[ORAL ARGUMENT NOT YET SCHEDULED]

IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT
No. 16-1127 (and consolidated cases)

MURRAY ENERGY CORPORATION, *et al.*,
Petitioners,
v.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, and REGINA A. MCCARTHY, Administrator,
Respondents.

On Petition for Review of Final Agency Action of the
United States Environmental Protection Agency

FINAL BRIEF OF THE INSTITUTE FOR POLICY INTEGRITY AT NEW YORK UNIVERSITY SCHOOL OF LAW AS *AMICUS CURIAE* IN SUPPORT OF RESPONDENT

Richard L. Revesz
Caroline Cecot
Denise A. Grab
Jack Lienke
Jason A. Schwartz
INSTITUTE FOR POLICY INTEGRITY
139 MacDougal Street, Room 319
New York, NY 10012
(212) 992-8932
richard.revesz@nyu.edu
Counsel for Amicus Curiae
Institute for Policy Integrity

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CERTIFICATE AS TO PARTIES, RULINGS, AND RELATED CASES

A. Parties and *Amici*

All parties, intervenors, and *amici* appearing in this case are listed in the opening brief for Petitioners, except for the Cato Institute, which filed its *amicus curiae* brief on November 25, 2016.

B. Rulings Under Review

Reference to the ruling under review appears in Petitioners' brief.

C. Related Cases

(1) *White Stallion Energy Center, LLC v. EPA*, 748 F.3d 1222 (D.C. Cir. 2014), *rev'd Michigan v. EPA*, 135 S. Ct. 2699 (2015).

(2) *ARIPPA v. EPA*, No. 15-1180 (ECF No. 163520).

STATEMENT REGARDING SEPARATE BRIEFING, AUTHORSHIP, AND MONETARY CONTRIBUTIONS

A single *amicus curiae* brief is not practicable in this case because the Institute for Policy Integrity ("Policy Integrity") was not aware of any other group's intention to file an *amicus curiae* brief in support of Respondent until the evening of January 23, 2017. *See* D.C. Cir. R. 29(d). Moreover, Policy Integrity offers a distinctive economic perspective on the issues involved.

Under Federal Rule of Appellate Procedure 29(a)(4)(E), Policy Integrity states that no party's counsel authored this brief in whole or in part, and no party or party's counsel contributed money intended to fund the preparation or submission of this brief. No person—other than the *amicus curiae*, its members, or its counsel—contributed money intended to fund the preparation or submission of this brief.

RULE 26.1 DISCLOSURE STATEMENT

The Institute for Policy Integrity ("Policy Integrity") is a nonpartisan, not-for-profit organization at New York University School of Law. Policy Integrity is dedicated to improving the quality of government decisionmaking through advocacy and scholarship in the fields of administrative law, economics, and public policy. Policy Integrity has no parent companies. No publicly held entity owns an interest of more than ten percent in Policy Integrity. Policy Integrity does not have any members who have issued shares or debt securities to the public.

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GLOSSARY OF ACRONYMS AND ABBREVIATIONS

Pursuant to Circuit Rule 28(a)(3), the following is a glossary of acronyms and abbreviations used in this brief:

Air toxics rule	Mercury and Air Toxics Standards
Circular A-4	Office of Mgmt. & Budget, Exec. Office of the President, OMB Circular A-4, Regulatory Analysis (2003)
EPA	Environmental Protection Agency
Policy Integrity	Institute for Policy Integrity
Power plants	Electric utility steam generating units
Regulatory Impact Analysis	EPA, Regulatory Impact Analysis for the Final Mercury and Air Toxics Standards (2011)

STATUTES AND REGULATIONS

All applicable statutes and regulations are included in the addendums to Petitioners' and Respondent's briefs.

INTERESTS OF *AMICI*

Pursuant to this Court's November 1, 2016 order, ECF No. 1643828, the Institute for Policy Integrity at New York University School of Law[1] ("Policy Integrity") files this *amicus curiae* brief in support of Respondent.

Policy Integrity is a nonpartisan, not-for-profit think tank dedicated to improving the quality of government decisionmaking through advocacy and scholarship in the fields of administrative law, economics, and public policy, with a particular focus on environmental issues. Policy Integrity focuses on advancing the use of balanced cost-benefit analysis, as well as promoting market mechanisms where appropriate. Environmental quality is one area of particular focus for Policy Integrity, and our director, Richard L. Revesz, has published more than fifty articles and books on environmental and administrative

[1] This brief does not purport to represent the views of New York University School of Law, if any.

law, including pieces discussing the policy underpinnings of regulating externalities under the Clean Air Act.

