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January 15, 2016

**VIA ELECTRONIC MAIL TO: [a-and-r-docket@epa.gov](mailto:a-and-r-docket@epa.gov)**

Dr. Nick Hudson  
Energy Strategies Group, Sector Policies &  
Programs Division (D243-01)  
U.S. Environmental Protection Agency  
Research Triangle Park, NC 27711

Attention: Docket ID No. EPA–HQ–OAR–2009–0234

Re: Comments of the National Mining Association on 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 (Dec. 1, 2015)

Dear Dr. Hudson:

The National Mining Association (NMA)<sup>1</sup> submits these comments in response to the proposed supplemental finding that it is appropriate and necessary to regulate hazardous air pollutants (HAPs) from coal and oil-fired electric utility steam generating units (EGUs), 80 Fed. Reg. 75,025 (Dec. 1, 2015). In addition to submitting these comments NMA incorporates by reference the comments of the Utility Air Regulatory Group of which NMA is a member.

NMA urges EPA to rescind and re-propose its “appropriate and necessary” finding for electric generating units. EPA’s proposed finding is based on an arbitrarily limited view of the information the agency should examine in assessing the costs and benefits of regulation. EPA seems more interested in quickly reaffirming the flawed appropriate and necessary finding it made when it issued the MATS rule rather than conducting the type of searching analysis the Supreme Court called for in *Michigan v. EPA*, 135 S. Ct. 2699 (2015), where the Court directed the agency to “consider cost-including, and most importantly, cost of compliance **before** deciding whether regulation is appropriate and necessary.” (Emphasis added.) Despite this rebuke from the Court,

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<sup>1</sup> NMA’s membership includes the producers, transporters and consumers of coal. Our member companies mines over 75 percent of the coal produced annually from operations located in 26 states. Most of the coal produced by NMA members is used by coal-fired EGUs subject to this rulemaking.

our analysis of the Supplemental Finding demonstrates that it, like the agency's prior determination, is wrong in reaching the conclusion that it is appropriate and necessary to regulate HAP emissions from EGUs.<sup>2</sup>

**1. EPA has completely failed to consider the effect of its rule on coal.**

Four years after MATS was issued, with the damage the rule caused in the coal industry all but complete, EPA maintains its preposterous view reached in the MATS Regulatory Impact Analysis (RIA) that the rule will have little effect on coal. EPA has no new analysis to support this assertion as no such analysis can be constructed. It simply proposes to limit its consideration of costs to the information it included in the RIA, including the RIA forecast that the rule would result in the retirement of less than 5 GW of coal capacity.<sup>3</sup> By limiting its cost consideration in this fashion, the agency believes it can erase the actual experience of the last four years and the hardship the agency has wrought on our nation's coal communities and ratepayers who were previously the beneficiaries of affordable, reliable coal-based electricity.

As numerous commenters, including NMA, told EPA during the MATS rulemaking, the rule would cause a wave of coal unit retirements. Unfortunately, events have confirmed the accuracy of these forecasts and disproved EPA's. Between 2012 when the rule went into effect and 2016 when the rule's compliance period ends, almost 60 GW of coal capacity will have retired, including units that have already retired or, for 2016, have announced their retirement.

**Coal-Fired Generating Unit Retirements by Year – Actual and Announced (MW)**

Year	Annual	Cumulative
2012	12,601	12,601
2013	8,220	20,821
2014	5,568	26,389
2015	20,728	47,116
2016	12,065	59,181

Source: Energy Ventures Analysis

According to statements made by the utilities announcing the retirements, virtually all of these closures are either fully or partially attributable to MATS and other EPA regulations.<sup>4</sup>

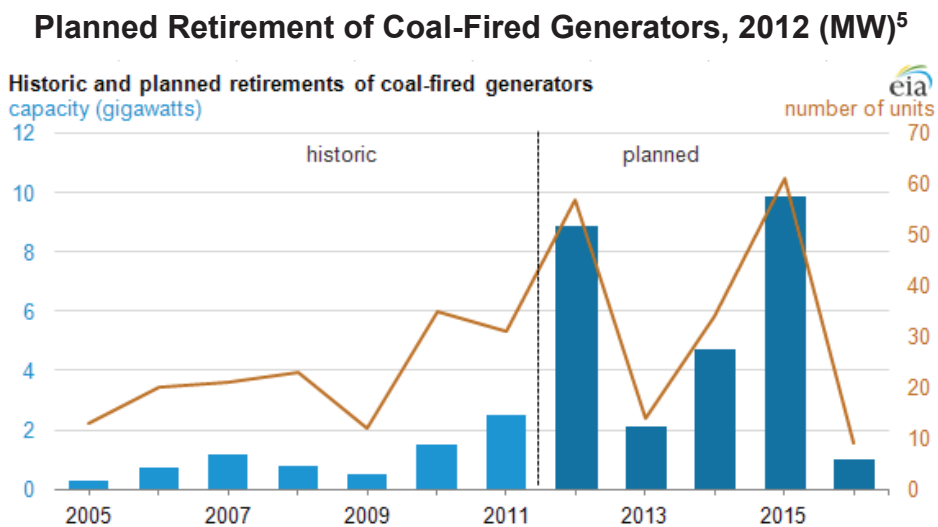
<sup>2</sup> To ensure a complete record here, NMA attaches and resubmits its MATS comments.

<sup>3</sup> EPA Regulatory Impact Analysis for the Final Mercury and Air Toxics Standards, page 3-17.

<sup>4</sup> See attached compilation from the American Coalition of Clean Coal Electricity.

Prior to the final MATS rule, total retirements of coal-fired capacity for the previous 11 years were just 9,745 MW, 3.1 percent of the nation’s existing coal-fired capacity. Because of MATS, power companies retired more capacity than in all of those years combined—10,308 MW—in 2012 alone.

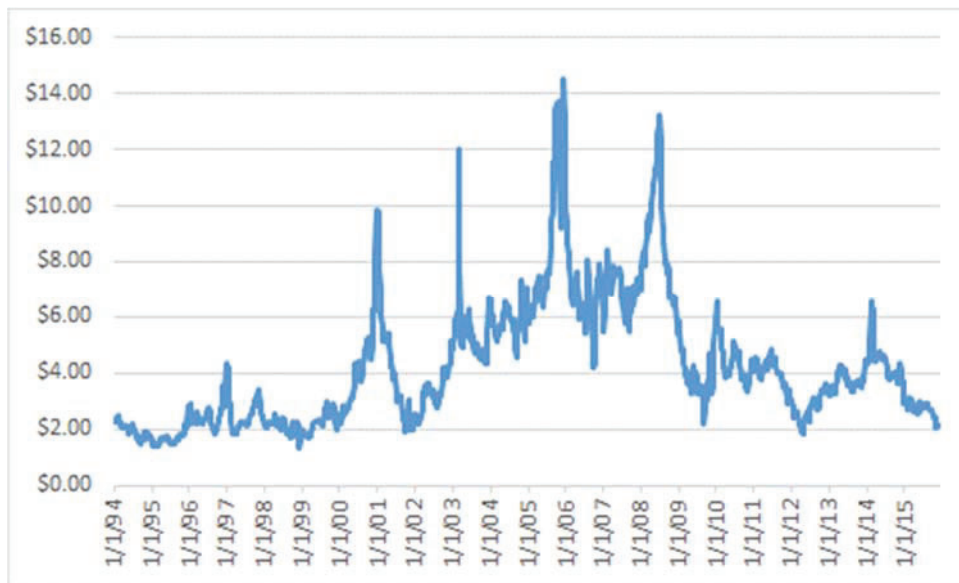
Shortly after MATS was published, the Energy Information Administration (“EIA”) recognized that this rule would contribute to a wave of retirements of coal-fired power plants. EIA published an article in July 2012 reporting the surge of planned retirements, which would peak in 2015, the year the initial MATS compliance period ended. This is described graphically in the chart shown below.



In public statements and in litigation EPA has blamed the decline in natural gas prices for the coal unit retirements. Natural gas prices have certainly affected the amount of actual coal generation, but low natural gas prices did not lead to the plant retirements. While natural gas prices did fall in 2012 from 2011, the decline was not to unusually low levels. Gas prices in 2012 were still higher than the average price of natural gas throughout the 1990’s, as shown below. However, coal plants did not retire in any significant quantities throughout that decade of low gas prices. The coal industry is familiar with and has previously experienced the impact of cyclical, non-sustainable low natural gas prices. The massive retirement of coal plants began in 2012, coinciding with the MATS rule, not the decline in gas prices. Natural gas prices recovered in 2013 and 2014, yet coal plants continued to retire in these years also.

<sup>5</sup> Sources: EIA, “27 gigawatts of coal-fired capacity to retire over next five years”, July 27, 2012 at <http://www.eia.gov/todayinenergy/detail.cfm?id=7290#>.

**Henry Hub Weekly Spot Natural Gas Price (\$/mmBtu)<sup>6</sup>**



EPA's reliance on its stark under-prediction of the number of retirements as a result of MATS taints every aspect of EPA's new appropriate and necessary finding. Having understated the retirements in the RIA, that document also understates the overall compliance costs of the rule, the resulting impact to electric ratepayers, the amount of coal production that would be lost, the number of miners that would be laid off, and the impacts to coal communities and coal states that would ensue. Forty thousand coal miners have lost their jobs since 2012. These layoffs have occurred in some of the poorest areas of the country, where coal-mining provides some of the highest-paying jobs. Whole communities and a number of states are dependent on the revenue the coal industry brings.

NMA and others warned EPA, in comments on the MATS rulemaking, of the chain of devastation the rule would create, but EPA chose to discount those warnings. In light of subsequent events, it is completely arbitrary for EPA to continue to pretend that the rule has had little impact on coal.

## **2. EPA Has Not Explained Why It Ignores the Actual Retirements Caused by the Rule.**

EPA offers no explanation for ignoring the actual number of retirements the rule caused. Instead, EPA simply says, without elaboration, that it has chosen to restrict its examination of cost impacts to the information in the RIA because doing so is

<sup>6</sup> Source: EIA at [http://www.eia.gov/dnav/ng/ng\\_pri\\_fut\\_s1\\_w.htm](http://www.eia.gov/dnav/ng/ng_pri_fut_s1_w.htm).

“reasonable.”<sup>7</sup> It cannot be reasonable, however, to continue relying on cost information that has demonstrably been proven wrong time-and-time again.

The closest EPA comes to an explanation for relying on incorrect data in the RIA is the assertion that the public had an opportunity to comment on that information and EPA responded to those comments.<sup>8</sup> In the first place, it is not true that EPA conducted notice-and-comment rulemaking on whether regulation of EGU HAP emissions is justified in light of the regulatory costs. During the rulemaking and throughout the litigation, EPA’s firm position was that cost information played no role in its appropriate and necessary finding. As a consequence of this view, the agency’s main response to the cost information proffered by NMA and others was that such information was irrelevant.<sup>9</sup> At no point did EPA ever examine the cost information submitted by commenters in light of the ultimate question of whether it was appropriate and necessary to regulate.

More fundamentally, even if EPA had fully considered the cost information submitted in the record that would not justify EPA’s failure to rely on information from the RIA that has proved to be faulty. The Supreme Court required EPA to make a de novo appropriate and necessary determination that, for the first time, considers costs and benefits. That determination must be based on cost information that is reliable and accurate. EPA has no excuse for not considering costs associated with the large number of retirements that the rule caused. It must redo its entire RIA cost analysis in light of that information.

### **3. EPA must accept new evidence on the purported benefits of the rule and reconsider the evidence already submitted as to the lack of benefits**

EPA states that it is not accepting comments on its finding that “mercury and other HAP emissions are hazardous to public health and the environment.” EPA says the public has already commented on this finding and that the agency has already responded to all significant comments.<sup>10</sup>

As discussed above, however, because EPA is making a de novo appropriate and necessary finding, EPA cannot exclude relevant evidence. EPA must at least reconsider the evidence it relied on in its previous finding in determining now whether the cost of regulation is justified by the benefits. Because EPA did not weigh costs and benefits in its prior appropriate and necessary finding, it was of the opinion that virtually any evidence of a risk to health or the environment would justify a decision that

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<sup>7</sup> Legal Memorandum Accompanying the Proposed Supplemental Finding that it is Appropriate and Necessary to Regulate Hazardous Air Pollutants from Coal- and Oil-Fired Electric Utility Steam Generating Units (“Legal Memorandum”) at 18.

<sup>8</sup> 80 Fed. Reg. at 75,031.

<sup>9</sup> *Id.* at 9327.

<sup>10</sup> *Id.* at 75,028.

regulation was appropriate and necessary. It is now EPA's task to judge for the first time whether the benefits it relies on are significant enough to justify the costs. This applies to asserted impacts of all HAP emissions, but applies most critically to the asserted impacts of acid gas emissions, as more fully discussed below.

