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Public Interest Comment¹ on
The Environmental Protection Agency'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

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The George Washington University Regulatory Studies Center works to improve regulatory policy through research, education, and outreach. As part of its mission, the Center conducts careful and independent analyses to assess rulemaking proposals from the perspective of the public interest. This comment on the Environmental Protection Agency's (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" does not represent the views of any particular affected party or special interest, but is designed to evaluate the effect of EPA's proposal on overall consumer welfare.

Background

On May 3, 2011, EPA determined that regulation of hazardous air pollutants (HAP) from coal- and oil-fired electric utility steam generating units (EGUs) was appropriate and necessary, and

¹ This comment reflects the views of the author, and does not represent an official position of the GW Regulatory Studies Center or the George Washington University. The Center's policy on research integrity is available at <http://research.columbian.gwu.edu/regulatorystudies/research/integrity>.

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proposed “mercury and air toxics standards” (MATS) pursuant to section 112 of the Clean Air Act (CAA).³ The agency issued final MATS on February 16, 2012.⁴

In response to challenges, in July 2015, the Supreme Court ruled that “EPA interpreted [the Clean Air Act] unreasonably when it deemed cost irrelevant to the decision to regulate power plants.”⁵ In a 5-4 opinion, the majority sided with petitioners (electric utilities and 23 states), who argued that EPA acted improperly in determining that the 2012 MATS were appropriate and necessary without considering the estimated \$9.6 billion per year cost of meeting them.

The key statutory phrase in Section 112 of the Clean Air Act,⁶ which authorizes EPA to regulate to control hazardous air pollutants, including mercury, is whether the standard is “appropriate and necessary.” In setting the 2012 standards, EPA interpreted this phrase as not requiring it to consider costs. The majority of the Court disagreed. While the Court was not explicit on how EPA should consider costs, it did offer the observation 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.”⁷

EPA’s Response

In response to the Court’s opinion, on December 1, 2015, EPA published an 18-page supplemental notice that proposes to find “consideration of cost does not alter the agency’s previous conclusion that it is appropriate and necessary to regulate coal- and oil-fired electric utility steam generating units (EGUs) under section 112 of the Clean Air Act (CAA).”⁸

EPA emphasizes that the purpose of the rule is to reduce emissions of hazardous air pollutants.

The supplemental finding emphasizes EPA’s “view that the consideration of cost in the appropriate finding should be weighed against, among other things, *the volume of HAP emitted by EGUs and the associated hazards to public health and the environment*”⁹ (emphasis added). It observes:

Specific pollutants were listed by Congress as HAP under CAA section 112 due to their inherently harmful characteristics... Thus, the advantages of reducing

³ [76 FR 24976](#)

⁴ [77 FR 9304](#)

⁵ [Michigan v. EPA, 135 S.Ct. 2699 \(2015\), 17](#)

⁶ <http://www2.epa.gov/laws-regulations/summary-clean-air-act>

⁷ Opinion, 7

⁸ [80 FR 75025](#)

⁹ [80 FR 75030](#)

identified hazards to public health and the environment must be considered and weighed against the costs or disadvantages, taking into account the statutory goals.¹⁰

The purpose of the cost analysis under CAA section 112(n)(1)(A) is to help evaluate whether the costs of regulation are reasonable when weighed against other relevant factors, most notably the identified hazards to public health and the environment from HAP emitted by EGUs that are reduced when the significant volume of HAP emission from EGUs is reduced.¹¹

Thus, EPA emphasizes the importance of *weighing* costs against *HAP* risks.

EPA relies on two general approaches for evaluating whether costs are appropriate and reasonable, neither of which weigh costs against HAP risk.

Despite EPA’s emphasis on the importance of weighing the costs against the anticipated reduction in risks from HAP, EPA’s consideration of cost in the supplemental notice does not do this. Instead, it approaches the question of whether the costs are “appropriate and reasonable” in two ways:

1. It compares the cost of compliance to the power sector against several economic indicators (presumably as proxies for affordability), and
2. It compares costs against monetized “co-benefits” not derived from reducing HAP emissions.

EPA does not explain why these measures are relevant for determining whether costs are appropriate and reasonable. Nowhere in CAA section 112 nor in EPA’s explanation of its authority under this section are either affordability measures or other, non-hazardous, emissions mentioned.