Policy Integrity has a significant interest in the outcome of the legal issues presented in this case. An area of special concern for Policy Integrity is the promulgation of federal environmental regulations justified by cost-benefit analysis. Policy Integrity has specific expertise in the proper scope and estimation of costs and benefits, and the application of economic analysis to regulatory decisionmaking. Policy Integrity has filed *amicus curiae* briefs in the previous challenges to the Mercury and Air Toxics Standards before this Court and the Supreme Court. *See* Br. for Institute for Policy Integrity et al. as *Amici Curiae*, *White Stallion Energy Center, LLC v. EPA*, 748 F.3d 1222 (D.C. Cir. 2014) (No. 12-1100); Br. for Institute for Policy Integrity as *Amicus Curiae*, *Michigan v. EPA*, 135 S. Ct. 2699 (2015) (No. 14-46). Policy Integrity also filed formal comments on the supplemental finding at issue in this case. *See* Institute for Policy Integrity, Comments on EPA's Proposed Supplemental Finding That It Is Appropriate and Necessary to Regulate Hazardous Air Pollutants from Coal- and Oil-Fired Electric Utility Steam Generating Units (Jan. 15, 2016). Policy Integrity's brief

builds upon these prior writings to argue that objections to the manner in which EPA took costs into account when determining whether it is appropriate and necessary to regulate coal-and oil-fired electric utility steam generating units under Section 112 of the Clean Air Act are legally and factually meritless.

SUMMARY OF THE ARGUMENT

The cost-benefit analysis accompanying EPA's Mercury and Air Toxics Standards ("air toxics rule") demonstrates that regulating hazardous air pollutant emissions from coal-and oil-fired electric utility steam generating units ("power plants") is massively beneficial to society. In fact, EPA determined that the rule's annual monetized benefits of $33 to $90 billion in health protections, lives saved, and environmental improvements outweigh, by as much as nine to one, its $9.6 billion in costs. *See* EPA, Regulatory Impact Analysis for the Final Mercury and Air Toxics Standards at ES-1 to ES-2 (2011) [hereinafter "Regulatory Impact Analysis"].[2] Additional unquantified health and environmental gains further bolster the rule's strong economic justification. *See id.* at ES-9 to ES-13.

[2] Available at https://www3.epa.gov/ttnecas1/regdata/RIAs/matsriafinal.pdf.

Petitioners seek to obscure the fact that the air toxics rule overwhelmingly benefits society by asking this Court to ignore or discount large portions of EPA's analysis—namely, its consideration of indirect benefits (sometimes called ancillary benefits or co-benefits) and unquantified benefits. *See* Pet'rs' Br. at 42–57. This Court should reject Petitioners' request to cherry-pick portions of EPA's analysis for several reasons.

First, Petitioners erroneously claim that Section 112(n)(1)(A) precludes EPA's consideration of indirect benefits such as reductions in particulate matter. *See id.* at 42–49. In reality, the Supreme Court in *Michigan v. EPA*, 135 S. Ct. 2699 (2015), construed Section 112(n)(1)(A)'s "broad reference to appropriateness" as encompassing "*multiple* relevant factors," *id.* at 2709 (emphasis in original), and recognized the wisdom of accounting for indirect effects when determining whether regulation is appropriate, *id.* at 2707. Petitioners' narrow interpretation not only is contrary to *Michigan* but also goes against the analytical best practices applied by federal agencies for decades. Economic literature, case law, and executive guidance on cost-

benefit analysis all support the consideration of positive and negative indirect effects.

Second, contrary to Petitioners' contentions, *see* Pet'rs' Br. at 51–55, EPA appropriately considered the benefits of reducing particulate matter below the National Ambient Air Quality Standards. For years, EPA has recognized health risks associated with particulate matter exposure at concentrations below the ambient standards. Reducing these risks provides real, incremental health benefits that are relevant to a determination of whether regulating hazardous air pollutant emissions from power plants is "appropriate and necessary."

Finally, in addition to arguing for the exclusion of indirect benefits, Petitioners ask this Court to disregard certain direct benefits identified by EPA on the grounds that the agency was not able to quantify them. *See id.* at 55–57. But the consideration of unquantified benefits—which here include reductions in the neurologic, genotoxic, immunotoxic, and cardiovascular effects of mercury pollution—is consistent with *Michigan*, this Court's case law, federal cost-benefit guidelines, economic best practices, and decades of regulatory precedent.

Overall, EPA's cost-benefit analysis properly includes the indirect benefits and unquantified direct benefits of reducing emissions of hazardous air pollutant emissions from power plants and more than satisfies EPA's obligation under Section 112(n)(1)(A).