#### **4. EPA Cannot Mask the Impacts of the Rule by Spreading those Impacts Over the Entire Power Sector.**

In an attempt to make the \$9.6 billion annual cost of the rule seem small, EPA compares the MATS costs with total utility industry costs.<sup>11</sup> In EPA's view:

- The \$9.6 billion annual cost of the rule is only a small fraction of the *total annual industry-wide dollar value of electricity sales*;
- The annual capital expenditures to comply with MATS are again only a small fraction of *all utility industry annual capital expenditures*;
- The impact of the rule on the *average national* electricity rate are small;
- EPA's estimate of 4.7 GW of retirements represents only a minimal amount of *total electric generating capacity*: "This analysis indicates that the vast majority of the generation capacity in the power sector directly affected by the requirements of MATS would be able to absorb the anticipated compliance costs and remain operational."

These comparisons of MATS costs with national-level costs are meaningless. First, as noted, they are based on EPA's fundamentally flawed RIA that far understated the number of coal unit retirements and thus underestimates the cost of the rule.

Additionally, national level figures are of little use in assessing the cost of MATS in the real world. For instance, no one pays an average national electricity rate; electric consumers pay the rate charged by their local utility which in turn reflects that utility's costs.

As EPA is aware, coal-fired generation is predominately confined to the middle and southeastern parts of the country. The major population centers of California, the Pacific Northwest, New York, New Jersey, New England and peninsular Florida use very little or no coal generation. Obviously, the rule would not be expected to have and has not had much impact in those areas. Spreading the cost of the rule over the large populations served by utilities in these states therefore masks the impact the rule has on other states.

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<sup>11</sup> *Id.* at 75,032-36.



Equally as obvious, the rule can be expected to have major impacts in coal-dependent states. Information submitted to EPA during the MATS rulemaking showed the possibility of more than 20 percent rate impacts regionally. For instance, heavy manufacturing and coal-dependent states like Ohio can expect prices to rise by approximately 23 percent.<sup>12</sup> Moreover, as the economy recovers and electricity demand increases the tightening of electric generation supplies resulting from the rule will inevitably force electric rates to rise.

EPA seems to recognize that the rule will have disproportionately high effects in coal-dependent regions, but dismisses those impacts with the statement that rates in these areas are lower than the national average.<sup>13</sup> The implication seems to be that EPA is justified in pursuing policies that raise electric rates in these areas because people can afford the increases. It is not EPA's job, however, to impose the energy policies of the coastal states—and the resulting high energy prices—on the rest of the country. In any event, the middle of the country on average has lower incomes than the coastal states and is therefore not in a position to absorb the higher costs. As NMA has repeatedly told EPA in comments, high energy prices produce their own set of negative health and welfare impacts, none of which are accounted for in EPA's new appropriate and necessary finding.

EPA's focus on the rule's national-level utility industry impacts also fails to address the specific impacts the rule will have on coal production, coal employment and coal communities. These impacts are clearly relevant to an analysis of the rule's costs.

#### **5. EPA Must Separately Address Whether the Cost of Acid Gas Regulation Is Justified by the Benefit.**

Another topic EPA tries to declare off limits is whether EPA could decide it is not appropriate and necessary to regulate one HAP if it is appropriate and necessary to regulate any other HAP. EPA's view is that this outcome is foreclosed by the court of appeals' decision in *White Stallion Energy Ctr., LLC v. EPA*, 748 F.3d 1222, 1233 (D.C. Cir. 2014) and by the terms of the issue the Supreme Court accepted for review in *Michigan v. EPA*, 135 S. Ct. 2699 (2015).

EPA is incorrect. *White Stallion* determined only that, as a matter of *Chevron* step two deference, "EPA's conclusion that it **may** regulate *all* HAP emissions from EGUs must be upheld," even if it is not appropriate and necessary to regulate one particular EGU HAP emissions. *White Stallion*, 748 F. 3d at 1245 (bold added, italics in original). This EPA exercise of discretion may have been, as the *White Stallion* court found; reasonable in light of the court's finding that costs are irrelevant in the appropriate and necessary finding. However, given the Supreme Court's ruling that costs are relevant, it is now unreasonable for EPA to neglect, on a pollutant-by-pollutant

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<sup>12</sup> See NMA comments at 3.

<sup>13</sup> 80 Fed. Reg. at 75,035.

basis, whether regulation may be inappropriate and unnecessary given an extreme mismatch of costs and benefits.

Moreover, the relative costs and benefits of regulating each particular EGU HAP emission remains relevant even if EPA is required to regulate all EGU HAP emissions on a finding that it is appropriate and necessary to regulate one particular such emission. In considering whether it is appropriate and necessary to regulate all EGU HAP emissions, certainly one relevant factor would be that regulating one HAP would impose extraordinarily high costs for almost no benefit. Accordingly, EPA could decide that the costs and benefits of regulating one HAP is so out of balance that regulation of any HAPs is not warranted.

In this regard, it is worth reiterating the severe lack of balance between the costs and benefits of regulating acid gas emissions. On the cost side, acid gas regulation comprises about half of the \$9.6 billion annual cost of the rule.<sup>14</sup> On the benefits side, EPA produced no evidence that acid gas emissions from EGUs endanger human health. Neither the 1998 Utility Study nor the only study that EPA subsequently performed of the health risks of electric generator acid gas emissions,<sup>15</sup> found any such risks.

The best EPA could do in the regulatory preamble as to health impacts was to express “concern” that acid gases in general are known to “contribute to chronic non-cancer toxicity,” without making any finding that acid gases in the quantities emitted by electric generators pose a meaningful risk of doing so.<sup>16</sup> The only actual analysis EPA performed to determine whether acid gas emissions from electric generators create a health concern concluded that “individuals are not exposed to acid gas emissions from Utility Units at concentrations which pose hazards to public health.”<sup>17</sup>

Even EPA’s findings as to possible environmental impacts of electric generator acid gas emissions lacked a substantive foundation. EPA’s “evidence” of the environmental impacts of these emissions consists of EPA’s general claim that “[i]n areas where the deposition of acids derived from emissions of sulfur and NO<sub>x</sub> are causing aquatic and/or terrestrial acidification, with accompanying ecological impacts, the deposition of hydrochloric acid *could* exacerbate these impacts.”<sup>18</sup> That may be true, but it does not prove – or even lead to an inference – that *electric generators* emit acid gases in sufficient amounts, given EPA’s other regulations, to create a material environmental concern. The Utility Study did not conclude that electric generator acid gas emissions resulted in environmental harm, and EPA did not conduct any further study of possible environmental impacts of electric generator acid gas emissions.

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<sup>14</sup> See Comments of the Utility Air Regulatory Group, Aug. 4, 2011.

<sup>15</sup> 70 Fed. Reg. at 16,007,

<sup>16</sup> *Id.*

<sup>17</sup> *Id.* at 16,007.

<sup>18</sup> *Id.* at 25,050 (emphasis added).

The only acid gas study that EPA relied on was one study of hydrochloric acid deposition in the United Kingdom, which EPA cites for the proposition that (a) hydrochloric acid is highly mobile in the environment, (b) hydrochloric acid can transport longer distances than previously thought, and (c) hydrochloric acid *can be* a larger driver of acidification than previously thought.<sup>19</sup> EPA, however, did not even try to analyze the impact, if any, of *electric generator* emissions of hydrochloric acid in the United States and, as a result, could not point to even a single instance in which domestic electric generator hydrochloric acid emissions have affected acid deposition anywhere or otherwise created an environmental impact.<sup>20</sup>

In fact, the “evidence” on which EPA most relied in concluding that acid gases are worthy of regulation is that acid gases are listed under CAA Section 7412(b) and that electric generators emit more hydrogen chloride and hydrogen fluoride than other source categories<sup>21</sup>. But those facts, in and of themselves, are not significant given that those emissions, even when combined with directly emitted acid gas emissions from all other sources, do not represent more than a nominal percentage of emissions that have the potential to result in acidification.<sup>22</sup>

Given the high costs and negligible benefits of regulating EGU acid gas emissions, EPA has two choices. It may choose to regulate other HAP emissions while not regulating acid gases, or it may choose not to regulate EGU HAP emissions at all. What it cannot do, however, is simply ignore the stark mismatch of the costs and benefits of regulating acid gases.

For the above reasons, NMA urges EPA to rescind and re-propose its appropriate and necessary finding based on a more complete analysis of costs and benefits.

Regards,



Bruce Watzman

Enclosures

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<sup>19</sup> 77 Fed. Reg. at 9,362.

<sup>20</sup> See EPRI Comments on Proposed HAPs MACT Rule, 4 August 2011, at § 3.16.

<sup>21</sup> 76 Fed. Reg. at 25,005.

<sup>22</sup> See EPRI Comments on Proposed HAPs MACT Rule, 4 August 2011, at § 3.16.



**THE NATIONAL MINING ASSOCIATION'S COMMENTS ON EPA'S PROPOSED  
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 Federal Register 24,976 (May 3, 2011)**

**Docket ID Numbers: EPA-HQ-OAR-2009-0234 (NESHAP action) and EPA-  
HQ-OAR-2011-0044 (NSPS)**

August 4, 2011

**VIA ELECTRONIC MAIL TO: [a-and-r-docket@epa.gov](mailto:a-and-r-docket@epa.gov)**

U.S. Environmental Protection Agency  
1200 Pennsylvania Avenue, N.W.  
Washington, D.C. 20460

**Re: Comments of the National Mining Association on the above-docketed proposed rules; 76 Fed. Reg. 24976 et seq., May 3, 2011.**

Dear Ladies and Gentlemen:

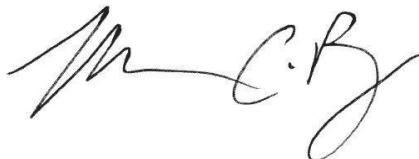
The National Mining Association ("NMA") takes this opportunity to submit the following comments on the Environmental Protection Agency's ("EPA") proposed rules, as titled above, published in the *Federal Register* on May 3, 2011.

NMA's membership includes the producers, transporters and consumers of coal. Our member companies mine over 75 percent of the coal produced annually from operations located in 26 states. Most of the coal produced by NMA members is used by coal-fired utilities subject to this proposed rulemaking.

NMA's members also include the transporters of coal. For example, railroads deliver about two-thirds of all coal to coal-fired units. NMA's members include the producers of metals, and industrial and agricultural minerals. Their operations are major consumers of electricity as a raw material or feedstock. Because energy costs comprise a substantial part of their operating costs, this rulemaking will also have a material impact upon on their global competitive position. NMA's membership also includes the manufacturers of mining and mineral processing machinery and supplies. This rulemaking will affect both their markets as the suppliers of machinery and equipment for coal mines and their competitive position as manufacturers bearing the brunt of higher energy prices. In sum, this rulemaking is of utmost importance to NMA.

Please let me know if you have any questions regarding NMA's comments. I can be reached directly at (202) 463-2608 or via email at [tperry@nma.org](mailto:tperry@nma.org).

Sincerely,

A handwritten signature in black ink, appearing to read 'M. C. Perry', written in a cursive style.

Thomas C. Perry  
Director of Air Quality

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**ATTACHMENTS**

Attachment 1—Senator Lisa Murkowski, “FERC Responses Raise New Concerns About Reliability,” Press Release (Aug. 3, 2011).

Attachment 2—FERC Response to Senator Murkowski, Chairman Wellinghoff (Aug. 1, 2011).

Attachment 3—FERC Response to Senator Murkowski, Commissioner Moeller (Aug. 1, 2011).

Attachment 4—FERC Response to Senator Murkowski, Commissioner Spitzer (Aug. 1, 2011).

Attachment 5—Comments of the National Mining Association on the Industrial Boiler MACT rule, Docket Nos. EPA-HQ-OAR-2002-0058 and EPA-HQ-OAR-2006-0790 (Aug. 23, 2010).

Attachment 6—Comments of the National Mining Association on Federal Implementation Plans to Reduce Interstate Transport of Fine Particulate Matter and Ozone, Docket ID Nos. EPA-HQ-OAR-2009-0491 (Aug. 2, 2010).

Attachment 7—Individually-listed Analyses in Table 3: Summary of Coal-Fired Retirement Projections.



## **EXECUTIVE SUMMARY**

### **I. THE PROPOSED RULE REPRESENTS A HUGE REGULATORY BURDEN FOR LITTLE ENVIRONMENTAL GAIN**

The Environmental Protection Agency (“EPA”) has now either planned, proposed or finalized several interrelated and costly regulations under the Clean Air Act (“CAA”) aimed at substantially reducing the usage of coal as a fuel source in this country. The proposed rule is no exception with its EPA-estimated \$10.9 billion in annual compliance costs. Further exacerbating the situation is EPA’s new source emissions standards that make it virtually impossible for advanced coal-based generating capacity to be built in this country. The reality is that as EPA continues on its course of “leveling the playing field”<sup>1</sup> for electric power generation in the United States, the agency appears unwilling to grapple with the fundamental fact that coal is the only sustainable fuel, at scale, that can reliably meet our growing electricity needs. In a world of increasing global scarcity, the United States cannot afford to disregard the importance of its abundant coal resources.

#### **A. The Essential Role of Coal in the U.S. Economy**

Energy is as basic to human life as food, water, clothing or oxygen.<sup>2</sup> Access to secure, affordable, abundant and sustainable energy from coal is the engine that has driven American economic might for more than a century. These energy attributes are essential to American economic success. Expensive energy chokes off economic recovery, punishes family budgets, sends factories overseas and determines winners and losers in global competition.

