guidelines for Preparing Economic Analyses at 8-7.

There is no reason to eliminate the indirect costs of compliance when assessing the economic effects of a rule, and EPA has not suggested here that it will disregard the costs incurred under MATS by entities not regulated under MATS, such as higher fuel costs incurred by natural gas plants with higher utilization rates (and any effects on gas prices due to the increased demand). Inexplicably, however, it *has* proposed to ignore the parallel class of benefits: real reductions in emissions of air pollutants that are not "target pollutants," *id.*, but that inevitably decrease under MATS. This inconsistent and irrational treatment of mirroring sets of costs and benefits is arbitrary.[179] Indeed, in its 2016 Supplemental Finding, EPA observed:

> In conducting benefit-cost analyses, the EPA routinely considers consequences (both positive and negative) that are ancillary to the intended purpose of a regulation. For example, the $9.6 billion cost estimated in the MATS RIA included costs that would be passed on to electricity customers and higher fuel costs, which are beyond the costs borne by owners of coal- and oil-fired units regulated by MATS. If it were unreasonable to consider co-benefits, then it would be unreasonable to consider these ancillary costs.

81 Fed. Reg. at 24,440. As if to showcase the illogic of its current position, EPA now proposes the first half of this compelling syllogism (not considering indirect benefits) without even addressing the inexorable result (not considering indirect costs). Although it might technically be feasible to separate direct and indirect compliance costs in analyzing the results of power-sector modeling, the Agency has not attempted to do so, perhaps sensing that eliminating these real-world costs would be unreasonable—just as unreasonable as ignoring the massive real-world benefits of co-pollutant reductions under MATS.

[179] *See, e.g.*, *Ctr. for Biological Diversity*, 538 F.3d at 1198 (warning agencies not to "put a thumb on the scale by undervaluing the benefits and overvaluing the costs").

VI. EPA HAS NOT JUSTIFIED CREATING AN EXEMPTION FOR WASTE COAL FACILITIES. (Comment C-11 through C-23).

EPA seeks comment on an exemption that it has repeatedly—and with good reason—rejected: a sub-category that would allow certain waste-coal plants to emit greater quantities of acid gases, rather than comply with the standards currently applicable to them. The purported rationale for that exemption is a distinction between eastern bituminous coal refuse, and anthracite and western bituminous coal refuse. EPA acknowledges that this rationale was not provided in any reconsideration petition or comment submitted during the rule-making. 84 Fed. Reg. at 2701 ("[W]e could not find a single statement in the rulemaking record that clearly or even vaguely requested a separate acid gas HAP limit based on the distinction between anthracite refuse and bituminous coal refuse.").

As EPA has repeatedly confirmed, none of the characteristics of Circulating Fluidized Bed ("CFB") combustion units, or waste-coal-burning units, justify a subcategory for those units. 2011 RTC Vol. I at 358-65, 586-87. *See White Stallion,* 748 F.3d at 1250 (upholding EPA's refusal to establish subcategory). EPA now suggests a sub-category for only those units burning eastern bituminous coal-waste—contending that these units are distinct both from other waste-coal burning units, and non-waste burning units using the same fuels. But, as with other waste-coal plants, there is no justification for exempting plants burning eastern-bituminous coal-waste from the existing MATS limits.

A. The plants within the proposed subcategory can—and are—complying with the current acid gas standards. (Comment C-15, C-16, C-17, C-18).

EPA acknowledges that because "[a]nthracite coal refuse-fired and western coal-refuse fired and western bituminous coal refuse-fired EGUS are currently emitting SO_2 at rates that are below the final MATS emission standard for acid gas HAP," "there is no need to consider a subcategory that would include those units." 84 Fed. Reg. at 2702. Eastern bituminous coal-refuse-fired EGUs are, likewise, emitting at rates that are below the MATS' acid gas standard—and, likewise, there is no basis for a sub-category exempting those plants. *See White Stallion*, 748 F.3d at 1250 ("Industry petitioners' assertion that the hydrogen chloride standards are unattainable for coal-refuse-fired CFBs is undermined by the fact that some of those units were among the best performers for hydrogen chloride.").