EPA’s preferred approach compares costs to power sector sales and expenditures.

In this approach, EPA divides the estimated compliance cost (\$9.6 billion per year) by overall power sector retail sales and overall power sector capital expenditures. It concludes that costs would be between 2.7% and 3.5% of sales, and between 3.0% and 5.9% of capital expenditures.¹² The notice also estimates that the retail price of electricity will increase on

¹⁰ 80 FR 75031

¹¹ 80 FR 75030

¹² 80 FR 75033-34

average 3.1%, with a range of 1.3% to 6.3%.¹³ Based on these statistics, EPA concludes that costs to the power sector are reasonable.

In calculating these impacts, EPA chooses in the supplemental finding to focus on the entire power sector, rather than the coal-fired and oil-fired EGUs that are actually regulated under MATS.¹⁴ This is a curious analytical choice, and has the effect of spreading the estimated costs of the rule across a larger denominator, thus reducing the percentage impacts relied on to evaluate “reasonableness.” Had EPA instead used these same metrics but applied them to the EGUs covered by the regulation, the percentages would likely be larger.

Perhaps more significant, this approach does not appear to be responsive to the Court’s guidance to EPA regarding how it should consider cost to determine the appropriateness and reasonableness of the standard. While the Court said “it will be up to the Agency to decide (as always, within the limits of reasonable interpretation) how to account for cost,” and it did “not and need 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,”¹⁵ the majority discussion clearly intends such consideration to include a balancing of costs against expected risk reduction. For example, the Court observed that “no regulation is ‘appropriate’ if it does significantly more harm than good.”¹⁶ As noted above, EPA appears to appreciate this in its discussions regarding the importance of weighing costs against HAP reductions. Yet, EPA’s preferred approach does no such weighing, and does not compare the “harm” to the “good.”

EPA supports its preferred method with a comparison of costs to benefits of non-hazardous emissions reductions.

While the supplemental finding states that “it is the EPA’s judgment that a formal, monetized benefit-cost analysis is not the preferred approach for weighing the advantages and disadvantages of regulating HAP emissions from EGUs,” it does refer to the final regulatory impact analysis (RIA) for the rule, which estimated that “monetized benefits outweigh the estimated \$9.6 billion in annual costs by between 3-to-1 or 9-to-1 depending on the benefit estimate and discount rate used.”¹⁷

¹³ 80 FR 75036

¹⁴ 80 FR 75033

¹⁵ Opinion, 14

¹⁶ Opinion, 7

¹⁷ 80 FR 75040-1

Based on these ratios, EPA concludes that “the final MATS RIA demonstrates that the benefits of the rule significantly outweighed the costs of the rule and thus fully and independently supports the EPA’s proposed supplemental finding.”¹⁸

To derive these benefit-cost ratios of 3-to-1 or 9-to-1, however, EPA considers not only the benefits of reducing HAP emissions, but ancillary or “co-benefits,” which derive from reductions in non-hazardous emissions of fine particles (PM_{2.5}). In fact, despite EPA’s emphasis that Congress’s purpose “in amending CAA section 112 was *permanent and ongoing reductions in the volume of HAP emissions*,”¹⁹, it derives 99% of the benefits attributed to the MATS rule by assigning high dollar values to reductions in PM_{2.5}, not HAP, emissions. This is particularly troubling because other sections of the CAA provide EPA direct authority to regulate PM_{2.5} and because direct regulation of a substance is not only a more transparent, but likely a more cost-effective, way to achieve any risk reduction benefits.

Testimony attached to this comment provides additional detail on the problem with how co-benefits are used in the MATS rulemaking and thus, this supplemental finding. The fact that the benefit Congress sought to achieve through section 112 represents only 1% of the total benefits EPA claims for the rule calls into question whether the standards are appropriate and reasonable. EPA valued the benefits of the HAP reductions at \$4 to \$6 million per year, compared to costs of \$9.6 billion. As the Supreme Court opinion observed, “the costs to power plants were thus between 1,600 and 2,400 times as great as the quantifiable benefits from reduced emissions of hazardous air pollutants.”²⁰

The majority opinion did not address the question of whether EPA acted appropriately when it stretched its authority in order to consider ancillary benefits while simultaneously ignoring consideration of costs. “Even if the Agency *could* have considered ancillary benefits when deciding whether regulation is appropriate and necessary—a point we need not address—it plainly did not do so here.”²¹

Consideration of costs should recognize that “deprivation of real income itself has adverse health effects.”