ARGUMENT

In the supplemental finding at issue in this case, EPA offered two independent bases for its conclusion that regulating hazardous air pollutant emissions from power plants is "appropriate and necessary" under Section 112(n)(1)(A) of the Clean Air Act. *See* 81 Fed. Reg. 24,420, 24,420 (Apr. 25, 2016). Under its "preferred approach," EPA evaluated the reasonableness of the costs of its air toxics rule under several metrics and then weighed those costs against the advantages of regulation, described primarily in qualitative terms. *Id.* at 24,422. Under an alternative approach, EPA looked to the results of the formal cost-benefit analysis it had prepared as part of the Regulatory Impact Analysis accompanying the air toxics rule, which showed that "the benefits (monetized and non-monetized) of the rule are substantial and far outweigh the costs." *Id.*

In light of Policy Integrity's institutional expertise in cost-benefit analysis, this brief focuses on EPA's alternative approach. *See also* EPA's Br. at 24–44 (discussing the agency's preferred approach); *id.* at 44–60 (discussing the agency's alternative approach). Although not required by *Michigan*, the agency's formal cost-benefit analysis, which demonstrates that regulating hazardous air pollutant emissions from power plants would overwhelmingly benefit society, is more than sufficient to support an "appropriate and necessary" finding under Section 112(n)(1)(A).

I. EPA'S COST-BENEFIT ANALYSIS PROPERLY CONSIDERS THE INDIRECT BENEFITS OF REDUCING HAZARDOUS AIR POLLUTANT EMISSIONS FROM POWER PLANTS

Contrary to Petitioners' claims, *see, e.g.*, Pet'rs' Br. at 41, the indirect benefits of reducing hazardous air pollutant emissions from power plants are relevant to determining whether regulation is appropriate and necessary under Section 112(n)(1)(A). EPA properly considered all relevant factors in making its determination that regulating would overwhelmingly do more good than harm.

A. As Interpreted by the Supreme Court in *Michigan v. EPA*, Section 112(n)(1)(A) Requires EPA to Consider Factors Beyond the Health Risks of Hazardous Air Pollutant Emissions

Petitioners concoct an unsupported limitation on "relevant" benefits based on Section 112(n)(1)(A)'s requirement that, before determining whether regulation is appropriate and necessary, EPA consider the results of a study of the health risks of hazardous air pollutants emitted from power plants. *See* Pet'rs' Br. at 43–44. They argue that, because the mandated study mentions only health risks of hazardous air pollutants, EPA cannot consider the health risks of other pollutants when making its determination. *See id.*

But the Supreme Court in *Michigan v. EPA* already rejected a similarly narrow interpretation of the scope of EPA's "appropriate and necessary" determination. EPA had argued to the Court that the agency did not need to consider any costs because the study mandated by Section 112(n)(1)(A) focuses exclusively on public health and does not mention costs. 135 S. Ct. at 2708. The Court disagreed, pointing out that if the scope of the study prevented EPA from considering costs, then it would also prevent EPA from considering nonhealth benefits such as environmental effects. *See id.* The Court accused EPA of

"keep[ing] parts of statutory context it like[d] while throwing away parts it [did] not," *id.*, which is exactly what Petitioners would like to do in this case.

As *Michigan* made clear, Section 112(n)(1)(A)'s "broad reference to appropriateness encompasses *multiple* relevant factors," which "include but are not limited to cost." *Id.* at 2709 (emphasis in original). The fact that Congress explicitly required EPA to consider the health risks of hazardous air pollutants does not mean that EPA must consider *only* these health effects. Instead, EPA must consider the health risks of hazardous air pollutants in light of Congress's overarching "comprehensive criterion"—that is, whether regulating would be "appropriate and necessary." *Id.*

B. Case Law Requires Agencies to Consider Indirect Costs, and There Is No Logical Reason Agencies Should Treat Indirect Benefits Differently Than Indirect Costs

In requiring EPA to consider costs when determining whether regulation is "appropriate and necessary" under Section 112(n)(1)(A), the Supreme Court in *Michigan* was concerned not only with direct regulatory compliance costs but also with indirect costs (sometimes called countervailing risks) that might result from regulation. *See id.* at

2707 (noting that a cost-blind approach to the "appropriate and necessary" determination would irrationally preclude consideration of "harms that regulation might do to human health or the environment").