Coal is fundamental to how the nation produces electricity. Approximately 46 percent of electricity is derived from combusting coal. Coal is also by far the nation’s most abundant source of energy, constituting 94 percent of the nation’s fossil fuel resources. The United States has nearly 261 billion tons of recoverable coal reserves, according to the Energy Information Administration, which is a 240-year supply at current rates of use.

The correlation between coal-fueled electricity and economic growth is near-perfect.<sup>3</sup> For example, states that rely predominantly on coal generation are

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<sup>1</sup> 76 Fed. Reg. 24976, 24979 (May 3, 2011).

<sup>2</sup> International Energy Agency, World Energy Outlook, 2009; World Coal Institute, “Coal Tackling Poverty,” 2007; “Mortality Reductions from Use of Low-Cost Coal-Fueled Power: An Analytical Framework,” Analysis by Daniel E. Klien, Twenty-First Strategies, LLC, McLean, Va., and Ralph L. Keeney, Research Professor, Fuqua School of Business, Duke University, 2002; World Health Organization, 2007 data.

<sup>3</sup> Based on analysis of electricity from coal in terawatt hours and global GDP from 1970 to 2010, reported by International Energy Agency, World Energy Outlook, 2009, and Energy Information Administration, International Energy Outlook, 2010.

generally the states with the lowest electricity rates. Twenty of the twenty-five states with the lowest electricity costs rely upon coal generation for at least 40 percent of their electricity generation—and all have rates below the national average. It is no coincidence that these states also have the highest concentrations of manufacturing.

Moreover, advanced coal technologies provide a path forward for both retaining the country's competitive edge and being environmentally conscious. Supercritical coal technologies deployed in new coal-based power plants increase efficiencies and reduce emissions by 20 percent as compared to the national average of the existing coal-based plants. The next generation of ultra-supercritical technologies will produce even higher efficiencies and a corresponding reduction in emissions of 35 percent below the existing fleet of coal-based power plants.<sup>4</sup>

### **B. EPA's Cost Estimate is Significantly Understated**

EPA's proposed rule disregards these important and fundamental contributions. Moreover, even in the face of widespread retirements and sharply increasing electric rates, EPA still continues to claim that these rules are flexible and common-sense without any sort of credible cumulative cost analysis to support this claim. NMA has repeatedly demonstrated the need for such an assessment, along with providing an analytical framework for completing this important task. Without such an assessment, EPA's cost estimates are essentially meaningless. EPA requires cumulative assessment under the National Environmental Policy Act because assessing individual actions masks the overall effects that a series of related actions will produce. For the same reason, EPA utilized cumulative analysis to examine the effects of power plant emissions of hazardous air pollutants ("HAPs") in this rulemaking. EPA's rule-by-rule cost-benefit analysis, including the one here, similarly hides the true impacts of the agency's overall program of power sector regulations.

EPA's estimated cost of this regulation is \$10.9 billion per year, a cost that this economy can ill-afford to bear. But even that number is understated given that EPA's underlying cost analysis suffers from a number of glaring deficiencies in addition to the agency's failure to assess the cumulative costs of the rule. First, the agency's assumption that many units will—56 GWs worth—be able to meet the stringent acid gas standard by using dry sorbent injection ("DSI") as an alternative to installing costly scrubbing technology at over ten times the cost is misguided. There is a paucity of evidence in the rulemaking demonstrating that DSI will be effective at removing SO<sub>2</sub> emissions at nearly as many units anticipated by EPA. Second, EPA fails to account for the age of existing scrubbing technology in erroneously assuming that approximately half of the fleet will meet all of the NESHAPs without further need of retrofiting. Third, overlapping compliance

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<sup>4</sup> Janos M. Beer, Massachusetts Institute of Technology, *Higher Efficiency Power Generation Reduces Emissions*, National Coal Council Issues Paper 2009.

obligations like the Cross-State Air Pollution Rule (“CSAPR”) will effectively foreclose the option of using DSI as those units will need to install costly scrubbing technology in order to comply with that regulation. Taken together, these mistaken assumptions demonstrate that EPA’s cost estimate is biased low and the projected 9.9 GW of early coal retirements is clearly understated.

Thus, as the National Economic Research Associates (“NERA”) recently projected, based on the impact of this rule and the recently finalized CSAPR,<sup>5</sup> compliance costs for the electric sector are a staggering \$18 billion per year. The study also estimates that nationwide average retail electricity prices rise by 11.5 percent, and heavy manufacturing states such as Ohio can expect prices to rise by approximately 23 percent. These rules will force Americans to pay more for electricity, including the cost of natural gas, and precipitate significant job losses not only in coal production and transportation but also in the manufacturing sector.

### **C. EPA’s Benefits Analysis is Equally Flawed**

EPA attempts to justify the proposed rule based on an exaggerated claim that the proposed rule will result in \$52 to 139.4 billion in health benefits. However, the facts paint a different story as only a *de minimus* amount—or less than 0.01 percent of this total benefits estimate—are expected to result from regulating the hazardous air pollutants (“HAPs”) that are ostensibly the subject of this rulemaking. EPA readily admits virtually all of its claimed benefits result from the incidental collateral reduction of SO<sub>2</sub> emissions, which in turn, reduces the atmospheric concentrations of PM<sub>2.5</sub>, thus (according to EPA) saving lives and improving health. However, PM<sub>2.5</sub> is already subject to stringent regulation under the National Ambient Air Quality Standards (“NAAQS”) program and will be further regulated by the recently finalized CSAPR. Thus, EPA appears to be double-, and perhaps triple-counting health benefits—or relying on benefits that would have otherwise occurred through implementation of the NAAQS program to enhance the appearance of justification for this rule and CSAPR.

Even more telling is the fact, as demonstrated by Figure 6-15 of the Regulatory Impact Analysis (“RIA”), almost the entire alleged PM<sub>2.5</sub> benefits stem from exposures that occur below the level of the PM<sub>2.5</sub> NAAQS. Yet EPA set that NAAQS at a level that, as required by the CAA, the agency deems protective of human health with an “adequate margin of safety.” Thus, despite its statements in the preamble, in reality, even the agency does not believe the proposed rule will produce benefits from reducing PM<sub>2.5</sub>.

The agency is preparing to propose a new PM<sub>2.5</sub> NAAQS, and that standard may be lower than the current NAAQS. Until it does so, however, it is inappropriate for EPA to adopt rules based on claimed benefits below the current NAAQS level.

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<sup>5</sup> See [http://www.americaspower.org/NERA\\_CATR\\_MACT\\_29.pdf](http://www.americaspower.org/NERA_CATR_MACT_29.pdf) for study results [hereinafter “NERA Study”].

Until changed, the current 15 µg/m<sup>3</sup> NAAQS represents EPA's judgment of the standard necessary to protect human health with a margin of safety. In any event, the lowest standard contemplated by EPA is 11µg/m<sup>3</sup>. Even at this level, Figure 6-15 demonstrates that 80 percent of the asserted benefits would still be occurring at levels below the NAAQS.

In sum, both EPA's cost and benefits calculations are fundamentally flawed. The proposed rule will be far more costly than beneficial, and EPA's imposition of large costs on the economy by forcing a reduction of the use of coal for electricity is completely unjustified by any corresponding health benefit.

## **II. EPA'S RULEMAKING PROCESS IS LEGALLY DEFICIENT UNDER THE CLEAN AIR ACT**

EPA has made it extremely difficult, indeed impossible, for the public to have a meaningful opportunity to provide comments on the proposed rule. EPA's haste in finalizing the proposed rule by November 2011 has resulted in insufficient time for comments, only ninety days despite the extraordinarily complex nature of the regulation.

The rushed schedule has resulted in at least one significant error in setting the "maximum achievable control technology" ("MACT") standards. On May 5, 2011, the Utility Air Regulatory Group ("UARG")<sup>6</sup> sent a letter to EPA identifying a critical conversion error in the agency's calculation of mercury emissions resulting from errors in half the mercury data used in new and existing MACT floors that were 1000 times lower than actually measured. EPA admitted the error, but without proper correction, the public is left to sift through the docket and discern whether to comment on the standard in the supplemental document or the one proposed in the *Federal Register*.

Another fundamental error in EPA's rulemaking process is the agency's undocumented and unsupported claims of key stakeholder collaboration to "safeguard[ing] completely against any risk of adverse impacts on electricity system reliability."<sup>7</sup> NMA can find no evidence of these consultations in the rulemaking docket. Indeed Senator Lisa Murkowski (R-Alaska) on May 17 sent a letter to the Federal Energy Regulatory Commission ("FERC") seeking clarification on its collaboration with EPA.

It is inappropriate for EPA to claim that its rule will not create reliability problems based on discussions the agency claims it is having with government and non-government entities with direct authority over electric reliability, and yet not include a record of those discussions in the rulemaking docket, at the time of

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<sup>6</sup> NMA is a member of UARG.

<sup>7</sup> 76 Fed. Reg. at 25054.

publication, thus affording the public an opportunity to review and comment on these discussions.

Notwithstanding these deficiencies, on August 3—exactly one day before the close of the comment period—Senator Murkowski announced that she has received responses from FERC outlining the extent of its consultations with EPA.<sup>8</sup> Preliminary review of FERC’s responses belies EPA’s exaggerated assurances of electric system reliability. EPA must include FERC’s responses, including a record of all the meetings between EPA, CEQ and FERC, data, and files as described in Appendix A and B of Chairman Wellinghoff’s responsive,<sup>9</sup> in the rulemaking docket, extend the comment period, and provide an opportunity for public inspection and comment.

These critical errors, in addition to several others, are directly at odds with the rulemaking requirements under section 307(d). Under paragraph (d)(3), a “notice of proposed rulemaking...shall be accompanied by a statement of its basis and purpose,” and this statement “shall include a summary” of the “factual data on which the proposed rule is based,” and the “methodology used in obtaining the data and in analyzing the data.” In addition, “[a]ll data, information, and documents referred to in this paragraph on which the proposed rule relies shall be included in the docket on the date of publication of the proposed rule.” EPA has not followed these statutory commands, as “all data” on which the proposal is based were not included in the docket at the time the proposed rule was published in the *Federal Register*.<sup>10</sup>

This type of rulemaking does little to instill confidence that the agency is conducting an open and transparent process consistent with President Obama’s Executive Order 13563. EPA must immediately seek an extension of the November deadline from the Court in order to conduct a legitimate rulemaking process.

### **III. EPA’S APPROPRIATE AND NECESSARY DETERMINATIONS ARE INCONSISTENT WITH THE CLEAN AIR ACT**

Congress specifically carved out electric utility steam generating units (“EGUs”) from section 112 compliance unless and until the Administrator determined that it is “appropriate and necessary after considering the results of”

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<sup>8</sup> Senator Murkowski’s August 3, 2011 Press Release is filed contemporaneously with these comments as (Attachment 1).

<sup>9</sup> Chairman Wellinghoff’s (Attachment 2), Commissioner Moeller’s (Attachment 3), and Commissioner Spitzer’s (Attachment 4) responses have all been filed contemporaneously with these comments.

<sup>10</sup> See also *Kennecott Corp. v. EPA*, 684 F.2d 1007, 1118 (D.C. Cir. 1982) (“In all circumstances, EPA’s failure to include” documents that serve to explain the agency’s “data” and “methodology” constitutes “reversible error,” insofar as their absence “makes impossible any meaningful comment on the merits of EPA’s assertions.”).

the public health hazards study required by that section. See § 112(n)(1)(A). In 2000, EPA inappropriately determined that it was both appropriate and necessary to list EGUs as a source category and promulgate MACT standards under section 112.

To date, the validity of EPA's 2000 determination has never been fully ventilated in front of the D.C. Circuit Court. Accordingly, since EPA is reaffirming the 2000 determination as its basis for proposing the instant rule, the legality of that decision is squarely at issue.

EPA's appropriate and necessary findings are contrary to the CAA and do not comport with congressional intent. The agency's determination that it is "appropriate" to regulate EGU HAP emissions is based on a set of criteria outside of the congressionally-directed public health effects inquiry, including environmental impacts, emissions from other sources, and international cooperation. Injecting these factors makes the "appropriate" determination so broad that it renders the statutorily defined prerequisite for regulation meaningless. Congress clearly wanted EPA to focus and base its inquiry on "hazards to public health" posed by EGUs, not on a broad set of other factors. Otherwise, Congress would have simply listed EGUs from the outset. EPA conducted a proper inquiry into whether regulation of EGU HAP emissions was "appropriate" in 2005, but EPA has now abandoned that inquiry and replaced it with a flawed analytical approach to mask an insufficient factual basis for regulating. This is evidenced by the lack of benefit derived from aggressive mercury control.