Neither EPA nor the Supreme Court suggest that the CAA requires EPA to base its decision on “a formal cost-benefit analysis in which each advantage and disadvantage is assigned a monetary value.”²² However, in considering whether the costs of the MATS rule are appropriate and

¹⁸ 80 FR 75039

¹⁹ 80 FR 75030

²⁰ Opinion, 4

²¹ Opinion, 15, emphasis in original

²² Opinion, 14

reasonable, EPA should acknowledge that “deprivation of real income itself has adverse health effects, in the form of poorer diet, more heart attacks, more suicides,” etc.²³

As society has become more affluent, our health has improved and we have demanded greater levels of safety of all kinds. Regulations impose costs on society and lead to a reallocation of resources that would have been expended on consumption goods — the net effect of which would have been health enhancing. If policies divert health-enhancing resources to extremely ineffective regulatory efforts, the net effect may be to harm individual health.²⁴

Though the cost discussion in the supplemental finding is focused largely on electric utilities’ compliance costs, the incidence of the \$9.6 billion in regulatory costs will ultimately fall on households and individuals, who will face higher electric bills. These price increases could have a significant negative impact on the health and welfare of families, particularly those with low incomes. Not only will these increases directly affect the affordability of such things as heat and air conditioning, but higher electricity prices will increase the costs of food and other goods, and divert scarce family resources from priorities such as their children’s education or health care. Statistical research into this wealth-health tradeoff suggests that every \$21 million increase in regulatory cost induces one fatality.²⁵ If true, the high costs of the rule would translate into more than 400 fatalities per year. In contrast, EPA’s RIA predicts not a single fatality from HAP emissions.

Conclusion

EPA’s supplemental finding does not support a conclusion that its MATS regulation is appropriate and necessary to address risks to public health and the environment from HAP, as required by statute. Its preferred method of comparing EGU costs to total power sector sales or capital expenses not only appears to have methodological problems that bias the resulting percentages, but it does not address the Court’s direction to balance the *harm* of the regulation against the *good*. While EPA grudgingly presents evidence on estimated benefits compared to costs (more in keeping with the Court’s direction) this calculation is dominated by co-benefits that are not subject to its authority under CAA section 112, and that EPA could address more cost-effectively with direct regulation. Furthermore, the very real costs of the rule itself will have large detrimental effects on public health, particularly for low-income Americans.

²³ Stephen J. Breyer, *Breaking the Vicious Circle: Toward Effective Risk Regulation* (1993)

²⁴ Kip Viscusi & Ted Gayer, “Safety at any Price?” *Regulation*, (Fall 2002)

²⁵ The \$21 million cost-per-life-saved cutoff is adjusted by the CPI to 2007 dollars to be comparable with EPA’s estimate. Randall Lutter, John F. Morrall, III, & W. Kip Viscusi. “The Cost-Per-Life-Saved Cutoff for Safety-Enhancing Regulations.” *37 Economic Inquiry* 599-608 (October 1999) and W. Kip Viscusi & Joseph E. Aldy. “The Value of a Statistical Life: A Critical Review of Market Estimates Throughout the World.” *Journal of Risk and Uncertainty*. 27:1; 5–76 (2003) <http://camra.msu.edu/documents/ViscusiandAldy2003.pdf>.

Attachment: Prepared Statement of Susan E. Dudley before the Committee on Environment and Public Works, Subcommittee on Clean Air and Nuclear Safety, United States Senate. "Hearing on Review of Mercury Pollution's Impacts to Public Health and the Environment." April 17, 2012.

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Hearing on

**Review of Mercury Pollution's Impacts to
Public Health and the Environment**

Before the

**Committee on Environment and Public Works
Subcommittee on Clean Air and Nuclear Safety
United States Senate**

April 17, 2012

Prepared Statement of Susan E. Dudley

April 17, 2012

Chairman Carper, Ranking Member Barrasso, and distinguished members of the Subcommittee, thank you for inviting me to testify today on “mercury pollution’s impacts on public health and the environment.” I am Director of the George Washington University Regulatory Studies Center, and Research Professor in the Trachtenberg School of Public Policy and Public Administration.¹ From April 2007 to January 2009, I oversaw executive branch regulations of the federal government as Administrator of the Office of Information and Regulatory Affairs in the Office of Management and Budget. I have devoted my career to trying to improve both the framework for developing regulations and our understanding of regulations’ effects, and for over three decades have examined regulations from perspectives in government (as both a career civil servant and political appointee), academia, consulting, and the non-profit sector.