EPA identifies 6 plants that it would exempt from the current acid-gas standards: The Grant Town and Morgantown plants in West Virginia; and the Colver, Cambria, Ebensburg, and Scrubgrass plants in Pennsylvania.[180]

[180] These plants have delayed compliance by invoking the exemption governing "mining waste operations" for which four years is not sufficient "to dry and cover mining waste in order to reduce emissions." 42 U.S.C. 7412(i)(3)(B). The units delaying compliance are not mining waste operations, and the control options that they (and EPA) have identified as necessary to meet MATS do not include drying and covering mining waste in a fashion that would require more than four years. *See* Order Responding to the Petitioner's Request that the Administrator Object to the Issuance of a State Operating Permit, *In re Scrubgrass Generating Company,* Pet. No. III-2016-6 (May 12, 2017) (Exh. 26).

Three of those plants are currently meeting the MATS' acid-gas standards:

(1) Grant Town: The plant has identified, acquired permits for, and installed pollution controls—grid nozzle replacements—that improve both boiler efficiency and acid gas reductions. The plant has certified that "[t]esting to date has shown the ability to meet" the MATS' acid gas standards, and that "full emissions compliance" is expected by "April 16, 2019." Letter from Don Drennen to Renu Chakrabarty dated Jan. 16, 2019 at 2-3 (Exh. 27). It has done so while not just meeting the MATS' mercury limits, but securing Low Emitting EGU (LEE) status for mercury. *Id* at 1.

(2) Morgantown: The Morgantown plant was required to comply with the MATS' acid gas limits by April 16, 2017. Letter from William F. Durham to Todd Shirley dated April 15, 2016 (Exh. 28). The plant achieved compliance with the MATS acid gas limits by June, 2017. Morgantown Notice of Compliance Status (June, 28, 2017) (Exh. 29); Morgantown Title V Operating Permit Semi-Annual Monitoring Report for January-June 2018 (Exh. 30); Morgantown Title V Operating Permit Semi-Annual Monitoring Report for June-December 2018 (Exh. 31). Both Morgantown's mercury and particulate emissions have been low enough to not just meet the standards, but qualify for LEE status. Letter from Rob Watson to William Durham dated Dec. 6, 2018 (Exh. 32); Letter from Rob Watson to William Durham dated Jan. 18, 2019 (Exh. 33).

(3) Scrubgrass: All units at the Scrubgrass plant have been in compliance with the MATS rule since no later than March 2018. Memo from Henry Bonifacio dated July 9, 2018 (Exh. 34). Units at the plant have qualified for LEE status for both mercury and particulate matter emissions, by demonstrating that their emissions of each are below 10% of the MATS limit. Memo from Dianne Maskrey to Richard Szekeres dated Aug. 10, 2016 (Exh. 35). Meanwhile, the plant is continuing to beneficially re-use the ash generated at the facility. *Id.* at 11.

The remaining three plants—Cambria, Colver, and Ebensburg—will be in compliance by April 16, 2019. Letter from Vincent Brisini to Scott Churbock dated Dec. 3, 2014 (Exh. 36); Letter from Vincent Brisini to Scott Churbock dated Dec. 3, 2014 (Exh. 37); Letter from Vincent Brisini to Gary Anderson dated Dec. 17, 2014 (Exh. 38). By the terms of those extensions, these plants should be in compliance now. The Cambria Plant has additionally indicated that it intends to de-activate on June 7, 2019—so that it will not be among the existing sources when EPA finalizes any rule.[181]

That the plants EPA proposes to subcategorize are meeting the MATS' acid gas standards conclusively refutes any grounds by which those plants could be validly sub-categorized based on their "ability to control" acid gas emissions. 84 Fed. Reg. at 2701. EPA's assessment of the need for a subcategory, and analysis of any standards for a subcategory, cannot reasonably be

[181] The Cambria Plant has notified its Regional Transmission Operator that it intends to de-activate, https://www.pjm.com/planning/services-requests/gen-deactivations.aspx.