Similarly, EPA's "necessary" finding is overly narrow and contravenes the purpose of the subsection. EPA believes that only those requirements that Congress directly imposed on EGUs through the CAA as amended in 1990—namely, the acid rain program—qualifies under the necessary analysis. This legal conclusion has no basis in the statutory language. Congress obviously knew that the 1990 amendments would result in numerous regulations potentially eliminating the need to regulate EGUs under section 112. Even though those regulations may have been promulgated later in time, the Clean Air Interstate Rule ("CAIR") and CSAPR for example, those measures qualify under the necessary analysis. Both of those programs stem from statutory authority in place as of or before adoption of the 1990 amendments. Thus, EPA has not provided a rational basis for its illogically narrow statutory construction. Additionally, doubts about the implementation of the NAAQS program is an unpersuasive basis for not including the results of these measures; compliance with the NAAQS is a legal obligation—that is why EPA promulgated first CAIR and then CSAPR. EPA's appropriate and necessary determination in 2000 as well as in the instant rulemaking is arbitrary, capricious and contrary to law.

#### **IV. EPA'S HAP-BY-HAP APPROACH FOR DETERMINING THE MACT FLOOR IS UNLAWFUL UNDER THE CAA**

EPA continues to set MACT floors based on an impermissible interpretation of the CAA. The proposed MACT standards are based on a pollutant-by-pollutant

approach—or “Franken-plant” approach—relying on a different set of best performing sources for each HAP standard.

Justice Ginsburg during the medical waste incinerator litigation offered the following baseball analogy to highlight the apparent lack of logic in EPA’s approach. He reasoned based on the HAP-by-HAP approach, the “best” baseball player on the team would have the league’s highest batting average, most home runs and would have the lowest earned run average every time he pitched. No such player exists. Likewise, no such unit can meet all of the proposed NESHAPs on a continuous basis without any operational or equipment upgrades.

Section 112 does not permit the agency to base MACT standards on a hypothetical amalgamation of ideal units nor does the statute permit the “emissions control” achieved by the best sources to be determined on a group of best performing units. If this was the intent of Congress, it would have added specific language so directing the agency.

The HAP-by-HAP approach violates the CAA because less than 12 percent of existing units can actually meet all of the proposed standards. In fact, NMA’s review of the ICR data reveals that only 3 percent of the total population of units can meet all of the proposed standards. Moreover, this is a conservative approach as it likely overestimates the number of compliant units because measuring below the level once does not guarantee compliance on a continuous basis.

## **V. EPA’S NEW SOURCE STANDARDS VIRTUALLY ELIMINATE NEW COAL PLANTS**

EPA’s proposed standards for new coal units are so stringent that they will preclude construction of new coal plants that are subject to them. As reflected in the comments of the Union for Jobs and the Environment (“UJAE”), EPA provided UJAE with data as to which existing units comply with EPA’s proposed standards. As set forth in that data, no existing units can comply with all of the new-unit standards. Since no single existing unit complies with all the standards, there is no basis to conclude that a new unit can likewise comply. EPA is required to set the new-unit standard based on the top performing similar unit in order to ensure that the proposed standard can actually be achieved under real world conditions. Since no existing unit, in fact, can meet all of EPA’s new-unit standards, there is no basis to conclude that a new unit can do so.

Again, at the heart of this issue lies EPA’s impermissible HAP-by-HAP approach for determining the MACT floor for new sources. One or more existing unit can meet each of the standards. But that does not mean that any existing unit can meet all of the standards. None can.

Adopting standards effectively banning new coal units amounts to a momentous change in national energy policy without discussion or analysis and far exceeds EPA’s authority. Such a policy would be disastrous for the U.S. and would undermine the most effective strategy the U.S. can implement to reduce emissions

of all kinds while preserving stable and low electric rates. That strategy is to steadily over-time replace less efficient and older units with modern, efficient coal-based units. By a stroke of its pen, however, unless the new-unit standards have some basis in reality, EPA will impose a *de facto* moratorium on the use of coal for new electric generation.

## **VI. EPA'S PERFORMANCE STANDARDS RUN COUNTER TO THE CAA**

EPA's performance standards are legally deficient in many respects. Under section 111, the agency must consider the cost of achieving such reduction. EPA has failed to adhere to this statutory command in setting standards of performance for SO<sub>2</sub> and PM<sub>2.5</sub>. Moreover, this failure is even more disconcerting considering that EPA's own benefits analysis clearly states that the proposed rule has little to do with the HAPs at issue, but rather was adopted to create a regulatory backstop for reducing ambient concentrations of particulate matter. The agency must rescind the revisions to the standard of performance for subpart Da.

## **VII. EPA SHOULD EXERCISE ITS DISCRETION TO PROPERLY TAILOR THIS RULE**

Assuming *arguendo* that EPA is correct in its assertion that the agency is legally compelled to regulate non-mercury HAPs absent an affirmative health-based finding, NMA urges the agency to exercise its discretion to properly tailor this rulemaking consistent with the underlying record. There are two specific instances where Congress has expressly provided EPA the tools to accomplish this objective.

Under section 112(d)(4), EPA should set a health-based standard for acid gases. Notwithstanding EPA's claims to the contrary, the agency has the data and regulatory experience to set these standards. Specifically, the agency reports that the hazard quotient for HCl never exceeded 0.05 in any of its risk assessments—or values that are 20 to 200 times lower than the reference concentration ("RfC") for HCl. Failure to exercise this discretion, therefore, cannot be based on a lack of information nor can the agency decline to exercise its discretion to preserve the alleged "co-benefits" from SO<sub>2</sub> and PM<sub>2.5</sub> removal.

Additionally, EPA should further subcategorize. In the Clean Air Mercury Rule ("CAMR"), the agency explicitly recognized the differences in emissions based on coal types. NMA is supportive of subcategorization for lignite—notwithstanding the beyond-the-floor measure—but the agency should further subcategorize based on the stringent acid gas standard. According to the data EPA provided to UJAE, the higher-sulfur coals supplied to plants in the eastern United States may not be able to achieve the proposed emissions rate even with scrubbing technology. As such, and without further subcategorization, the impacts on Midwestern coal suppliers will be particularly acute. NMA urges the agency to exercise its discretion to develop a properly tailored rule.



## **VIII. EPA SHOULD PROVIDE THE MAXIMUM AMOUNT OF TIME TO COMPLY WITH THIS RULE**

Requiring virtually the entire existing fleet to retrofit within a three-year window will have serious ramifications on the amount of early retirements, affordability and reliability of electricity, and job losses. The CAA permits the EPA to provide an additional one-year for sources to comply with the new standards, and the agency has used this authority before. EPA should extend this fourth year to EGUs without exception.

Moreover, because the agency has failed to properly calibrate both the type of needed technology and the process utilities employ in developing and implementing a compliance program, EPA needs to investigate the flexibility afforded by the Presidential Exception under section 112(i)(4) of the CAA. Without the additional time afforded by this exception, the ability of utilities to comply even with a fourth year is in doubt.

In sum, based on the numerous legal and technical flaws pervading this proposed rule, including but not limited to the agency's fatally flawed section 112(n)(1)(A) analysis, NMA urges EPA to withdraw the proposed rule, correct and revise its analysis, and then re-propose based on a reasonable rulemaking schedule. Upon reissuing the rule, EPA must take a more holistic approach that properly tailors the regulation of EGUs under the CAA. Fundamental to this approach is conducting a much needed cumulative cost analysis.

## **DISCUSSION**

### **I. THE PROPOSED RULE REPRESENTS A HUGE REGULATORY BURDEN FOR LITTLE ENVIRONMENTAL GAIN**

Contrary to EPA's assertion that the proposed rule will create benefits far higher than its cost, the opposite is the case. The benefits are exaggerated and, in any event, will largely be achieved by other CAA programs. In contrast, the costs will be far higher than EPA supposes because the agency's cost projections are based on a number of overly optimistic assumptions as to compliance strategies.

#### **A. The Utility MACT Rule Provides Little to No Incremental Health Benefit**

The nation's air quality has improved dramatically since the enactment of the CAA and its subsequent amendments. As documented in the EPA's most recent air quality trends report, those improvements have occurred despite the major increase in economic and population growth:

Between 1980 and 2009, gross domestic product increased 122 percent, vehicle miles traveled increased to 95 percent, energy consumption increased 22 percent, and U.S. population grew by 35 percent. During the

same time period, total emissions of the six principal air pollutants dropped by 57 percent.<sup>11</sup>

Mercury is no exception to this trend. The steps States and EGUs have taken to reduce criteria pollutant emissions have successfully curtailed those mercury emissions by approximately *58 percent* during this period.<sup>12</sup>

Despite these facts, EPA spends much of the RIA attempting to convince the public that the enormous costs to comply with this rule will easily be offset by the health benefits derived from aggressive command-and-control regulation. In fact, there is little evidence suggesting that any meaningful independent and incremental health benefits will result from the reduction of the HAPs at issue in the proposed rule. Of the purported \$53 to 140 billion in total health benefits, the agency estimates that the direct health benefits stemming from the regulation of the relevant HAPs range from only \$0.000005 billion to \$0.006 billion per year—or *less than 0.01 percent of EPA’s total benefits estimate*.<sup>13</sup>

#### 1. Mercury emissions from EGUs pose little or no risk to public health

Beginning with EPA’s 2000 determination, the focus of regulation has been tied to the reduction of mercury emissions from EGUs; and accordingly, the agency declares that the proposed standards will curtail the small remaining mercury emissions “by over 90 percent.”<sup>14</sup> As the “HAP of greatest concern,” it would logically follow that a significant portion of the purported health benefits would emanate from aggressive mercury control. This is not the case as only \$450,000 to 5.9 million in estimated health benefits are attributable to mercury control.<sup>15</sup> Additionally, costly mercury curtailment options will only improve, based on questionable assumptions, the average IQ of the most sensitive population—children exposed *in utero* to high methylmercury (“MeHg”) concentrations—by only 0.00209 IQ points, which is not even meaningful in an actual IQ setting.<sup>16</sup> Thus,

<sup>11</sup> U.S. EPA, <http://www.epa.gov/airtrends/aqtrends.html>

<sup>12</sup> Willie Soon, PhD, “A Scientific Critique of the Environmental Protection Agency’s National Emission Standards for Hazardous Air Pollutants [NESHAP] from Coal- and Oil-Fired Electric Utility Steam Generating Units and Standards of Performance for Fossil-Fuel-Fired Electric Utility, Industrial-Commercial-Institutional Steam Generating Units,” [hereinafter “Dr. Soon Critique”] June 2011, available at: [http://yosemite.epa.gov/sab/SABPRODUCT.NSF/432EEBD19DE16B2B852578AB0076B922/\\$File/Soon11\\_June10\\_comments\\_EPA\\_new+rules.pdf](http://yosemite.epa.gov/sab/SABPRODUCT.NSF/432EEBD19DE16B2B852578AB0076B922/$File/Soon11_June10_comments_EPA_new+rules.pdf). quoting United Nations Environment Programme Report).

<sup>13</sup> RIA at 4-5.

<sup>14</sup> EPA letter to UARG, May 22, 2011.

<sup>15</sup> RIA, Executive Summary at 1.

<sup>16</sup> RIA at 5-2.

electric ratepayers in this country are going to be forced to incur billions of dollars in annual costs without any material benefit from reducing HAPs, which is the reason EPA ostensibly is adopting this rule.

It is unsurprising that so little health benefit would result from aggressive mercury regulation. EPA even admitted as much when it conducted a proper rulemaking on HAP emissions from coal-fired EGUs.<sup>17</sup> The agency conducted extensive modeling in preparation for CAMR to analyze how changes in mercury emissions from coal-fired EGUs would affect mercury deposition and MeHg levels in fish for a range of cases.<sup>18</sup> The results of the modeling revealed that total mercury deposition in the U.S. is not significantly impacted by mercury deposition from EGUs, and that EGUs contribute a “relatively small percentage” to fish tissue MeHg levels in the U.S.<sup>19</sup> More importantly, the agency concluded “[t]hat modeling reveals the implementation of section 110(a)(2)(D), through CAIR, would result in a level of [mercury] emissions *that would not cause hazards to public health.*”<sup>20</sup>

In fact, those trends continue further bolstering the agency’s conclusion in the 2005 Revision. Dr. Willie Soon states in his comments that power plants emit an estimated 41-48 tons of mercury per year. But U.S. forest fires emit at least 44 tons per year; cremation of human remains discharges 26 tons; Chinese power plants eject 400 tons; and volcanoes, subsea vents, geysers and other sources spew out 9,000-10,000 additional tons per year.<sup>21</sup> In short, the United States releases less than 5 percent of the 2,400 tons of mercury emitted per year due to human activities. U.S. coal-based power plants emit less than 2 percent of the global total of human-caused mercury emissions. Taking into account natural emissions, U.S. power plants contribute *less than one percent of total mercury emissions to the global pool.*<sup>22</sup>

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<sup>17</sup> 70 Fed. Reg. 15,994, 16,002 (Mar. 29, 2005) (emphasis added). Revision of December 2000 Regulatory Finding on the Emissions of Hazardous Air Pollutants From Electric Utility Steam Generating Units and the Removal of Coal- and Oil-Fired Electric Utility Steam Generating Units From the Section 112(C) List; Final Rule [hereinafter “2005 Revision”].

<sup>18</sup> 70 Fed. Reg. at 16,011-25.