My testimony today focuses on the Environmental Protection Agency’s (EPA) estimates of the effects of its December 2011 regulations limiting mercury and air toxics emissions from electric utilities (“MATS”).²

EPA’s fact sheet highlights the benefits of the rule as reducing emissions of heavy metals, including mercury (Hg) and acid gases, which “are known or suspected of causing cancer and other serious health effects.” It focuses on mercury emissions from power plants, noting that

“once mercury from the air reaches water, microorganisms can change it into methylmercury, a highly toxic form that builds up in fish. People are primarily exposed to mercury by eating contaminated fish. Methylmercury exposure is a particular concern for women of childbearing age, unborn babies, and young children because studies have linked high levels of methylmercury to damage to the developing nervous system, which can impair children’s ability to think and learn.”³

According to EPA’s Regulatory Impact Analysis (RIA), regulatory preamble, and fact sheets, the mandated new control technologies will reduce mercury from coal-fired power plants by 90

¹ The George Washington University Regulatory Studies Center raises awareness of regulations’ effects with the goal of improving regulatory policy through research, education, and outreach. This statement reflects my views, and does not represent an official position of the GW Regulatory Studies Center or the George Washington University.

² <http://www.gpo.gov/fdsys/pkg/FR-2012-02-16/pdf/2012-806.pdf>

³ EPA Fact Sheet, “Mercury and Air Toxics Standards for Power Plants,” available at: <http://www.epa.gov/mats/pdfs/20111221MATSummaryfs.pdf>

percent, avoid as many as 11,000 premature deaths per year, and have annual economic benefits of up to \$90 billion per year.⁴

This testimony examines those benefits.

Public health effects of reductions in mercury and air toxic emissions

Methylmercury (MeHg) is a neurotoxin that can impair children's cognitive function. In its analysis supporting the regulation, EPA focused "on exposure to MeHg through ingestion of fish, as it is the primary route for human exposures in the U.S., and potential health risks do not likely result from Hg inhalation exposures associated with Hg emissions from utilities."⁵ Relying on IQ as a measure of neurological effects, EPA developed a model that involved complex chemical, biological, and physical interactions to estimate how microbes might convert Hg emitted by electric utilities into MeHg, and how that MeHg would accumulate through different trophic levels in the food web. This allowed the agency to estimate the average mercury concentrations in fish, which it combined with estimates of the consumption of freshwater fish by pregnant women, and a modeled concentration-response relationship between mercury ingestion and IQ loss to estimate the effect of mercury ingestion on the IQ of children exposed in-utero both with and without regulation.

Based on this modeling, EPA estimates the regulation will result in an increase of .00209 points in the average IQ of exposed children, for a total of 511 IQ points nationwide.⁶ Because children in the US are exposed to mercury from other sources (natural sources, anthropogenic sources from other countries and non-utility U.S. sources), EPA estimates they will continue to experience a decrement of 23,909 IQ points nationwide after the rule is fully implemented. The rule will have reduced the IQ decrement from mercury exposure by 3 percent. EPA assigns a dollar value ranging from \$0.5 to \$6.2 million per year to these gains.

EPA was unable to quantify or value the health benefits of the other air toxic emissions that it expects this regulation will reduce.⁷

⁴ EPA provides links to several fact sheets and technical support documents from the following web page: <http://www.epa.gov/mats/actions.html>

⁵ RIA, p. 119 <http://www.epa.gov/ttn/ecas/regdata/RIAs/matsriafinal.pdf>

⁶ EPA estimates that in 2005, children exposed to mercury (from all sources) experience a decline of 0.1068 IQ points (relative to no exposure), for a total of 25,545 IQ points nationwide. Without the regulation, EPA estimates that in 2016, exposed children will face a 0.1000 IQ point decrement for a total of 24,419 IQ points nationwide (a 4% improvement). With the regulation in 2016, the analysis predicts exposed children will experience a 0.0979 IQ point decrement, for a total of 23,909 IQ points nationwide (a 3% improvement over the no-rule scenario).