based on data "for the period of January 2015 through June 2018," 84 Fed. Reg. at 2703. While EPA has some discretion over its data-gathering, its decision remains subject to traditional standards of reasonableness and non-arbitrariness. *Natural Res. Def. Council v. EPA*, 529 F.3d 1077, 1086 (D.C. Cir. 2008). The data that EPA proposes to select—terminating just before plants report the results of installed pollution-controls, and covering substantial periods before controls were installed—cannot be reasonably said to represent the emissions reductions achieved in practice by the best-performing sources, or any currently extant sources at all. 42 U.S.C. § 7412(d)(3).

B. EPA has suggested no valid technical basis for the sub-category. (Comment C-12, C-13, C-14, C-18).

EPA suggests that eastern bituminous coals are distinguished by "higher" sulfur content (though the plants it would subcategorize are not those using coal with the "highest" sulfur content), and lesser content of "free alkali," which might act as a "natural sorbent" to neutralize acid gases. 84 Fed. Reg. at 2701-02. But EPA offers nothing to distinguish the plants it would subcategorize from the other plants, burning the same coals, subject to the MATS.

EPA says that "ARIPPA has argued that for the eastern bituminous coal refuse-fired EGUs, limestone injection alone is not adequate to meet the final" acid gas limits. 84 Fed. Reg. at 2702. That certain plants would need to install additional controls is not a valid basis for a sub-category. *See Sierra Club v. EPA*, 895 F.3d 1, 20 (D.C. Cir. 2018) ("The EPA relied on substantial evidence to conclude that technological controls are available to achieve the MACT floor without raw material substitution and made a reasoned decision not to subcategorize based on the mercury content of raw materials. Likewise, the EPA is not required to set a standard that is achievable by all sources."). And in any event, the Grant Town and Scrubgrass plants are meeting the acid gas limits through limestone injection, demonstrating that it is adequate on its own.

EPA contends that some add-on controls would be "particularly expensive." 84 Fed. Reg. at 2702. But as the Agency has acknowledged, it may not subcategorize based on cost. *Michigan,* 135 S. Ct. at 2711; *White Stallion,* 748 F.3d at 1250 (rejecting claim that cost-effectiveness differences required CFB subcategory). While EPA speculates that there may be unspecified "technical[] and practical[]" difficulties in installing spray-dry absorbers or wet FGD systems, 84 Fed. Reg. 2702, it identifies no basis for those difficulties. *See* Morgantown Notice of Compliance Status (Exh. 29) at 1, 3 ("[T]he Morgantown Energy CFB boilers are installed with an FGD system…" and noting "Dry Flue Gas Desulfurization" system on coal-refuse fired boilers). Nor would this fact matter even if true. EPA may not alter the MACT floor simply because some sources would not be able to meet it. *See Sierra Club v. EPA*, 479 F.3d 875, 880-81 (2007).

As EPA acknowledges, furthermore, Dry Sorbent Injection remains a "low-cost" alternative for plants that may not wish to install spray-dry absorbers or wet FGD systems. 84 Fed. Reg. at 2702. EPA notes that some sorbents may "negatively impact the … saleability of the captured fly ash." *Id.* But losing the ability to sell (or use) the ash—a consequence for all plants using DSI, not just those using eastern bituminous coal-waste—does not suggest any basis in the class, type, or size of these six plants that might allow EPA to set different standards for these

units. 42 U.S.C. § 7412(d)(1). *White Stallion*, 748 F.3d at 1250 ("[N]othing in the CAA obligates EPA to set standards in a way that always allows the re-use of fuel ash, even if doing so might be a more desirable outcome for some EGU operators."). And a plant within the proposed sub-category demonstrates that units can meet MATS' acid gas limits, while still re-using their coal ash. Exh. 35 at 3.