<sup>19</sup> *Id.* at 16019-20; *see also* Dr. Soon critique at 3 (stating that EPA has ignored a distinguished group of scientists who concluded that a simple change in bacterial activity alone could “cause an increase in fish mercury concentrations, even as atmospheric deposition [from industrial mercury emissions sources] decreases”).

<sup>20</sup> *Id.* at 16,004 (emphasis added).

<sup>21</sup> Dr. Soon critique at 2-3 (citing National Center for Atmospheric Research study, Wiedinmeyer & Friedli (2007) *Environmental Science & Technology*, vol. 41, 8092-8098).

<sup>22</sup> Edison Electric Institute, “*Straight Answers About Electric Utilities and Mercury*,” March 2008; available at: [http://www.eei.org/ourissues/TheEnvironment/Documents/straight\\_answers\\_mercury.pdf](http://www.eei.org/ourissues/TheEnvironment/Documents/straight_answers_mercury.pdf).

EPA disregards these findings and reverts back to its legally and factually deficient 2000 determination in order to regulate mercury emissions from EGUs. Specifically, EPA's brings forward that flawed analysis by and through its current and single analysis of mercury risk.<sup>23</sup> The Mercury TSD, which EPA heavily relies on, is still based on several unsupported general concerns about mercury levels in the environment ostensibly designed to unearth some demonstrable evidence of "risk to public health." Like the 2000 determination, EPA has not adequately justified its "appropriate and necessary" determination.

The agency concedes as much stating, "[t]he Mercury Study also found that fish consumption dominates the pathway for human and wildlife exposure to MeHg and that there *was a plausible link* between anthropogenic releases of Hg from sources in the U.S. and MeHg in fish."<sup>24</sup> This "plausible link" was the foundation for the 2000 determination, which is interesting, given that this same finding was insufficient to support a regulatory determination in the Utility Study in 1998.<sup>25</sup> In this case "plausible" is very much a euphemism for unproven as the agency further admits that, "...it was not possible to quantify how much of the MeHg in fish consumed by the U.S. population results from U.S. anthropogenic emissions, as compared to other sources of Hg."<sup>26</sup>

To date, the agency has not provided any demonstrable evidence in the rulemaking record to show that anyone in the country has suffered adverse health problems as a result of mercury emissions from coal-fired EGUs. Rather, EPA is asking the public to accept a higher cost of electricity and job losses based on an attenuated line of reasoning—EGUs emit mercury; some of that mercury is bound to deposit on the land or in water bodies; some of that deposited mercury in the waterbodies can possibly be transformed into MeHg; and some of the MeHg produced in the sediments of those waterbodies is consumed by fish where it

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<sup>23</sup> Technical Support Document: National-Scale Mercury TSD Supporting the Appropriate and Necessary Finding for Coal- and Oil-Fired Electric Generating Units, EPA-452/D-11-002, Mar. 2011 ("Mercury TSD"). NMA adopts and incorporates by reference UARG's comments and critique of EPA's Mercury TSD.

<sup>24</sup> 76 Fed. Reg. at 24983 (emphasis added).

<sup>25</sup> EPA dismisses the need to reconcile these dissimilar positions explaining that "it is not necessary to quantify the amount of mercury in fish due to electric utility steam generating unit emissions relative to other sources for purposes of this finding." 65 Fed. Reg. at 79827; *see also* 76 Fed. Reg. at 24996 (noting that "[n]owhere in section 112(n)(1) or in its direction concerning the NAS study did Congress require EPA to quantify the amount of MeHg in fish tissue that was directly attributable to EGUs."). NMA disagrees with this conclusion.

<sup>26</sup> 76 Fed. Reg. at 24983; *see also* RIA § 5.1 at 5-1 (stating "...for commercially purchased ocean fish, it is nearly impossible to determine the source of the methylmercury in those fish...").

ultimately enters the food chain.<sup>27</sup> In fact, valid, peer-reviewed scientific research concluded that the level of MeHg in the world's oceans *is not controlled* by deposition of atmospheric mercury to the oceans of the world.<sup>28</sup> Thus, regardless of the stringency of the mercury controls required of coal-fired EGUs, the levels of MeHg in ocean fish will not be influenced by this proposed rule.

Like the 2000 determination, the primary driver in EPA's decision to regulate mercury from EGUs is premised on the Mercury TSD's highly conservative reference dose-based hazard quotients ("HQs") for MeHg.<sup>29</sup> This measure compares the potential exposure of subsistence anglers fishing in a specific water body to the MeHg reference dose ("RfD"). UARG states in its comments that the scientific validity of EPA's methylmercury RfD is an important question because of its significance as the divisor in computing the HQ value.

EPA's RfD served as the lynchpin for two key agency "findings" to justify its 2000 determination—the existence of fish advisories in many states; and, the number of women of child bearing age who are predicted to have MeHg exposure above the RfD. By treating the RfD for MeHg in the December 2000 finding as an absolute threshold for health risk, EPA avoided having to demonstrate some discernable health risk to a segment of the population at some defined level of predicted exposure.<sup>30</sup>

A review of the rulemaking docket reveals that EPA's RfD is derived solely from the results of a study involving young children in the Faroe Islands. EPA chose to use the Faroe Islands study because it concluded that there were adverse developmental effects as a result of MeHg exposure. Sole reliance on the study is fundamentally flawed. First, the data underlying the analysis has never been made

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<sup>27</sup> See Dr. Soon Critique at 2 (affirming this sentiment by stating, "the EPA proposal neglects key scientific knowledge and many peer-reviewed papers that suggest there is *no straightforward connection* between mercury (Hg) emissions from power plants or other man-made sources to the mercury level in fish").

<sup>28</sup> See *Environmental Science & Technology*, based on *Citation Abstracts*, see "Sources and Variations of Mercury in Tuna," Kraepiel, A.M.L.; Keller, K.; Chin, H.B.; Malcolm, E.G.; Morel, F.M.M.; *Environmental Science Technology*; 2003; 37(24); 5551-5558 (DOI: 10.1021/es0340679); see also "Response to Comment on Sources and Variations of Mercury in Tuna" Kraepiel, A.M.L., Keller, K.; Chin, H.B.; Malcolm, E.G.; Morel, F.M.M.; *Environmental Science Technology*; 2004; 38(14); 4048-4048 (DOI: 10.1021/es0404217).

<sup>29</sup> Mercury TSD at 50.

<sup>30</sup> See *id.* (noting that EPA's mercury RfD "safe" dose of 5.8 ppb when measured in human blood is equivalent to an intake of 0.1 (micrograms/kg/day) or about 1.0 ppm when measured in human hair. For context, EPA's mercury reference dose of 0.1 (micrograms/kg/day) is a factor of 2 to 4 more stringent than other estimates from human health organizations. The FDA dose was established at 0.4, the Agency for Toxic Substances and Disease Registry (ATSDR) at 0.3, and the newly revised World Health Organization level at 0.21). *Thus, making EPA's the most stringent in the world.*

available for public inspection—raising doubts as to whether EPA has adhered to Executive Order 13563 and the Information Quality Act.<sup>31</sup> Second, the Electric Power Research Institute (“EPRI”) pointed out that the polychlorinated biphenyl (“PCB”) and lead exposures of pregnant women in the Faroe Islands are among the highest ever measured in humans—not representative of the United States.<sup>32</sup> Moreover, the Faroe Islands study got its MeHg dosage through consumption of highly contaminated pilot whale meats and blubbers, as admitted by Dr. Pal Weihe, Chief Physician of the Department of Occupational and Public Health of the Faroese Hospital System.<sup>33</sup> EPA ignored these critical facts in relying on this study.

By contrast, EPA largely ignored the results of the Seychelles Islands study.<sup>34</sup> The Seychelles study could not confirm any harmful effects on children through MeHg exposure from eating a variety of ocean-caught fish, especially at levels that are more representative for American public health. Furthermore, the underlying data for this study has been made available to other independent scientists. By solely relying on the Faroe Islands study, EPA’s RfD for MeHg exposure is excessively exaggerated by at least a factor of 10 or more.

EPA also cites the existence of fish advisories to demonstrate that mercury poses a human health concern. These advisories are tied to the RfD set for a given compound. Accordingly, states that rely on EPA’s much higher RfD for mercury will inevitably record a higher number of fish advisories. Fish advisories do not distinguish among the sources of the mercury entering the waterbody at issue or how much of the mercury came from historical sources. Moreover, the primary purpose for fish advisories is to warn the public about undue consumption of fish from a particular source to avoid health issues. Simply put, the number of fish advisories does not support a legal conclusion that mercury emissions from coal-fired EGUs pose risks to public health.<sup>35</sup>

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<sup>31</sup> 44 U.S.C. § 3516.

<sup>32</sup> Comments of EPRI Re: RfD for Methylmercury, at 7-8 (Nov. 28, 2008).

<sup>33</sup> Dr. Soon Critique at 4.

<sup>34</sup> As noted in UARG’s June 29, 2004 comments, Docket ID No. OAR-2002-0056, EPA’s elevation of the Faroe Islands study over the Seychelles Island may, in part, have resulted from recommendations in the 2000 report of the National Research Council (“NRC”), entitled *Toxicological Effects of Methylmercury*. That report found that there were no serious flaws in the MeHg studies conducted in the Seychelles and Faroe Islands. The panel recommended the use of the Faroe Islands study in deriving an RfD because it resulted in the finding of a positive relationship between MeHg exposure and poor neurodevelopmental outcomes while the Seychelles study did not. See IRIS Database, Methylmercury, § I.A.2, at 4-5 (2001). EPA’s reliance on the NRC report is misplaced because the panel’s conclusion is, at bottom, a policy judgment and not a reflection of the science. Thus, the NRC strayed beyond its initial charge. EPA needs to make its own policy judgment in setting the RfD.

<sup>35</sup> See UARG’s comments at 54 (stating that Tetra Tech showed that a 99<sup>th</sup> percentile waterway would result in an HQ of 0.67—a level *that is protective of human health without any further mercury reductions from EGUs*).

EPA also ignores the fact that over 75 percent of the mercury that deposits in the U.S. comes from sources outside the country.<sup>36</sup> Once mercury is released, it accumulates in the atmosphere resulting in deposition long distances from the actual source exacerbating the lack of causal relationship between the need for regulation and the risk posed by mercury emissions from EGUs. EPRI has documented in recent studies the critical role that intercontinental mercury transport from Asia and other nations play in determining U.S. mercury deposition.

Direct measurements have revealed significant levels of mercury exiting mainland Asia and crossing the Pacific to the U.S. In 2001 and 2002, EPRI, in cooperation with the National Center for Atmospheric Research, the National Aeronautics and Space Administration, the National Oceanographic and Atmospheric Administration, and other agencies used aircrafts to measure mercury in air plumes exiting China near the city of Shanghai, following them over the Pacific for 400 miles. A later set of flights over the Pacific between southern California and Oregon found evidence of the same plume crossing the California coast.<sup>37</sup>

Because mercury is emitted and transported globally, reductions of U.S. mercury emissions from EGUs would have a negligible impact on mercury deposition in the United States. For all of these reasons, the factual record does not support a finding that mercury emissions from EGUs pose a meaningful health risk. It is therefore not "appropriate" to regulate EGU mercury emissions under section 112(n)(1)(A).

2. EPA has never provided an initial finding of public health concern to regulate non-mercury HAPs under section 112(n)(1)(A)

Nowhere in the RIA does EPA even attempt to *quantify any direct benefits associated with* the regulation of acid gases, or the metallic or organic HAPs reductions. Interestingly, of the 469 pages of the RIA only 6.5 are dedicated to discussing the risks posed by non-mercury HAPs.<sup>38</sup>

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<sup>36</sup> EPA uses the CMAQ model in the Mercury TSD to predict mercury deposition from EGUs. UARG outlines in its comments the serious limitations of this model when applied to small areas of localized deposition (citing to EPRI Comments, § 3.2). The manner in which EPA choose to use the CMAQ model in the Mercury TSD overstates the mercury deposition attributable to EGUs.

<sup>37</sup> "Research Shows Most Mercury Deposited in U.S. Originates Outside the Country," EPRI Journal Online, Dec. 22, 2003.