Responding to a hypothetical example offered by the Court at oral argument, EPA had conceded that, under a cost-blind interpretation, the agency would still deem regulation appropriate even if "the technologies needed to eliminate [emissions of hazardous air pollutants would] do even more damage to human health" than the hazardous air pollutants themselves. *Id.* (discussing this interaction). According to the Court, such an interpretation had to be wrong because "[n]o regulation is 'appropriate' if it does significantly more harm than good." *Id.* Thus, the *Michigan* Court's example of a clearly *in*appropriate regulation was one issued without regard for its indirect effects.[3]

Michigan is hardly the first judicial opinion to suggest that indirect effects are essential to reasoned decisionmaking. Courts have repeatedly required agencies to take indirect costs into account when making regulatory decisions. For example, this Court required EPA to

[3] Because EPA did not, in its original finding, consider indirect benefits when deciding whether regulation was appropriate and necessary, the Court did not find it necessary to decide whether EPA could have considered those benefits. *See* 135 S. Ct. at 2711.

consider indirect costs when setting ambient standards for ozone under the Clean Air Act. *See Am. Trucking Ass'ns v. EPA*, 175 F.3d 1027, 1051–52 (D.C. Cir. 1999) (holding that EPA must consider the indirect health costs of reducing a pollutant rather than only "half of a substance's health effects"), *rev'd on other grounds sub nom. Whitman v. Am. Trucking Ass'ns*, 531 U.S. 457 (2001). This Court also struck down a National Highway Traffic Safety Administration rule for failing to consider indirect costs in the form of safety risks associated with the smaller size of more fuel-efficient cars. *See Competitive Enter. Inst. v. Nat'l Highway Traffic Safety Admin.*, 956 F.2d 321, 326–27 (D.C. Cir. 1992); *see also U.S. Telecom Ass'n v. Fed. Commc'ns Comm'n*, 290 F.3d 415, 424–25 (D.C. Cir. 2002) (remanding a rule for failure to consider indirect costs). Similarly, 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 would accompany forcing cars to use substitute, non-asbestos brakes. *See Corrosion Proof Fittings v. EPA*, 947 F.2d 1201, 1225 (5th Cir. 1991).

Although these precedents focus on the consideration of indirect costs rather than indirect benefits, there is no logical reason for agencies to treat indirect benefits differently than indirect costs. Indirect benefits "are simply mirror images" of indirect costs. Samuel J. Rascoff & Richard L. Revesz, *The Biases of Risk Tradeoff Analysis: Towards Parity in Environmental and Health-and-Safety Regulation*, 69 U. Chi. L. Rev. 1763, 1793 (2002). The terms "benefit" and "cost" are merely convenient labels for positive effects versus negative effects and do not reflect any distinction warranting different analytical treatment. For example, EPA's analysis of its greenhouse gas standards for passenger cars counted consumers' fuel savings "as negative costs (i.e., positive benefits)." EPA, Draft Regulatory Impact Analysis: Proposed Rulemaking to Establish Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards at xiii (2009).[4] In fact, agencies are required to treat costs and benefits alike and consider each equivalently, with comparable analysis, to offer a full accounting of a rule. *See Ctr. for Biological Diversity v. Nat'l Highway*

[4] Available at https://nepis.epa.gov/Exe/ZyPDF.cgi/P10053WA.PDF?Dockey=P10053WA.PDF.

Traffic Safety Admin., 538 F.3d 1172, 1198 (9th Cir. 2008) (warning agencies not to "put a thumb on the scale by undervaluing the benefits and overvaluing the costs"). According to two former administrators of the Office of Information and Regulatory Affairs, which reviews and approves agencies' cost-benefit analyses, there are "no legal, political, or intellectual . . . impediments to treating ancillary benefits and countervailing risks equally in cost-benefit analysis." Christopher C. DeMuth & Douglas H. Ginsburg, *Rationalism in Regulation*, 108 Mich. L. Rev. 877, 888 (2010). Given the lack of a logical distinction between indirect costs and indirect benefits, Petitioners cannot reasonably contend that EPA must consider indirect costs that support their arguments, such as effects of regulation on workers and communities, *see* Pet'rs' Br. at 63–70, while also insisting that indirect benefits are irrelevant, *see id.* at 42–47.

Furthermore, Petitioners wrongly suggest that this Court has rejected EPA's use of indirect benefits to justify regulation, *see id.* at 45–46, by mischaracterizing this Court's holding in *American Petroleum Institute v. EPA*, 52 F.3d 1113 (D.C. Cir. 1995). In *American Petroleum Institute*, EPA used its authority under a Clean Air Act provision

requiring reduction in volatile organic compounds to promulgate a rule that would have generated indirect benefits but, by the agency's own admission, would not have reduced volatile organic compounds and could have "possibly ma[de] air quality worse." *Id.* at 1115–16, 1119. This Court distinguished between "taking into consideration" indirect effects in setting the standards, which was statutorily required, 42 U.S.C. § 7545(k)(1)(A), and using the indirect effects as the *sole* justification for a regulation that could *undermine* the statute's primary goal. *See* 52 F.3d at 1119–20. Here, EPA's purpose remains to reduce hazardous air pollutants, and its regulation would undoubtedly advance this purpose.