EPA also states that "[w]hen both calcium-based and sodium-based sorbents were injected in testing, the emissions of Hg increase considerably," so that "use of DSI technology for acid gas control (if feasible) would also require the installation of Hg-specific control technology." 84 Fed. Reg. at 2702. Even if true, that would provide no basis for the proposed subcategory. As demonstrated by the Grant Town, Morgantown, and Scrubgrass plants, CFB units burning eastern bituminous coal-refuse not only *can* meet both the acid gas and mercury standards—they can achieve such low emissions of mercury that they qualify for LEE status (that is, their emissions are less than 10 percent of the MATS limit) without any mercury-specific controls. Exhs. 27, 32, & 35. There is no plausible basis to conclude such plants are categorically incapable of meeting both the acid gas and mercury limits. Even if some plants would need to install mercury-specific controls in order to avail themselves of the least costly acid-gas control, this would not demonstrate any lawful basis for the proposed subcategory with standards that deviate from MATS.[182] Many plants across the country have installed both dry sorbent injection and mercury-controls, and, as noted above, Section 112 does not permit EPA to loosen emission limitations applicable to a subcategory based on EPA's desired control configuration. *See Sierra Club*, 479 F.3d at 880-81.

C. EPA's proposed limits for the sub-category are not defensible. (Comments C-12, C-13, C-14, C-19, C-23).

Even if EPA could justify creation of a sub-category to accommodate some of the described plants—a decision that would require a new and different rationale from any suggested by the Proposal—the limits that EPA proposes are insufficient and unlawful.

First, as noted above, EPA has selected data—prior to June 2018, and including emissions as early as January 2015—that are not reasonably representative of the emissions achieved by these units in practice. Three of the units within the sub-category installed controls between 2017 and 2018 that demonstrably reduced their acid gas emissions below the current standard. This includes the Scrubgrass plant, whose high emissions are a principal driver of EPA's proposed, vastly inflated floor, but which, based on current emissions, could rank among the best performers. The other three plants in the subcategory have represented that they have the controls to meet the standard, and will do so well before EPA might finalize its Proposal. One of those plants intends to cease operations before this Proposal could be finalized, such that it should not properly be considered among the "existing" sources for purposes of establishing the floor.

[182] *See* 42 U.S.C. § 7412(d)(1) (allowing EPA to "distinguish among classes, types, and sizes of sources within a category or subcategory in establishing such standards," but not authorizing different standards based on the need for some sources within the category or subcategory to install additional controls).

Under those circumstances, EPA's choice of emissions data for its standard—which excludes the vast majority (if not all) of the period in which controls were installed, and is dominated by emissions reported prior to the installation of controls—is not reasonable, given the statute's mandate that EPA seek out the emission limitation achieved by the best performing sources. 42 U.S.C. § 7412(d)(3). Neither EPA's selection of best-performers, nor its estimates of those performers' emissions, may be rationally based on data that EPA knows to misrepresent those sources current and future emissions.

EPA's beyond-the-floor analysis suffers from the same flaw—it fails to address the fact that each of the plants in the subcategory already has controls in place to address acid gas emissions. Instead, it assumes—without sufficient analysis or rational basis and contrary to actual experience—that such controls are infeasible. MACT Floor Analysis and Beyond the MACT Floor Analysis for Subcategory of Existing Eastern Bituminous Coal Refuse-Fired EGUs Under Consideration ("MACT Floor Memo") at 4-5 (September 2018), Docket ID No. EPA-HQ-OAR-2018-0794-0008. The record contradicts that infeasibility—every plant in the subcategory has controls in place that are, according to the plant-owners, sufficient to meet the standard.[183] Given the existence of controls sufficient to meet the current standard on every plant within the sub-category, the only relevant cost, for purposes of any beyond-the-floor standard, is the cost of operating (rather than installing) the control.

In addition, EPA has acknowledged that the Upper Prediction Limit ("UPL") approach that it has used here does not produce reasonable results for limited datasets, at least without a case-by-case review and adjustment. *See* Memo from Sharon Nizich to Docket ID EPA-HQ-OAR-2013-0291 (Exh. 39). The Agency has failed to explain its use of the UPL here—in which the floors appear to be based on a very small number of test runs (especially if the Piney Creek data is excluded). EPA's use of the UPL is additionally unjustifiable given that a large portion of the variability in its dataset reflects the installation of controls—not "intrinsic" variability resulting from changing operating conditions. *U.S. Sugar,* 830 F.3d at 637-38. Nor can EPA's UPL fairly predict the future, likely emissions of the best-performing sources, if based on data reflecting uncontrolled emissions that are not representative of those sources' future emissions.