⁷ "Due to methodology and data limitations, we did not attempt to monetize the health benefits of reductions in HAPs in this analysis." (RIA 4-72)

If these were the only benefits of EPA's MATS rule, and if one took EPA's estimates of costs and benefits at face value, then the bottom line would be that the \$9.6 billion annual cost is between 1,500 and 19,000 times greater than the benefit.

Co-benefits attributed to MATS

EPA goes on to argue that its rule will generate additional "co-benefits" that more than make it worthwhile. The benefits of controlling mercury and air toxics comprise less than one ten-thousandths of the total benefits reported for the mercury and air toxics rule. The claimed \$33 to \$90 billion per year in economic benefits and 11,000 in premature deaths avoided are derived instead by counting co-benefits that arise not directly from reducing toxic emissions, but from other things EPA's models predict will happen as beneficial side effects of the controls that will be required by the rule. (See figures showing composition of reported MATS rule benefits.)

One such co-benefit is a reduction in carbon emissions, which contribute to greenhouse gases in the atmosphere, but this benefit is relatively small (between one-half and one percent of the total benefits).

Ninety-nine percent of the benefits attributed to the MATS rule are derived by assigning high dollar values to reductions in emissions of fine particles (PM_{2.5}), which are not the focus of this regulation and which are regulated elsewhere.

Section 108 of the Clean Air Act directs the EPA Administrator to set National Ambient Air Quality Standards (NAAQS) for PM_{2.5} at a level that is "requisite to protect the public health ... allowing an adequate margin of safety." EPA must reevaluate these NAAQS every 5 years based on "air quality criteria [that] shall accurately reflect the latest scientific knowledge useful in indicating the kind and extent of all identifiable effects on public health or welfare which may be expected from the presence of such pollutant in the ambient air, in varying quantities."⁸ The agency last set NAAQS for PM_{2.5} in 2006, and is reevaluating those levels now.⁹

EPA does not suggest that the MATS rule will help states meet the PM_{2.5} NAAQS. Other federal and state regulations are designed to do that and, as far as I can tell, EPA correctly avoids double-counting those benefits here. Rather, EPA calculates almost all of its monetary benefits for this rule from PM_{2.5} reductions well below the levels it has already determined are "protective of public health with an adequate margin of safety, taking into consideration effects

⁸ Clean Air Act §108(a)(2) The Supreme Court has confirmed EPA's interpretation that this statutory language precludes consideration of any impacts other than direct health effects from exposure to the pollutant.

⁹ Information on the review is available here: http://www.epa.gov/ttn/naaqs/standards/pm/s_pm_2007_fr.html. While the spring 2010 Unified Agenda of Regulatory and Deregulatory Actions indicated a final PM_{2.5} NAAQS rule would be issued in 2011 (<http://www.reginfo.gov/public/do/eAgendaViewRule?pubId=201004&RIN=2060-AO47>), more recent agendas have not listed a rulemaking as forthcoming.

on susceptible populations.”^{10,11} Using a linear, no-threshold assumption and attributing effects from small reductions in PM_{2.5} at levels that are just measurable with modern techniques, the MATS RIA models thousands of premature mortalities from exposures to PM_{2.5} concentrations it has determined to be protective.

These large benefits are difficult to reconcile with EPA’s determination that the 2006 standard was “requisite to protect public health” based on “latest scientific knowledge... of *all* identifiable effects on public health or welfare which may be expected from the presence of such pollutant in the ambient air, in varying quantities.” If they are legitimate, EPA should confront them directly by lowering the PM_{2.5} NAAQS, rather than going after them indirectly using statutory authority designed to reduce toxic air pollutants. Certainly, we would expect a PM_{2.5} standard to achieve PM_{2.5} reductions more cost-effectively than a standard directed at some other pollutant.¹²

Particularly disconcerting is the assertion that the rule will provide particular benefits to children,¹³ when over 90 percent of the reported benefits are from averted premature deaths that EPA models will accrue to people with a median age of 80 years, who would live weeks or months longer as a result of the regulations.¹⁴

In principle, a benefit-cost analysis should be “complete.” It should include all the significant consequences of a policy decision: direct and indirect, intended and unintended, beneficial and harmful. In practice, all such analyses must to some degree fall short of completeness. The problem with EPA’s co-benefits exercise in the MATS rule is that it does not approach the problem objectively. On the benefits side of the equation, EPA quantifies or lists every conceivable good thing that it might attribute to a decision to set new emission limits, while on the cost side, it only considers the most obvious direct and intended costs of complying with the regulation. Thus it dismisses risks associated with reduced electric reliability, the competitiveness of the U.S. economy in international trade, or the effect that higher electricity prices will have on the family budget. The point is not that all such things can be included in the analysis, but that the boundaries of the analysis should be set with some regard to objective science. In the case of the MATS, the search for side-effects causes the benefits to rise by a multiple of 15,000 to 66,000, while the costs rise not at all.