Thus, this Court's decision in *American Petroleum Institute* did not, as Petitioners suggest, constitute a blanket ban on the consideration of indirect benefits. On the contrary, this Court recently *affirmed* the agency's consideration of such benefits in a different regulatory context. *See U.S. Sugar Corp. v. EPA*, 830 F.3d 579, 625–26 (D.C. Cir. 2016) (concluding that the consideration of indirect benefits is permissible when not expressly precluded by statute).

C. Consideration of the Indirect Effects of Rulemaking Is Consistent with Established Administrative Practice, Including Executive Guidance on Regulatory Review and Three Decades of EPA Practice Under the Clean Air Act

In *Michigan*, the Supreme Court expressly recognized the relevance of "established administrative practice" to interpreting the meaning of the phrase "appropriate and necessary" in Section 112(n)(1)(A). 135 S. Ct. at 2708. The Court cited agencies' longstanding recognition that "reasonable regulation ordinarily requires paying attention to the advantages *and* the disadvantages of [their] decisions" as evidence that "appropriate and necessary" implies a consideration of costs. *Id.* at 2707. By that same logic, "appropriate and necessary" also implies that EPA should take into account indirect benefits when making a Section 112(n)(1)(A) determination, because agencies have for decades considered both direct and indirect effects of their actions.

The executive orders governing regulatory review call for agencies to accurately measure the "actual results of regulatory requirements," thereby implicitly requiring analysis of both direct and indirect costs and benefits. Exec. Order No. 13,563 § 1, 76 Fed. Reg. 3821, 3821 (Jan. 21, 2011) (affirming Exec. Order No. 12,866); *accord* Exec. Order No.

12,866 § 6(a)(3)(C), 58 Fed. Reg. 51,735, 51,741 (Oct. 4, 1993) (detailing the requirements for cost-benefit analysis).

Additionally, Circular A-4, a guidance document on regulatory analysis issued by the Office of Management and Budget under President George W. Bush, explicitly requires the consideration of indirect benefits. *See* Office of Mgmt. & Budget, Exec. Office of the President, Circular A-4, Regulatory Analysis at 26 (2003) [hereinafter "Circular A-4"].[5] In particular, the Circular instructs agencies to consider important indirect benefits, which include any "favorable impact . . . secondary to the statutory purpose of the rulemaking." *Id.* Circular A-4 stresses 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." *Id.*

EPA's own cost-benefit guidelines, adopted after extensive peer review, likewise instruct the agency to assess "all identifiable costs and benefits," including direct effects "as well as ancillary [indirect] benefits and costs." EPA, Guidelines for Preparing Economic Analyses at 11-2

[5] Available at https://obamawhitehouse.archives.gov/sites/default/files/omb/assets/regulatory_matters_pdf/a-4.pdf.

(2010).[6] The assessment of both direct and indirect effects is needed "to inform decision making" and allow meaningful comparisons between policy alternatives. *Id.* at 7-1; *see also* EPA's Br. at 51–55 (discussing the agency's longstanding practice).

Moreover, EPA—under presidents of both parties and across three decades—has consistently taken indirect benefits into account when evaluating Clean Air Act regulations. For example, in 1987, EPA under President Reagan discussed the importance of considering the indirect benefits that would result from its regulation of toxic emissions from municipal waste combustors. *See* 52 Fed. Reg. 25,399, 25,406 (July 7, 1987). And in 1991, EPA under President George H.W. Bush justified performance standards for landfill gases partly by reference to "the ancillary benefit of reducing global loadings of methane." 56 Fed. Reg. 24,468, 24,469 (May 30, 1991). Later, when establishing standards to address hazardous air pollutant emissions from pulp and paper producers, EPA under President Clinton analyzed indirect benefits from reductions in co-pollutants like volatile organic compounds, particulate matter, and carbon monoxide. *See* 63 Fed. Reg. 18,504, 18,585–86 (Apr.

[6] Available at https://yosemite.epa.gov/ee/epa/eerm.nsf/vwAN/EE-0568-50.pdf/$file/EE-0568-50.pdf.

15, 1998). EPA under President George W. Bush acknowledged that its Clean Air Interstate Rule, though designed to control particulate matter and ozone, would also reduce mercury emissions, *see* 70 Fed. Reg. 25,162, 25,170 (May 12, 2005), and included these indirect health and welfare benefits in its cost-benefit analysis justifying the rule, *see* EPA, Regulatory Impact Analysis for the Final Clean Air Interstate Rule at 1-10 (2005).[7] In addition, in promulgating a rule on mobile source air toxics, EPA noted that "[a]lthough ozone and [fine particulate matter] are considered criteria pollutants rather than 'air toxics,' reductions in ozone and [fine particulate matter] are nevertheless important co-benefits of this proposal." 72 Fed. Reg. 8428, 8430 (Feb. 26, 2007). Finally, EPA under President Obama considered the indirect benefits from reducing carbon monoxide, volatile organic compounds, and nitrogen oxides in its analysis of regulating hazardous air pollutant emissions from combustion engines. *See* 75 Fed. Reg. 51,570, 51,578 (Aug. 20, 2010).