EPA has not provided an adequate basis to exclude the Seward Generating Station. EPA cites "space and other configurational limitations" that might distinguish some plants from the Seward facility. MACT Floor Memo 3; 84 Fed. Reg at 2702. But the sub-category is not limited to plants with space and configurational limitations that preclude installation of sufficient controls—EPA has based the sub-category on characteristics of eastern bituminous coal-waste alone. And the Morgantown, Grant Town, and Scrubgrass plants demonstrate that extant space constraints do not preclude installation of effective controls. (EPA's floor dataset also includes the Piney Creek Plant—which does not appear to be within EPA's subcategory). *See Sierra*

[183] That DSI may affect re-use of fly ash does not, as noted above, render that control infeasible. At most, it might increase its cost; but EPA has not demonstrated that those costs render DSI not cost-effective. And given that plants within the subcategory have met the acid gas limit, while emitting mercury at less than 10% of the limit, EPA's *ipse dixit* assertion that DSI would prevent achievement of the mercury limit lacks any reasonable foundation in the record.

Club, 479 F.3d at 880-81 (EPA may not restrict the sources that it considers in setting the MACT floor so as to allow all sources in the sub-category to comply).

If EPA intends to create a sub-category for these plants, it is required to ensure that its standards reflect the MACT floor, within this sub-category, for *all* hazardous air pollutants. Many of these plants have very low mercury and PM emissions. At least half the plants in the sub-category are emitting particulate matter and/or mercury at less than 10% of the generally applicable MATS limits. EPA seeks to relieve these waste-coal plants of currently applicable acid-gas limits, in part, the Agency says, to preserve their ability to achieve those low emissions of other pollutants. Under these circumstances, EPA is required to set standards for mercury and metallic toxics, for this sub-category, reflecting the best-performers within its proposed eastern-bituminous coal-waste-burning sub-category. *U.S. Sugar*, 830 F.3d at 631 (When EPA defines source subcategories, it must "take the bitter with the sweet. Section 7412 mandates, without ambiguity, that the EPA set the MACT floor at the level achieved by the best performing source, or the average of the best performing sources, in a subcategory."); *Nat'l Lime Ass'n v. EPA*, 233 F.3d 625, 634 (D.C. Cir. 2000) ("Contrary to EPA's argument, nothing in *Sierra* relieves it of the clear statutory obligation to set emission standards for each listed HAP."); *see* 42 U.S.C. § 7412(d)(3)(A), (B).

And if EPA intends to create this sub-category, it cannot continue to assert that its action has no impact on costs; it is required to prepare a new Regulatory Impact Analysis, describing the increased impact on public health from the emissions that the subcategory would permit. And EPA cannot finalize its residual risk analysis, if it creates this subcategory; the current analysis relies on the existing limits, and if EPA alters those limits, it will need to collect data adequate to satisfy section 112(f) following compliance with those relaxed limits.