¹⁰ The RIA states, “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.” RIA, p. 23.

¹¹ http://www.nera.com/nera-files/PUB_Smith_QualityAir_testimony_1011.pdf

¹² For a thorough discussion of this issue, see Anne Smith, “Technical Comments on the Regulatory Impact Analysis Supporting EPA’s Proposed Rule for Utility MACT and Revised NSPS (76 FR 24976),” available at: http://www.nera.com/nera-files/PUB_Smith_EPA_report_0811.pdf.

¹³ See, for example, EPA’s press statements and blog: <http://blog.epa.gov/blog/2011/12/21/cutting-mercury/>

¹⁴ See table 5-8 of U.S. EPA “The Benefits and Costs of the Clean air Act, 1990-2020,” March 2011. Available at: <http://www.epa.gov/air/sect812/feb11/fullreport.pdf>. For a critique of PM benefits, see: <http://www.cmpa.com/pdf/ReassessingCleanAirAug22.pdf>.

Improving public health and welfare

The MATS regulation will make little progress toward reducing exposure to the toxic emissions that EPA is statutorily obligated to address. EPA estimates that U.S. utilities contribute about 1 percent of all anthropogenic mercury emissions,¹⁵ and the agency was unable to quantify any health or welfare effects from the other air toxics targeted by the rule.

One would also be hard pressed to claim that the MATS rule would effectively advance the goal of increasing the IQ of children exposed to methylmercury. EPA's modeling indicates that, even if it could eliminate *all* mercury emissions from U.S. electric utilities, the IQ of affected children would improve by less than .003 points. EPA estimates that under the final rule, the average IQ of exposed children will improve by just .002 points.

To put this in context, EPA estimated that its 1986 regulations removing lead from gasoline would raise the average IQ of exposed children by 4 points – a factor of 2,000 greater than the per child benefits EPA attributes to the MATS rule.¹⁶

Further, the costs of the MATS rule alone could have negative impacts on the targeted populations. EPA expects the rule will increase the costs of electricity by an average of 3 percent nationwide, and over 6 percent in some parts of the country. These price increases could have a significant negative impact on the health and welfare of families, particularly low-income families. Not only will these increases directly affect the affordability of such things as heat and air conditioning, but higher electricity prices will increase the costs of food and other goods, and divert scarce family resources from priorities such as their children's education, or health care.