Thus, in addition to being consistent with its statutory obligation under Section 112(n)(1)(A), case law, and logic, EPA's consideration of

[7] Available at https://www.epa.gov/sites/production/files/2015-09/documents/finaltech08.pdf.

indirect benefits is consistent with three decades of administrative practice. Ultimately, if it could not consider the indirect benefits of regulating, EPA would be unable to accurately assess whether regulating here would do "more harm than good," violating a key precept of *Michigan v. EPA*. 135 S. Ct. at 2707.

II. EPA PROPERLY ASSESSED BENEFITS FROM PARTICULATE MATTER REDUCTIONS BEYOND THE NATIONAL AMBIENT AIR QUALITY STANDARDS

In conducting a comprehensive accounting of the costs and benefits of regulating under Section 112(n)(1)(A), EPA properly included quantifiable benefits from particulate matter reductions beyond the National Ambient Air Quality Standards. These benefits are real and substantial because the ambient standards are not set at zero risk. In fact, EPA has long considered indirect benefits from reducing particulate matter beyond the ambient standards when regulating under the Clean Air Act.

A. There Are Real Benefits to Reducing Particulate Matter Beyond the National Ambient Air Quality Standards Because the Ambient Standards Are Not Set at Zero Risk

Under the Clean Air Act, EPA must set the National Ambient Air Quality Standards at a level "requisite to protect the public health" with

"an adequate margin of safety." 42 U.S.C. § 7409(b)(1). Petitioners argue that the benefits of reducing particulate matter beyond these ambient standards are "illusory." Pet'rs' Br. at 51. But this reflects a misunderstanding of the ambient standards' stringency. As Justice Breyer recognized in his *American Trucking* concurrence, the ambient standards do not require the elimination of all health risks from covered pollutants. *See Whitman v. Am. Trucking Ass'ns*, 531 U.S. 457, 494 (2001) (Breyer, J., concurring) (characterizing a zero-risk ambient standard as "impossible and undesirable"); *see also* Michael A. Livermore & Richard L. Revesz, *Rethinking Health-Based Environmental Standards*, 89 N.Y.U. L. Rev. 1184, 1186–87 (2014) ("Environmental pollutants often lack ambient concentrations below which there is no risk of negative health consequences. As a result, the complete elimination of health risks for these pollutants could be accomplished only by banning all emissions."). Because health risks from particulate matter remain even in areas that have attained the ambient standards, further reductions in these pollutants yield incremental health benefits.

B. Contrary to Petitioners' Assertions, When Setting Its 2013 National Ambient Air Quality Standards for Particulate Matter, EPA Recognized the Existence of Public Health Benefits Beyond the Ambient Standards

Petitioners erroneously assert that EPA concluded in its 2013 National Ambient Air Quality Standards rulemaking that "it has no confidence in the existence of . . . benefits" from further reductions in particulate matter. Pet'rs' Br. at 54. To the contrary, in the 2013 rulemaking that Petitioners cite, EPA explained that "in identifying an appropriate annual standard level below the long-term mean concentrations, [the Administrator] recognizes that *there is no evidence to support the existence of any discernible threshold*," resulting in a "a high degree of confidence that the observed [negative health] effects are associated with concentrations not just at but extending somewhat below the long-term mean concentration" in the underlying health studies. 78 Fed. Reg. 3086, 3161 (Jan. 15, 2013) (emphasis added). EPA further clarified that "[i]n reaching her final decision on the appropriate annual standard level to set, the Administrator is mindful that the [Clean Air Act] does not require that primary standards be set at a zero-risk level." *Id.*

C. EPA Has Considered Indirect Benefits from Particulate Matter Reductions in Prior Rulemakings

EPA's decision to consider indirect benefits from particulate matter reductions when regulating other pollutants is not a recent one. For example, in 1987, EPA under President Reagan discussed the particulate matter reductions that would result from its regulation of municipal waste combustors' toxic emissions under Section 111(d). *See* 52 Fed. Reg. at 25,406. EPA explained that the development of guidelines would take into account "the full spectrum of the potential impacts of regulation," including the "indirect benefits accruing from concomitant reductions in other regulated pollutants (e.g., particular matter [sic], sulfur dioxide, volatile organic compounds)." *Id.* Because National Ambient Air Quality Standards were already in effect for particulate matter at that time, *see* 36 Fed. Reg. 8186 (Apr. 30, 1971); 52 Fed. Reg. 24,634 (July 1, 1987), it necessarily follows that EPA meant that the agency would consider the benefits of reducing particulate matter beyond the ambient standards.