<sup>38</sup> NMA adopts and incorporates by reference UARG's criticism of EPA's decision to regulate trace metals based on a single case study of the inhalation risk from 15 coal-fired facilities. See 76 Fed. Reg. 25,013; Strum, Thurman, and Morris, "Non-Hg Case Study Chronic Inhalation Risk Assessment for the Utility MACT Appropriate and Necessary Analysis" (Mar. 16, 2011) ("16-Unit Study"). Specifically, UARG states that EPA's 2010 estimate of coal usage was overstated and its prediction about the amount of pollution control equipment was grossly

As with the lack of health benefits derived from mercury control, it is also unsurprising that no incremental health benefits accrue from regulating non-mercury HAPs. Even in 2000, the agency concluded that the existing evidence did not demonstrate that public health concerns exist from the other HAPs. The 2000 determination stated, "arsenic and a few other metals (*e.g.*, chromium, nickel, cadmium) are *of potential concern* for carcinogenic effects and that dioxins, hydrogen chloride, and hydrogen fluoride are *of potential concern*."<sup>39</sup> The agency goes on the further note, "[t]he other HAP[s] studied in the risk assessment do not appear to be a *concern for public health based on available information*."<sup>40</sup>

EPA likewise did not alter this conclusion in its 2005 Revision. In fact, the agency in 2005 bolstered the notion that it lacked the information necessary to make this determination. "Based on the information before it at the time [of the 2000 determination], EPA could not have *reasonably concluded that coal-fired Utility Unit non-mercury HAP emissions presented a hazard to public health*."<sup>41</sup>

EPA has no better evidence now than it had in 2000. For example, none of the acid gases are listed as carcinogenic, which is important as EPA rests its decision to regulate acid gases based on EGU emissions of HCl. In its inhalation risk analysis, EPA estimated HQ for HAPs that pose non-cancer health risks from chronic exposure. If an HQ is 1.0, EPA states that estimated exposures are at a level that is likely to be without an appreciable risk of deleterious effects during a lifetime, but above that point, EPA considers the margin of safety against toxic effects to be too uncertain to regulate.

EPA reports that the HQ for HCl never exceeded 0.05 in any of its risk inhalation estimates,<sup>42</sup> meaning that for EGUs, the predominant HAP in the acid gas group has a maximum risk that is only *5 percent* of the level that is considered protective of health with a safety factor included. Thus, the agency itself concludes

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understated. EPA needs to square its perception with reality. Indeed, EPRI modeling of every coal-fired EGU demonstrated that the inhalation risk for every facility was below one-in-one million for carcinogens and a hazard index of 1 for chronic (long-term) and acute (short-term) exposures to non-carcinogen HAPs.

<sup>39</sup> 65 Fed. Reg. at 79,380. In the 2005 Revision, EPA acknowledged that § 112(n)(1)(A) only allows EPA to regulate if the agency identifies a human health concern. A finding that a HAP may pose an environmental concern is inappropriate for regulation under § 112(n)(1)(A).

<sup>40</sup> *Id.*

<sup>41</sup> 70 Fed. Reg. at 16,006 (emphasis added).

<sup>42</sup> See 76 Fed. Reg. at 25,051 n. 170. Although EPA notes that other acid gases (Cl<sub>2</sub>, HF and HCN) were not included in the risk calculation "because of uncertainties in their emissions rates," it is hardly likely that any of these other gases would involve an HQ so much closer to 1.0 than HCl, especially given that their total EGU emissions are less than 15 percent of total EGU HCl emissions.



that HCl emissions pose no significant potential for exceeding the chronic RfC value.<sup>43</sup>

Moreover, EPA does not provide any evidence that more stringent control of acid gases would benefit ecosystems other than some vague referencing of the possibility.

In areas where the deposition of acids derived from emissions of sulfur and NOx are causing aquatic and/or terrestrial acidification, with accompanying ecological impacts, the deposition of hydrochloric acid *could* exacerbate these impacts. Recent research *has suggested* that deposition of airborne HCl has a greater impact on ecosystem than previously thought, although *direct quantification of these impacts remains an uncertain process*.<sup>44</sup>

In fact, HCl is a very minor contributor (about 1percent) of all acidification to water bodies—making EPA’s need for regulating appear rather insignificant. EPA simply has not provided an adequate basis to regulate acid gases from EGUs.

3. The entire rulemaking is predicated upon questionable health benefits from an already regulated pollutant

Virtually all of EPA’s claimed benefits are derived from the incidental collateral reduction of SO2 emissions that will occur as a “co-benefit” of reducing acid gas emissions. To date, EPA has not been able to document any evidence of acute or chronic health risk from exposure to the minuscule amounts of amounts of acid gases emitted by EGUs. In other words, EPA appears to be regulating EGU acid gas emissions under section 112(n) not because such emissions represent a health risk—they do not—but because EPA wants to regulate SO2, which is not a HAP. This is clearly a misuse of the agency’s authority under section 112(n).

EPA concludes that the control technology utilities will install to control acid gas emissions will also control SO2 emissions, that reducing SO2 emissions will reduce atmospheric concentrations of fine particles, termed PM2.5, and that reducing atmospheric concentrations of PM2.5 will save lives and improve health. Indeed page one of the RIA states, “[t]he great majority of the estimates [health] are attributable to co-benefits from reductions in PM<sub>2.5</sub>-related mortality.” This is based largely on the assertion that the proposed rule will avoid 6,800-17,000 premature deaths per year from PM2.5 exposure.

But, PM2.5 is already comprehensively regulated under other CAA programs, in particular the NAAQS program, with EPA having set the NAAQS for that pollutant. EPA, sources, and states under the NAAQS program are required to undertake a

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<sup>43</sup> 76 Fed. Reg. at 25,051.

<sup>44</sup> 76 Fed. Reg. at 25,050 (emphasis added).

series of actions to ensure that atmospheric PM<sub>2.5</sub> concentrations do not exceed the standard. Thus, any “co-benefits” the rule might achieve in reducing concentrations of PM<sub>2.5</sub> are duplicative of what other regulations will achieve.

Even more telling is the fact that almost the entire alleged PM<sub>2.5</sub> benefits (\$52 to 139.4 billion) stem from exposures that are occurring at levels below the NAAQS. But EPA is required to set the NAAQS at levels protective of human health with an “adequate margin of safety.”<sup>45</sup> Thus, despite EPA’s claim that the proposed rule will produce large benefits, the fact that the agency set the NAAQS at 15 µg/m<sup>3</sup> means that, in reality, even the agency does not believe the proposed rule will produce benefits anywhere close to those projected in the RIA.

The agency is preparing to propose a new PM<sub>2.5</sub> NAAQS, and that proposed standard may be lower than the current NAAQS. Until it does so, however, it is inappropriate for EPA to adopt rules based on claimed benefits below the current NAAQS level. Until changed, the 15 µg/m<sup>3</sup> NAAQS represents EPA’s judgment of the standard necessary to protect human health with a margin of safety. In any event, the lowest standard contemplated by EPA is 11µg/m<sup>3</sup>. Even at this level, Figure 6-15 of the RIA demonstrates that *80 percent* of the asserted benefits would still be occurring at levels below the NAAQS.

Yet EPA goes even further. In 2009, EPA made a significant change in how it estimates deaths from PM<sub>2.5</sub> exposure that substantially puffs up its benefits analysis. EPA started to count mortality estimates for PM<sub>2.5</sub> exposures below the lowest measured level (“LML”) in any of the statistical studies on which EPA relies. Although EPA has never set a NAAQS at a level as low as the LML, because the agency has never believed that protecting public health required such a standard, measuring benefits below that level lacks any basis in reality. Worse still, EPA assumes that there is no tapering off of mortality as PM<sub>2.5</sub> exposures approach zero, as if the same risk exists at very low concentrations of PM<sub>2.5</sub> as it does at high concentrations.

This seemingly innocuous change made in 2009 had the huge impact of assuming that people were being killed by PM<sub>2.5</sub> exposures in the vast swath of the United States where PM<sub>2.5</sub> levels are less than 10 µg/m<sup>3</sup>. Whereas these areas used to contribute nothing to estimates of PM<sub>2.5</sub> mortality, under EPA’s new approach, they contribute *fully 70 percent* of the mortality in EPA’s upper-end estimate.

EPA’s drastic damage estimates are facially absurd. Figure C-2 from Appendix C of the RIA shows the percentage of total U.S. deaths that EPA believes

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<sup>45</sup> See RIA at Figure 6-15 (demonstrating that almost all of the \$53-140 billion in PM<sub>2.5</sub> co-benefits are due to reductions in exposures to PM<sub>2.5</sub> already below the level of the current 15 µg/m<sup>3</sup> NAAQS). Figure 6.5 shows health impacts occurring under the annual PM<sub>2.5</sub> standard. EPA also has a daily PM<sub>2.5</sub> standard, which the RIA does not display similar information.

are caused by PM2.5 exposure. However, EPA's figure only shows the lower-end of the agency's estimated range, perhaps because revealing the upper-end would conceivably demonstrate how incredibly faulty the agency's estimates are. Using EPA's upper-end estimates, in the areas of the country with the highest PM2.5 concentrations, *15-23 percent* of all deaths are presumed to be caused by PM2.5 exposures! 13 percent of all deaths in almost all of the eastern U.S. are attributable to PM2.5 exposures! Yet according to CDC, only 20 percent of deaths annually are caused by tobacco.<sup>46</sup>

Indeed, the notion that PM2.5 exposures are killing people is itself a product of a string of uncertain conclusions based on a statistical analysis. There has never been a diagnosed death from PM2.5 exposure at ambient concentrations. The uncertainties include: (1) the statistical detectability of thresholds and other forms of non-linearity in true concentration-response relationships; (2) whether all particles are equally potent, which is critical because there vast differences in chemical composition of different forms of PM2.5; and (3) confounding and whether observed associations are due to some other cause.

In sum, the proposed rule does not produce any meaningful monetized benefits from reducing HAPs, which is what the rule ostensibly is supposed to do. And the supposedly tens and even hundreds of billions of annual benefits that the proposed rule will incidentally produce by lowering the atmospheric PM2.5 concentrations are so exaggerated as to be of no use in judging the wisdom of promulgating this rule. On the other hand, the \$10.9 billion in compliance costs that EPA estimates, which are significantly understated, are real costs and will have real impacts on the electric consumers that will have to foot the bill. President Obama promised that his Administration will be diligent in eliminating unneeded regulation and regulatory overlap. The proposed rule is a perfect example of the type of duplicative and unnecessary regulation the President has promised not to adopt. Yet EPA does not seem to understand the import of the President's concern.

## **B. EPA Has Underestimated the Costs of this Rulemaking**

EPA likewise errs in projecting the total cost of compliance. In order to soft-peddle the overall impacts to the economy, EPA relies on a series of unverified assumptions about the type, efficacy, and quantity of needed control technology. Chief among those speculative suppositions is EPA's belief that dry sorbent injection ("DSI") technology can effectively displace the need for 56 GW of the existing fleet to install costly scrubbers to meet the stringent acid gas emissions standards.<sup>47</sup> Should EPA's DSI projection not materialize to this anticipated degree, the units

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<sup>46</sup> EPA's 2009 change in methodology accounts for some of this exaggeration. For instance, it changed the estimate of premature mortality among people exposed to at least 12  $\mu\text{g}/\text{m}^3$  from 3 percent of all deaths to 19 percent.

<sup>47</sup> RIA, "8.4 Projected Compliance Actions for Emissions Reductions," at 231.

that fall within the estimated 56 GW will either have to install scrubbers at over ten times the capital cost or retire. Either option will greatly increase the cost to comply with the proposed rule. Unfortunately, there is little data to support EPA's "bullish assumptions" regarding a technology not widely tested or used by EGUs for this purpose.<sup>48</sup>

1. EPA must produce a cumulative cost analysis of its regulatory program affecting the use of coal

NMA and now many other voices have repeatedly requested EPA perform an assessment of the cumulative costs associated with its now-numerous completed, pending and expected rulemakings that are intended to, and will, have the effect of substantially reducing the usage of coal as an electric power and industrial boiler fuel in the United States.<sup>49</sup> As this rulemaking is part-and-parcel of EPA's overall regulatory program to develop, in its words, a "clean, efficient, and completely modern power sector," the agency must assess the costs and benefits of all of its current and expected power sector regulations affecting coal-fired EGUs.

To date, EPA has provided no indication it will seriously entertain this important request. Consequently, Congress is now considering potential legislation to require such an assessment. EPA should not have to be compelled through legislation to act on this repeated request. A cumulative cost assessment is logical and would help the public and regulated entities understand the risks and rewards of EPA's power sector regulatory program.

Analyzing the cumulative impacts associated with these integrated rulemakings is not only good public policy, it is also required by Executive Order 12866 and the notice and comment rulemaking provisions of the CAA. The import of this executive order to, "tak[e] into account, among other things, and to the extent practicable, the costs of cumulative regulations," was recently reiterated in President Obama's Executive Order 135653 to improve regulations and regulatory review.

EPA seems to recognize the interrelated nature of its rulemakings on the power sector. In the preamble, the agency states that:

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<sup>48</sup> Nelson, Gabriel, "Air Pollution: Fate of Old Coal Plants May Hinge on New Toxic-Cutting Technology," *Greenwire*, Apr. 13, 2011. Available at: <http://www.eenews.net/public/Greenwire/2011/04/13/2>

<sup>49</sup> See NMA's Comments on the Industrial Boiler MACT rule, Docket Nos. EPA-HQ-OAR-2002-0058 and EPA-HQ-OAR-2006-0790 (Attachment 5), where the association proposed a reasonable approach for completing such an assessment. To date, EPA or the Administration has done nothing in response to NMA's continued inquiries. To complete the record here, NMA is submitting its comments on cumulative impact assessment from the Industrial Boiler MACT and CSAPR (Attachment 6) rulemaking dockets here.