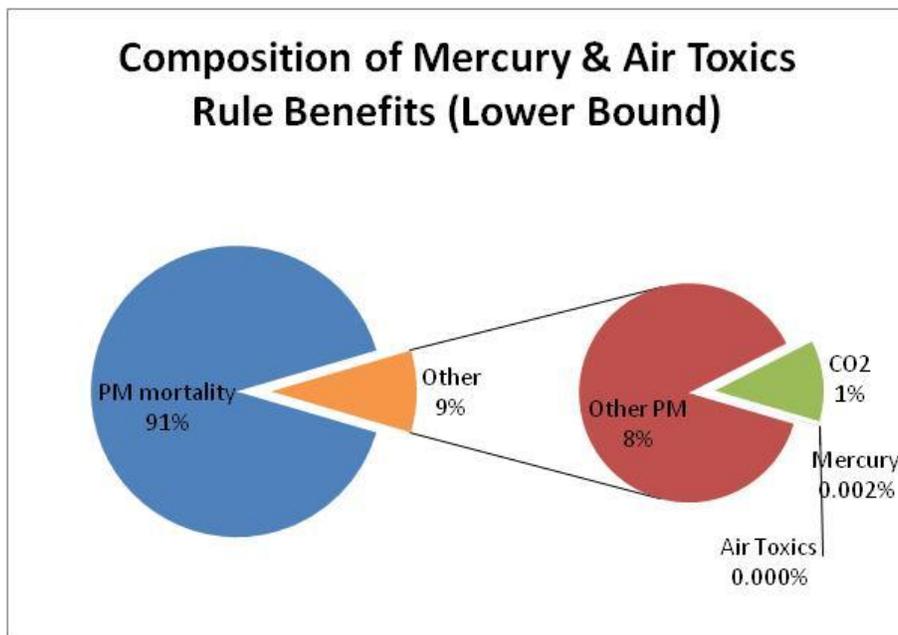
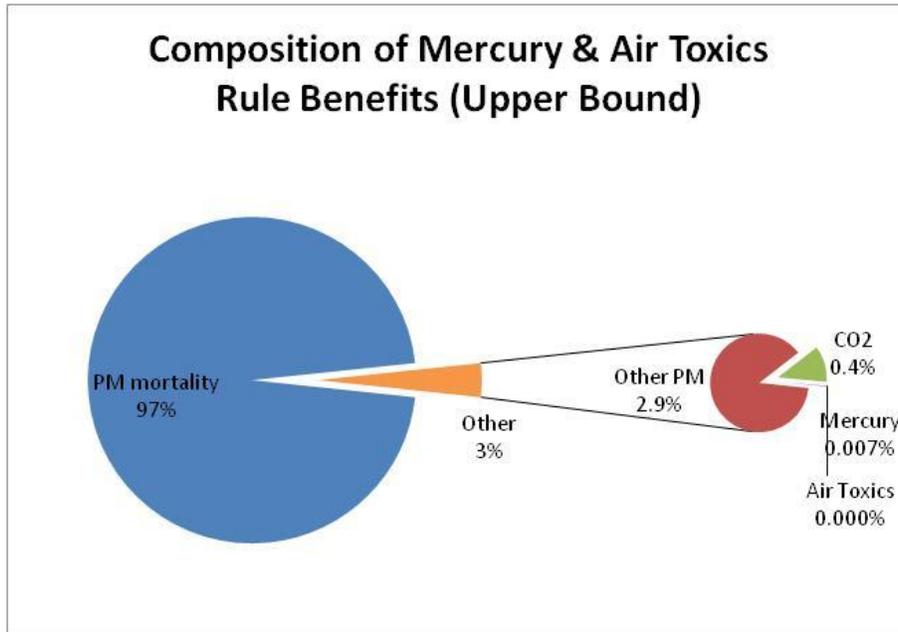
Conclusions

The emissions reductions resulting from MATS rule will do little to reduce children's exposure to methylmercury, and according to EPA's estimates, will have an infinitesimally small effect on their IQ and welfare. On the other hand, the estimated \$9.6 billion per year in costs will be borne by all Americans, who will pay more for electricity and anything that uses it. Not only

¹⁵ EPA's Risk Assessment Technical Support Document states "Current estimates of U.S. EGU mercury emissions are ~29 tons per year, compared with global anthropogenic mercury emissions, excluding biomass burning, estimated at approximately 2,320 tons. Available at: <http://www.epa.gov/airquality/powerplanttoxics/pdfs/20111216MercuryRiskAssessment.pdf>

¹⁶ EPA, "Costs and Benefits of Reducing Lead in Gasoline: Final Regulatory Impact Analysis," February 1985. EPA-230-05-85-006. Available at: [http://yosemite.epa.gov/ee/epa/erm.nsf/vwAN/EE-0034-1.pdf/\\$file/EE-0034-1.pdf](http://yosemite.epa.gov/ee/epa/erm.nsf/vwAN/EE-0034-1.pdf/$file/EE-0034-1.pdf) Recent research reinforces the dramatic improvements in IQ and welfare world-wide as a result of reduced exposure to lead. See Tsai and Hatfield, "Global Benefits from the Phaseout of Leaded Fuel," *Journal of Environmental Health*; Dec2011, Vol. 74 Issue 5, p8-14, 7p

will the rule increase the cost of heating, air conditioning, food, and other goods and services that contribute to public health, but it will divert scarce resources from much more pressing problems and activities that could contribute to improved health and economic well-being.



Source: U.S. EPA Final MATS RIA Tables 4-7 and 5-19.
<http://www.epa.gov/ttn/ecas/regdata/RIAs/matsriafinal.pdf>