More recently, EPA issued—and this Court subsequently upheld—a Section 112(d)(4) standard for hydrogen chloride emissions from major boilers based, in part, on the consideration of indirect

benefits from particulate matter reductions. *See U.S. Sugar Corp.*, 830 F.3d at 625 (holding that EPA's consideration of indirect benefits from particulate matter reductions was "consistent with the [Clean Air Act's] purpose"); *see also* 75 Fed. Reg. 32,006, 32,030 (June 4, 2010) (explaining that, when setting standards, EPA took into account "reductions in criteria pollutant emissions and other co-benefits"); *id.* at 32,048 (noting that criteria pollutants reduced by the rule included particulate matter and particulate matter precursors).

In summary, benefits from reducing particulate matter beyond the National Ambient Air Quality Standards are real, and EPA's decision to consider them as part of its "appropriate and necessary" determination is consistent with both case law and regulatory precedent.

III. EPA'S COST-BENEFIT ANALYSIS PROPERLY CONSIDERS UNQUANTIFIED BENEFITS OF REDUCING HAZARDOUS AIR POLLUTANT EMISSIONS FROM POWER PLANTS

EPA's cost-benefit analysis projected that, in addition to generating between $33 and $90 billion in annual monetized benefits (both direct and indirect), *see* Regulatory Impact Analysis at ES-1 to ES-2, the air toxics rule would result in more than sixty distinct categories of unquantified health, environmental, and economic benefits

from the reduction of hazardous air pollutants, *see id.* at ES-9 to ES-13; *see also* EPA's Br. at 58–60 (discussing a subset of these categories of unquantified benefits). The agency described each of these benefit categories qualitatively. *See, e.g.*, Regulatory Impact Analysis at 4-1 to 4-9 (health and environmental risks from mercury, including health impacts from exposure to commercially caught fish); *id.* at 4-72 to 4-79 (health risks from non-mercury metals and acid gases); *id.* at 5-59 to 5-88 (unquantified indirect health and welfare benefits). EPA also explained why data and methodological limitations prevented quantification and discussed uncertainty. *See, e.g.*, *id.* at 4-1 to 4-2. Finally, the agency exercised its professional judgment to determine the unquantified benefits' relative magnitude. *See, e.g.*, *id.* (concluding that mercury benefits were likely underestimated due to data limitations).

Petitioners dismiss these unquantified benefits as "vague," Pet'rs' Br. at 55, arguing, in essence, that if a regulatory effect is too uncertain to be monetized, it is too uncertain to be considered at all, *id.* at 55–56. But this position is completely at odds with relevant case law (including *Michigan* itself), as well as executive guidance, economic best practices,

and decades of regulatory precedent, under administrations of both parties.

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

Nothing in *Michigan* precludes EPA from considering unquantified benefits when deciding whether regulation is "appropriate and necessary" under Section 112(n)(1)(A). On the contrary, the Supreme Court expressly declined to require that EPA conduct an "analysis in which each advantage and disadvantage is assigned a monetary value." 135 S. Ct. at 2711. Furthermore, the Court emphasized that it would be "up to the Agency to decide (as always, within the limits of reasonable interpretation) how to account for cost." *Id.* At the very least, then, EPA has *discretion* to take into account unquantified benefits.

In fact, past decisions from this Court suggest that agencies have an *obligation* to consider reasonably foreseeable but difficult to quantify regulatory effects. *See, e.g.*, *Public Citizen v. Fed. Motor Carrier Safety Admin.*, 374 F.3d 1209, 1219 (D.C. Cir. 2004) ("The mere fact that the magnitude of [an effect] is uncertain is no justification for disregarding the effect entirely."); *Am. Trucking Ass'ns v. EPA*, 175 F.3d at 1052

(rejecting the idea that EPA could ignore health effects that are "difficult, if not impossible, to quantify reliably"). Agencies are expected to weigh these unquantified effects against monetized costs and benefits in accordance with their judgment and expertise. *See Entergy Corp. v. Riverkeeper, Inc.*, 556 U.S. 208, 235 (2009) (Breyer, J., concurring in part and dissenting in part) (writing approvingly of EPA's ability to "describe environmental benefits in non-monetized terms and to evaluate both costs and benefits in accordance with its expert judgment and scientific knowledge").