EGUs are the subject of several rulemaking efforts that are either are or will soon be underway. In addition to this rulemaking proposal, concerning both hazardous air pollutants under section 112 and criteria pollutant NSPS standards under section 111, EGUs are the subject of other rulemakings, including ones under section 110(a)(2)(D) addressing the interstate transport of emissions contributing to ozone and PM air quality problems, coal combustion wastes, and the implementation of section 316(b) of the Clean Water Act (CWA). They will also soon be the subject of a rulemaking under CAA section 111 concerning emissions of greenhouse gases. EPA recognizes that it is important that each and all of these efforts achieve their intended environmental objectives in a common-sense manner that allows the industry to comply with its obligations under these rules as efficiently as possible and to do so by making coordinated investment decisions and, to the greatest extent possible, by adopting integrated compliance strategies.

In addition, EO 13563 states that “[i]n developing regulatory actions and identifying appropriate approaches, each agency shall attempt to promote such coordination, simplification, and harmonization. Each agency shall also seek to identify, as appropriate, means to achieve regulatory goals that are designed to promote innovation.” Thus, EPA recognizes that it needs to approach these rulemakings, to the extent that its legal obligations permit, in ways that allow the industry to make practical investment decisions that minimize costs in complying with all of the final rules, while still achieving the fundamentally important environmental and public health benefits that the rulemakings must achieve.<sup>50</sup>

Unfortunately, despite recognizing the fact that utilities need to adopt an integrated strategy for addressing *all* of EPA’s rules, and even with the very near-term compliance deadlines in at least CSAPR and the instant rulemaking, EPA states that it will not begin to consider coordinated control strategies until the New Source Performance Standard (“NSPS”) for greenhouse gas emissions rulemaking. At that time, EPA says it will “facilitate the industry’s undertaking integrated compliance strategies in meeting the requirements of these rulemakings.”<sup>51</sup> While NMA is mindful of EPA’s recognition that the power sector needs to have the full benefit of understanding all of the relevant regulations before determining a compliance plan, EPA’s undertaking to address coordinated strategies at the NSPS rulemaking stage is too little, too late. Eastern utilities must begin to complying with CSAPR in January. When EPA finalizes the instant rule in November, utilities will have only three years to comply. It would have been far better had EPA undertaken the

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<sup>50</sup> 76 Fed. Reg. at 25,057.

<sup>51</sup> *Id.*

process it now plans when it initiated its first rulemaking impacting the power sector.

The agency's planned process also does not go far enough. EPA has an obligation not just to help the regulated community plan for all of these interrelated regulations; it must also cumulatively assess the societal impacts of these regulations. A key purpose of Executive Order 12866 and 13563 is to inform the public of the costs and benefits of regulation, including on a cumulative basis. Notwithstanding the statements of integrated planning in the proposed rule, it does not appear that EPA intends to provide such an analysis. It should.

Taken together, this regulatory program will undoubtedly produce a dramatic and cascading series of impacts not only within the coal industry but across the entire economy. There will be direct effects on coal employment and indirect effects on employment generally in the economy as a result of higher energy prices. Higher energy prices will also affect GDP and economic activity generally. American competitiveness will also be affected, as higher prices undermine the ability of American businesses to compete, with resulting offshoring of American business and jobs. The public has a right to fully understand these impacts.

## 2. EPA's DSI assumption is misguided

The implications of the DSI issue cannot be overstated. For such a crucial piece of the compliance puzzle there is a paucity of evidence demonstrating that an actual unit can comply with *all* of the proposed NESHAPs using DSI without a scrubber. NMA's review of the rulemaking docket reveals only two source materials attempting to support EPA's DSI theory. Based on the first source, EPA claims that "HCl removal effect is assumed to be 90% based on information from Solvay Chemicals."<sup>52</sup> The only support for this conclusory statement is a reference to a 12-page slide presentation; hardly persuasive in light of the import the agency places on this assumption. Moreover, this presentation was predicated on sodium bicarbonate injection—not Trona—therefore, the agency's predicted feed rates are inaccurate.

Second, the agency relies on "assessments" between engineering staff and the consulting firm of Sargent & Lundy. These "assessments" only contain a general statement that "demonstrations and recent utility testing have shown SO<sub>2</sub> removals greater than 80% for systems using sodium based sorbents." Importantly, the report does not analyze the technology for its proposed application—namely, compliance with the full suite of NESHAPs and the impact the technology may have on particulate matter and mercury emissions.

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<sup>52</sup> "Documentation Supplement for EPA Base Case v4.10\_PTox: Updates for Proposed Toxics Rule," EPA, March 2011 ("IPM Supplement"), at 92. The other source is the so-called "assessments" by EPA engineering staff in consultation with Sargent & Lundy.

None of the numerous recent reports regarding the impact of CAA regulations on EGUs considered DSI a viable acid gas control option without a scrubber.<sup>53</sup> The U.S. Energy Information Administration (“EIA”) in its 2011 Annual Energy Outlook likewise doubts EPA’s DSI assumption noting that, “other analyses are not as optimistic on the prospect of DSI,” leading the agency to conclude that scrubbers will be needed to comply with the proposed rule. Yet EPA does not seem inclined to engage in a realistic analysis of the issue.

There are at least three primary reasons for the lack of enthusiasm around the efficacy of the DSI technology. First, there is limited industry experience employing the technology to control acid gases without a scrubber. The ICR data base indicates that there are only 28 units or 9 GWs of DSI capacity in the Base Case of the model primarily to deal with SO<sub>3</sub> reduction—only eleven are used for SO<sub>2</sub> control. According to our review of the information, among the top 12 percent of the units that set the MACT floor for acid gases, only 15 use DSI technology. Of those 15 units, only 5 use DSI without a scrubber and only one of those units burns bituminous coal.<sup>54</sup>

It is also difficult to precisely calibrate the overall effectiveness of DSI because the EPA database is missing fuel chlorine data for at least eight of the listed DSI-only units. Removing these units from the evaluation, leaves only 2 units from the smaller group of eleven—those with proper emissions data—using DSI without a scrubber, but both of these units are burning low chlorine content coal. Thus, it is impossible to discern whether any actual unit can effectively and consistently meet the proposed acid gas standards as a direct result of having employed DSI technology.

NMA finds it difficult to believe a utility would consider investing in a technology with such limited industry testing and experience, high variable costs and other ancillary issues including negative impacts on ash impoundments and potential leaching. The agency’s aggressive rulemaking schedule makes it challenging for a utility to obtain the essential on-the-ground testing information to validate performance and conduct necessary feasibility studies. Moreover, the lack of experience with the technology also highlights the problem with setting emissions standards pollutant-by-pollutant as there is also insufficient data to confirm whether a unit using DSI with or without a scrubber can meet all three standards on a continuous basis without creating antagonistic impacts to the overall effectiveness of other control technologies.

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<sup>53</sup> See generally Celebi, Metin, et al., “Potential Coal Plant Retirements Under Emerging Environmental Regulations,” The Brattle Group, Dec. 8, 2010; “2010 Special Reliability Assessment: Resource Adequacy Impacts of Potential U.S. Environmental Regulations,” North American Electric Reliability Corporation (NERC), Oct. 2010; and Eggers, Dan, et al., “Growth From Subtraction,” Credit Suisse, Sept. 23, 2010).

<sup>54</sup> See also Salisbury, Benjamin, et al., “Coal Retirements—25 GW to 50 GW Remain at Risk,” FBR Capital Markets, March 25, 2011.

EPA is also making this DSI prediction in a regulatory vacuum. Many of the units within the scope of the 56 GW will not have the option to choose this compliance route because overlapping CAA rules will render that decision moot. The recently finalized CSAPR is designed to reduce the interstate transport of SO<sub>2</sub> and NO<sub>x</sub> from EGUs in 27 eastern states. Importantly, 464 of the 521 units without scrubbers are located within the geographic reach of CSAPR. Even though a modest trading program is part of the regulation, a significant portion of these units will need to install scrubbing technology to comply with the rule beginning in 2012.

The issue of overlapping technology demands is not directly addressed in the RIA other than some vague referencing to integrated planning in the preamble after the proposed NSPS for GHGs from EGUs are issued. This lack of analysis further reinforces the need for a cumulative cost analysis by the agency. Neither a utility nor a public utility commission would permit the investment in DSI technology and sorbent storage facilities only to have to install a scrubber two years down the road. EPA must examine what portion of the estimated 56 GW will actually choose DSI given EPA's other regulations in order to provide a realistic estimate of the costs of this rule.

Third, not every coal type within the projected 56 GW will be able to meet the stringent acid gas standard using only DSI. The DSI consultant EPA relies on, Sargent & Lundy, states that "[t]he DSI technology should *not be applied to fuels with a sulfur content of greater than 2 lb SO<sub>2</sub>/MMBtu.*"<sup>55</sup> This statement buttresses the conclusion advanced by the above paragraph—which is, DSI is rarely employed without a scrubber and is almost never used with units burning coal with high sulfur content.

Despite the consultant's assessment, EPA projects the exact opposite stating "[m]any available pollution controls achieve emissions removal rates up to 99 percent (e.g. HCl removal by new scrubbers), which allows industry to rely more heavily on local bituminous coal in the eastern and central parts of the country that has higher contents of HCl and sulfur, and is less expensive to transport than western bituminous coal."<sup>56</sup> Part of this oversight is attributed to the various assumptions and biases built into the Integrated Planning Model that result in biased low projections of compliance costs. The model is designed to determine the most cost effective means of meeting electric generation capacity requirements given certain constraints. Thus, the model permits a unit to both select the lower-cost DSI technology and take advantage of lower cost local bituminous coals. This is not a realistic choice for a utility. EPA needs to reexamine the interplay between the use of DSI without a scrubber using local bituminous coal in order to provide an accurate assessment of the compliance costs.

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<sup>55</sup> IPM Supplement, Appendix 5-4, at 2.

<sup>56</sup> RIA at 237.



Clearly, without a realistic assessment of the market penetration for DSI, EPA cannot provide a reasonable cost estimate of the proposed rule. NMA projects that based on a more grounded assessment of DSI, the cost of complying with just the acid gas standard could be *over three times EPA's projection, totaling almost \$12 billion/year* casting further doubt on EPA's overall projection of \$10.9 billion per year for the entire proposed rule.<sup>57</sup>

**Table 1**  
**Coal-Fired EGUs with Scrubbers**

Type of Scrubber	No. of Units	Capacity (MW)
Wet	272	126,907
Dry	83	20,068
Unspecified	94	39,516
<b>TOTAL Scrubbers</b>	<b>449</b>	<b>186,491</b>
Fluidized Bed Combustion	70	7,905
No Scrubber	521	119,606
<b>TOTAL EGUs</b>	<b>1,040</b>	<b>314,003</b>

Source: NEEDs Version 4.10 PTox Database

<sup>57</sup> For purposes of this projection, NMA revised EPA's cost estimates with a more realistic assessment of the market penetration for DSI. We assumed an additional 119 MW of scrubber installations, thus Tables 1 and 2 reflect the cost of acid gas compliance for the 521 units without scrubbers. **Methodology:** As a preliminary matter, it is not clear what EPA's total projected compliance costs are. EPA claims that it uses an 11.3 percent capital charge rate, or roughly a nine year payback period for economic analyses in the model ("Documentation for EPA Base Case v4.10 Using the Integrated Planning Model," at 8-14). The Agency also refers to a 20-year depreciation schedule for environmental retrofits (IPM Background Document at 8-11). Based on our calculations, it appears that EPA has multiplied total compliance cost estimates by 11.3 percent to arrive at annual costs. So, for example, an annual capital cost of \$1,421 million/year for "Dry FGD and Fabric Filters" corresponds to a total cost (excluding consideration of the time value of money) of \$12,565 million, spread over an approximately nine year period. We will apply the 11.3 percent capital charge rate to our total cost estimates to compare them with EPA's annual projections.

For calculating scrubber capital and fixed operating and maintenance ("FOM") costs, NMA used Table 5-4 of the IPM Background Document, along with heat rate and capacity information from the NEEDs database, for the 521 units that do not have a scrubber. Based on the primary fuel listed in the NEEDs database, we assume units burning bituminous coal would install wet FGD systems and those burning subbituminous or bituminous/subbituminous blends would install dry FGD systems. Of those 521 units, 439 do not have fabric filters. For calculating fabric filter capital and FOM costs, we used Table 5-24 of the IPM Background Document, along with the NEEDs database. For variable operating and maintenance (VOM) costs, which are based on kilowatt hour (kWh) assumptions, NMA used the ratio of EPA's variable to fixed O&M cost projections.

**Table 2**  
**Projected Retrofit Costs**  
**to Comply with Proposed Acid Gas Standards**  
**(Annual Costs, Million \$)**

Cost Component	Commenter's Costs (FGD + FF)			EPA's Costs <sup>1</sup> (DSI or Dry FGD + FF)
	Scrubbers	Fabric Filters	TOTAL	
Capital Cost	\$ 6,579	\$ 1,908	\$ 8,487	\$ 1,849
FOM	1,250	71	1,321	323
VOM	1,875	106	1,981	1,618
<b>TOTAL</b>	<b>\$ 9,704</b>	<b>\$ 2,085</b>	<b>\$11,789</b>	<b>\$ 3,790</b>

<sup>1</sup> Source: 76 FR 25,075 (May 3, 2011).