VII. EPA'S PROPOSAL FAILS TO SATISFY THE AGENCY'S OBLIGATIONS UNDER CAA SECTION 307(d).

EPA's failure to provide sufficient explanation of the methodology it used for the appropriate and necessary analysis renders its Proposal in violation of CAA Section 307(d). Notice and comment rulemaking requires an agency to disclose the bases for its proposed regulations, and "serves three distinct purposes." *Small Refiner Lead Phasedown Taskforce v. EPA*, 705 F.2d 506, 547 (D.C. Cir. 1983). These include "(1) to ensure that agency regulations are tested via exposure to diverse public comment, (2) to ensure fairness to affected parties, and (3) to give affected parties an opportunity to develop evidence in the record to support their objections to the rule and thereby enhance the quality of judicial review." *Am. Coke & Coal Chems. Inst. v. EPA*, 452 F.3d 930, 938 (D.C. Cir. 2007); *Util. Solid Waste Activities Grp. v. EPA*, 901 F.3d 414, 442 (D.C. Cir. 2018). While these requirements also apply to general rulemaking under the Administrative Procedure Act, in the Clean Air Act, Congress provided even more rigorous requirements to ensure that both the public and regulated community will have an adequate basis on which to comment on EPA proposals, a necessity given the highly complex issues addressed under the statute. *See, e.g., Schiller v. Tower Semiconductor, Ltd*., 449 F.3d 286, 300 n.14 (2d Cir. 2006) (explaining that in Section 307(d) Congress provided specific procedures for notice and comment that go beyond what is required under the APA).

EPA's explanation of the methodology behind its appropriate and necessary finding is woefully inadequate and fails to comply with CAA section 307(d), which requires a notice of proposed rulemaking under Section 112(n) to be accompanied by a statement of basis and purpose that includes the following:

(A) the factual data on which the proposed rule is based;
(B) the methodology used in obtaining the data and in analyzing the data; and
(C) the major legal interpretations and policy considerations underlying the proposed rule.

42 U.S.C. § 7607(d)(3). This Proposal is deficient because EPA fails to adequately explain the methodology it used for the appropriate and necessary finding. EPA claims the monetized costs and HAP benefits should be the "focus" of the analysis, but also suggests that unquantified HAP benefits and co-benefits may affect the analysis. Despite admitting the existence of these benefits, EPA claims that the "gross disparity" between costs and monetized HAP benefits "is too large to support an affirmative appropriate and necessary finding." 84 Fed. Reg. at 2677.

EPA's explanation of how the unquantified HAP benefits and co-benefits are considered in this proposal is indecipherably vague. Although EPA acknowledges the unquantified HAP benefits are "substantial and important" the Agency concludes that they are "not sufficient to overcome the significant difference between the monetized benefits and costs of this rule." *Id.* at 2678. EPA's treatment of unquantified HAP benefits is notably inconsistent. The language in the Proposal appears to imply the unquantified HAP benefits are not part of "the gross disparity between monetized costs and HAP benefits, which [EPA believes] to be the primary focus of the Administrator's determination." *Id.* at 2677. However, a memorandum regarding costs and benefits in support of the Proposal states that "EPA views the HAP benefits, both quantified and unquantified, as the centrally relevant portion of the analysis for purposes of the appropriate and necessary finding."[184] The sum of unquantified benefits and disbenefits appears to be included as "B" in this memorandum, though EPA's use of "B" for both unquantified HAP benefits and unquantified "co-benefits" makes the analysis problematic. In Table 3 of EPA's memorandum on costs and benefits, the Agency mistakenly mixes unquantified co-benefits with unquantified HAP benefits. This mistake highlights the importance of an explanation of EPA's methodology. Because EPA has failed to explain how its methodology treats unquantified HAP benefits, it is difficult to determine how this mistake would affect the appropriate and necessary finding. This careless error also suggests EPA has failed to take these unquantified HAP benefits and perhaps the entire regulatory analysis seriously.

In addressing particulate matter co-benefits, EPA suggests monetized HAP benefits need to be at least "moderately commensurate" with costs or else no amount of co-benefits, regardless of how large, can offset this imbalance. 84 Fed. Reg. at 2676. EPA admits 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

[184] EPA, *Compliance Cost, HAP Benefits, and Ancillary Co-Pollutant Benefits for "National Emission Standards for Hazardous Air Pollutants: Coal-and Oil-Fired Electric Utility Steam Generating Units -- Reconsideration of Supplemental Finding and Residual Risk and Technology Review,"* at 1, https://www.regulations.gov/document?D=EPA-HQ-OAR-2018-0794-0007.

the gross imbalance of monetized costs and HAP benefits, to support a [positive] finding." *Id.* EPA does not explain what it believes constitutes a "gross imbalance," and the Agency's inconsistent and interchangeable use of the terms "gross imbalance," "gross disparity," and "significant difference" suggests that despite being critical to its methodology, the Agency does not have any particular preference, reasoning, or definition for these terms. Thus, EPA has failed to "defin[e] the criteria it is applying." *Pearson v. Shalala*, 164 F.3d 650, 660 (D.C. Cir. 1999).