B. Consideration of Unquantified Benefits Is Consistent with Economic Best Practices and Executive Guidance on Regulatory Review

It is widely recognized that a cost-benefit analysis should give "due consideration to factors that defy quantification but are thought to be important." Kenneth J. Arrow et al., *Benefit-Cost Analysis in Environmental, Health, and Safety Regulation: A Statement of Principles* 8 (1996).[8] The mere fact that a benefit cannot *currently* be quantified says little about its magnitude. In fact, some of the most

[8] Available at https://www.aei.org/wp-content/uploads/2014/04/-benefitcost-analysis-in-environmental-health-and-safety-regulation_161535983778.pdf.

substantial categories of monetized benefits of environmental regulation were once considered unquantifiable. *See* Richard L. Revesz, *Quantifying Environmental Benefits*, 102 Cal. L. Rev. 1423, 1436 (2014).

Recognizing the potential significance of unquantified effects, executive orders governing regulatory impact analysis explicitly instruct agencies to consider such effects when analyzing proposed rules. *See* Exec. Order No. 13,563 § 1, 76 Fed. Reg. at 3821 (affirming Exec. Order No. 12,866); *accord* Exec. Order No. 12,866 § 1(a), 58 Fed. Reg. at 51,735 ("Costs and benefits shall be understood to include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but nevertheless essential to consider."). Similarly, Circular A-4 cautions agencies against ignoring the potential magnitude of unquantified benefits, because the most efficient rule may not have the "largest quantified and monetized . . . estimate." Circular A-4 at 2.

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

C. Consideration of Unquantified Benefits Is Consistent with Longstanding EPA Practice Under Administrations of Both Political Parties

For the last twenty-five years, under administrations of both political parties, EPA has consistently recognized the importance of considering unquantified benefits. In response to criticism of its benzene regulations under Section 112, EPA under President George H.W. Bush "reject[ed] the position that only quantified information can be considered in the decisions." 55 Fed. Reg. 8292, 8302 (Mar. 7, 1990). EPA under President Clinton considered the "real, but unquantifiable benefits" of emissions standards for hazardous waste combustors. 64 Fed. Reg. 52,828, 53,023 (Sept. 30, 1999). EPA under President George W. Bush evaluated a rule restricting emissions from nonroad diesel engines based on "consideration of all benefits and costs expected to result from the new standards, not just those benefits and costs which could be expressed here in dollar terms." 69 Fed. Reg. 38,958, 39,138 (June 29, 2004).

Thus, EPA's decision to consider unquantified benefits in its cost-benefit analysis is not only permissible under *Michigan* but also

consistent with decades of case law, executive guidance, economic scholarship, and regulatory practice.

CONCLUSION

The petitions for review should be denied.

Respectfully submitted,
/s/ Richard L. Revesz
Richard L. Revesz
Caroline Cecot
Denise A. Grab
Jack Lienke
Jason A. Schwartz
INSTITUTE FOR POLICY INTEGRITY
139 MacDougal Street, Room 319
New York, NY 10012
(212) 992-8932
richard.revesz@nyu.edu
Counsel for Amicus Curiae
Institute for Policy Integrity

DATED: January 25, 2017

CERTIFICATE OF COMPLIANCE WITH WORD LIMITATION

Counsel hereby certifies that, in accordance with Federal Rule of Appellate Procedure 32(a)(7)(C), the foregoing Final Brief of the Institute for Policy Integrity at New York University School of Law as *Amicus Curiae* In Support of Respondent contains 5049 words, as counted by counsel's word processing system, and this complies with the applicable word limit established by the Court.

DATED: January 25, 2017

/s/ Richard L. Revesz
Richard L. Revesz
Caroline Cecot
Denise A. Grab
Jack Lienke
Jason A. Schwartz
INSTITUTE FOR POLICY INTEGRITY
139 MacDougal Street, Room 319
New York, NY 10012
(212) 992-8932
richard.revesz@nyu.edu
Counsel for Amicus Curiae
Institute for Policy Integrity

CERTIFICATE OF SERVICE

I hereby certify that on January 25, 2017, I filed the foregoing Final Brief of the Institute for Policy Integrity at New York University School of Law as *Amicus Curiae* in Support of Respondent through the Court's CM/ECF system, which will send a notice of filing to all registered CM/ECF users. I also caused the foregoing to be served via first-class mail on counsel for the following parties at the following addresses:

Jeremy Christopher Toth
Erie County Department of Law
95 Franklin Street
Buffalo, NY 14202
Counsel for County of Erie, New York

Kelvin Allen Brooks
Office of the Attorney General
33 Capitol Street
Concord, NH 03301
Counsel for State of New Hampshire

Tannis Fox
Office of the Attorney General
408 Galisteo Street
Villagra Building
Santa Fe, NM 87501
Counsel for State of New Mexico

DATED: January 25, 2017

/s/ Richard L. Revesz
Richard L. Revesz
Counsel for Amicus Curiae
Institute for Policy Integrity