The terms "gross disparity," "gross imbalance," and "moderately commensurate," which EPA uses in this Proposal, do not appear in section 112 or previous iterations of the appropriate and necessary finding, and instead appear to be plucked from thin air with no explanation. By not giving "some definitional content," *id.*, to these phrases, EPA has failed to satisfy the requirements of both the CAA and the APA. EPA has not explained how large of a difference between costs and monetized HAP benefits qualifies as a "gross disparity" or at what point costs and monetized HAP benefits would be "moderately commensurate." The language in the Proposal essentially implies that there is a threshold at which co-benefits would affect the appropriate and necessary finding but fails to explain where that threshold is or how it was determined.

The Proposal omits any explanation of how and why EPA would consider co-benefits in the appropriate and necessary finding if costs and HAP benefits were "moderately commensurate." Furthermore, except for claiming they are insufficient to support a positive appropriate and necessary finding due to the "gross disparity" between costs and monetized HAP benefits, EPA fails to explain how it has considered or what weight it has given to unquantified HAP benefits. Explaining the methodology used is particularly important for a proposal like this in which EPA is making a significant change to the analysis and methodology used in the existing finding. The 2016 Supplemental Finding's approach to cost-benefit analysis did not include this type of dismissive treatment of co-benefits and unquantified HAP benefits. At the very least, when EPA chooses to make a significant methodological change the Agency should provide a clear explanation of its new methodology.

If EPA insists on moving forward with this Proposal, the Agency must at least issue a revised notice of proposed rulemaking that clearly lays out the methodology being used for the appropriate and necessary finding. The Agency must also allow interested parties to comment on a revised notice before finalizing it. If the Agency chooses to base the appropriate and necessary finding on terms like "gross disparity" and "moderately commensurate" it must explain what those terms mean in this context, not treat them like they are self-explanatory or have universal definitions when that is clearly not the case. *See, e.g., American Medical Ass'n v. Reno*, 57 F.3d 1129, 1130-33 (D.C. Cir. 1995); *Connecticut Light & Power Co. v. NRC*, 673 F.2d 525, 530-31 (D.C. Cir. 1982) ("An agency commits serious procedural error when it fails to reveal portions of the technical basis for a proposed rule in time to allow for meaningful commentary."); *Kennecott Corp. v. EPA*, 684 F.2d 1007, 1018 (D.C. Cir. 1982) (setting aside regulation where agency had not provided underlying factual data in proposed rule); *Daimler Trucks N. Am. LLC v. EPA*, 737 F.3d 95 (D.C. Cir. 2013) (setting aside EPA rule for failure to provide adequate notice and comment); *Sierra Club v. Costle*, 657 F.2d 298, 398 (D.C. Cir. 1981)("If, however, documents of central importance upon which EPA intended to rely had been entered on the docket too late for

any meaningful public comment prior to promulgation, then both the structure and spirit of section 307 would have been violated.").

EPA's use of vague language in the Proposal regarding methodology contravenes and frustrates the purpose of issuing a notice of proposed rulemaking, which is to provide notice and an opportunity to comment to the public. It is extremely difficult for interested and affected parties to comment on EPA's revised appropriate and necessary finding when the Agency fails to adequately explain the finding's methodology, and instead hides behind nebulous language that lacks a clear meaning. This clarity is particularly important in cost-benefit analysis, where defining the scope of various terms can have a decisive impact on the results. Before changing its methodology, EPA must provide a coherent explanation of what its approach actually is. Neither the public nor a reviewing court should "be compelled to guess at the theory underlying the agency's action." *Appalachian Power Co. v. EPA*, 249 F.3d 1032, 1055 (D.C. Cir. 2001).

CONCLUSION

EPA must not finalize, and should withdraw, this proposal.

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