EPA needs to reexamine this critical assumption with actual on-the-ground testing to determine if both the efficacy and unwanted environmental side effects of DSI makes it a viable control technology.

3. Many analysts have predicted higher amounts of early coal retirements

EPA's claim of "common-sense" rulemaking is, in large part, intertwined with its DSI assumption. If EPA's unsupported assumption as to the number of units that can install DSI as a compliance strategy is wrong, the costs of complying with the acid gas standard could potentially triple, as many more units will have to install or upgrade costly scrubbing technology. This increased cost will correspondingly result in more retirements and higher electricity prices as many units will not be able to absorb the additional cost. This fact invites legitimate criticism of the agency's 10 GW retirement figure. For example, and in addition to the below chart,<sup>58</sup> FBR Capital Markets states that "...the practical applicability of DSI remains a debatable point due to the additional ash produced, reliability of the reagent supply chain, lack of utility sector experience with this technology, and the potential impact of dispatch. More limited adoption of this technology *could lift the retirement number above 50 GW.*"<sup>59</sup>

<sup>58</sup> It is important to note that each projection employed a different set of assumptions to arrive at the retirement projection—i.e. some studies analyzed the proposed rule in isolation, while others like NERA analyzed the instant rule in conjunction with other related CAA rules. The chart highlights EPA's glaring need to provide a cumulative cost estimate of all of these rules.

<sup>59</sup> FBR Capital Markets, Mar. 25, 2011; *see also* Dan Eggers, "Implications of EPA Policy," Credit Suisse, April 26, 2011 (estimating that retirements could be as high as 100 GW) (emphasis added).

**Table 3  
Summary of Coal-Fired Retirement Projections<sup>60</sup>**

<b>Analyst</b>	<b>Date of Publication</b>	<b>Retirement Projection (GW)</b>
U.S. Energy Information Administration (EIA)	April 2011	45-73
NERA Economic Consulting	May 2011	48
FBR Capital Markets	March 2011	35-45
McIlvaine Company	March 2011	31-68
Edison Electric Institute (EEI)	January 2011	50
The Brattle Group	November 2010	50-66
North American Electric Reliability Corporation (NERC)	October 2010	33 -77
ICF International	October 2010	75
Credit Suisse	September 2010	69

Even using EPA’s own data it is entirely plausible that 50 GW will be forced to retire based on this suite of rules. The agency’s 9.9 GW retirement figure is based on forecasting the Utility MACT rule in isolation, rather than examining the agency’s own base case of 25 GW gross retirements. EPA’s base case estimates 299 GW of coal generation in 2015, which is an 18 GW decline in coal capacity from 2010 based on the implementation of CSAPR and Utility MACT. The base case also assumes, albeit optimistically given the inability to construct new coal plants with the stringent new source standards, an additional 7 GW in coal additions during this time.

However, this entire projection is built upon full market penetration of DSI or 56 GW. Even assuming optimistically that the deployment of DSI is even half the forecasted rate, which is reasonable given that half of the units targeted for DSI deployment operate without scrubbers and burn medium or high sulfur coal, the retirement number could easily jump to 50 GW. Nowhere in the record does EPA engage in this sort of analytical rigor. Rather, the agency simply assumes the best without any factual support resulting in a flawed rule with an inaccurate assessment of the true impacts.

4. EPA’s mistaken beliefs about the current fleet will also increase the amount of projected retirements

The issue of flawed retirement projections is not confined to the DSI assumption. Another aspect of this issue stems from Administrator Jackson’s faulty statements regarding the state of the current fleet. In the proposed rule, EPA

<sup>60</sup> Each individual analysis is filed contemporaneously with these comments (Attachment 7).

notes that “[t]oday over 50 percent of the power generation fleet has scrubbing technology installed and the industry is already working on installations to bring that number to nearly two-thirds of the fleet by 2015.”<sup>61</sup> This statement is seriously misguided and suggests that existing units with scrubbers will not have any compliance costs associated with this proposed rule. NMA seriously doubts EPA would be willing to offer this type of safe harbor treatment to existing coal-fired EGUs.<sup>62</sup>

This statement also does not seem to comport with other portions of the preamble where the agency predicts that “...the proposed rule will require companies to make a decision—control HAP emissions from virtually uncontrolled sources or retire these sometimes 60 year old units and shift their emphasis to more efficient, cleaner modern methods of generation, including modern coal-fired generation.”<sup>63</sup> Notwithstanding this apparent contradiction, Administrator Jackson further reinforces this unsupported conclusion by noting one of the principal objectives of this rule:

Utilities that have already put pollution control technology in place will no longer have to compete with those who have delayed those investments—a group that includes almost half the nation’s coal-fired plants, which lacked advanced pollution control equipment. In fact, facilities that *have already taken responsible steps to reduce the release of toxins into our air will be at a competitive advantage over their heavy-polluting counterparts*. And to ensure cost-effectiveness, we have proposed flexibility in meeting the standards.<sup>64</sup>

These statements are fundamentally flawed. Over half of the scrubber in the referenced 50 percent of units will be at least 20 years old and at the end of their useful life by 2015. Thus, significant costs will be associated with upgrading existing scrubbers to achieve compliance with the proposed standards. Typical scrubber modifications to improve SO<sub>2</sub> absorption include improving gas flow distribution, reconfiguring spray headers, adding frothing trays and increasing recycle flow. Furthermore, many existing scrubbers were built when the CAA only

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<sup>61</sup> 76 Fed. Reg. at 25,054.

<sup>62</sup> Furthermore, EPA should recognize that the MACT process sets the standard at the average of the top 12 percent, essentially at the 94th percentile, thus only 6 percent of units ostensibly should meet the standard without modification. Because about half of the units in the U.S. are unscrubbed, that 6 percent can only accommodate about 1/8th of the scrubbed units. That is, seven out of eight scrubbed units will have undertake some level of modification.

<sup>63</sup> 76 Fed. Reg. at 24,979.

<sup>64</sup> EPA Administrator Lisa P. Jackson, *Remarks on the Mercury and Air Toxics Standards Proposal, As Prepared*, Mar. 16, 2011, available at: <http://yosemite.epa.gov/opa/advpress.nsf>; see also 76 Fed. Reg. at 24,979.

required 70 percent SO<sub>2</sub> removal. Based on this standard, scrubbers typically included partial FGD bypass and only modest SO<sub>2</sub> removal in the absorber. Bringing these units up to the proposed emissions standards will likely require more than simply modifying spray headers and adding absorber trays. A more accurate analysis of this particular issue could *double* the projected upgrade costs for older units built before 1995 thereby increasing the number of retirements.

Utilities cannot make important investment decisions based on unverified assumptions and without considering the implications of the cost of recovery of these retrofits. Especially for older, less efficient plants the capital break-even point between installing, retiring or fuel switching when assessed in light of these multiple regulations makes it highly unlikely that EPA's view of the utility industry is accurate. This is evident in American Electric Power's assessment that these interrelated air rules will force the utility to prematurely shutter about 25 percent of its current coal-fueled generating capacity, or 6,000 megawatts.<sup>65</sup>

5. EPA's assessment of impacts on electricity prices and job losses is premised on questionable assumptions and an inadequate rulemaking record

Taken together, because EPA has missed the mark in projecting early retirements based on a series of questionable assumptions, the affordability and reliability of electricity will accordingly be uncertain. EPA attempts to blunt this criticism by claiming that "[t]he energy savings driven by these energy efficiency policies mean that consumers will pay less for electricity as well. EPA has modeled national average retail electricity prices, including the energy efficiency costs that are paid by the ratepayer. The Toxics Rule increases retail prices by 3.7 percent, 2.6 percent and 1.9 percent in 2015, 2020, and 2030 respectively relative to the base case."<sup>66</sup> This statement has limited heuristic value when factoring in the aforementioned assumptions coupled with the overreliance on modeling that fails to appropriately examine the issues on a regional basis, like the Midwest or Southeast where coal is the dominant fuel for electricity.

Part of EPA's problem in assessing the increase in electricity prices lies in the implicit biases of its model. The overriding principle of the model is to maintain adequate generating capacity and target reserve margins in each of the 32 modeling regions.<sup>67</sup> In order to maintain adequate resources in each region, the

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<sup>65</sup> Julie Johnson, "AEP Says New Air Rules May Cost Up to \$8 Billion, 600 Jobs," June 9, 2011 available at: <http://www.bloomberg.com/news/2011-06-09/aep-says-new-air-rules-may-cost-up-to-8-billion-600-jobs.html>

<sup>66</sup> 76 Fed. Reg. at 25,056.

<sup>67</sup> Regulatory Impact Analysis at 8-17. See also ICF International's description of the IPM product, available at: <http://www.icfi.com/insights/products-and-tools/ipm>; and "Resource Adequacy and Reliability in the IPM projections for the Toxics Rule," available at: [http://www.epa.gov/ttn/atw/utility/pro/resource\\_adequacy\\_rel.pdf](http://www.epa.gov/ttn/atw/utility/pro/resource_adequacy_rel.pdf).

model assumes that regions with excess supply will absorb the capacity lost by retirements. Stated differently, according to the model, retirement decisions are first a product of geography rather than on a realistic business decision. The following illustrates the problems with the model:

The model projects retirements of three 750 MW units or 2,250 MW at the Navajo power plant in Arizona. The units were built in 1974-76 and have wet scrubbers operating at 92 percent efficiency. On the other hand, seven units in Northern Illinois totaling 2,017 MW built in 1952-59 without scrubbers, SCRs or fabric filters would continue to operate. The difference is the location. The AZNM modeling region has more excess capacity than the COMD region of northern Illinois. Unfortunately, the model may have placed too much faith in maintaining resource adequacy, particularly given the number of investor owned utilities. As a result, the projected number of retirements is unrealistically low. Alternatively, if the model's complete faith in resource adequacy proves correct, electricity costs will increase dramatically in certain regions such as the COMD modeling source.

EPA cannot wholly rely on this model to accurately analyze this important issue.

EPA also attempts to fall-back on early collaboration with key stakeholders to prevent the potential for skyrocketing electricity prices and job losses. The agency states that, "[i]n addition, EPA itself has already begun reaching out to key stakeholders including not only sources with direct compliance obligations, but also groups with responsibility to assure an affordable and reliable supply of electricity including state Public Utility Commissions (PUC), Regional Transmission Organizations (RTOs), the National Electric Reliability Council (NERC), the Federal Energy Regulatory Commission (FERC), and DOE."<sup>68</sup> EPA further states, "[i]t is EPA's understanding that FERC and DOE will work with entities to ensure an affordable, reliable supply of electricity...."<sup>69</sup> As mentioned in the Executive Summary, NMA can find no evidence of these consultations in the rulemaking docket.

More specifically, the public has no ability to discern whether EPA is presenting the implications of this rule with its overly optimistic DSI assumption thereby coloring the perceptions of the stakeholder.<sup>70</sup> Interestingly, as of October

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<sup>68</sup> 76 Fed. Reg. at 25,054.

<sup>69</sup> *Id.*

<sup>70</sup> The public will only be able to confirm if EPA includes all of the relevant documents regarding this particular issue. Moreover, the public is entitled to an opportunity to inspect these documents and provide comment.

2010, NERC as one of the identified stakeholders did not share EPA's view of *de minimus* impacts to electric power generating sector.

Overlapping compliance schedules for the air and solid waste regulations, along with the required compliance for rule 316(b) following shortly thereafter, may trigger a large influx of environmental construction projects at the same time as new replacement generating capacity is needed. Such a large construction increase could cause potential bottlenecks and delays in engineering, permitting and construction.<sup>71</sup>

Based on this assessment, either NERC has changed its position since this time to align with EPA based on information not included in the rulemaking docket, or EPA is not being forthcoming about the reality of these "collaborations" to deal with this important issue. In any event, and unsurprisingly, the foregoing demonstrates that FERC—responsible for delivering reliable electricity to the country—is not as confident in EPA's assessment of the situation as EPA portrays it to be.

Following FERC's responses to Senator Murkowski, NMA joins the Senator's extreme concern with the impending situation, as described in her August 3 press release, "[h]aving received FERC's responses this week, I must say that I am now less confident [after initially hearing the Chairman's plans for an interagency task force] of that being the case." Preliminary review of FERC's responses completely validates her position.

In response to EPA's exaggerated representations in the preamble, Chairman Wellinghoff stated in his letter, "...this information assessment offered only a *preliminary look* at how coal-fired generating units could be impacted by EPA rules, and is *inadequate* to use as a basis for decision-making, given that it used information and assumptions that have changed." (emphasis added). This sentiment is further confirmed in Commissioner Moeller's response, "[a]ccording to OER staff, EPA's reliability analysis has been *limited*," and that staff have, "pointed out to EPA that a reliability analysis should explore transmission flows on the grid, reactive power deficiencies related to closures, loss of frequency response, black start capability, local area constraints, and transmission delivery." (emphasis added). In sum, EPA's "trust us" mentality has far underestimated the complexity underlying the delivery of affordable and reliable electricity.

This is further evidenced by the fact that neither FERC nor EPA has conducted a cumulative impacts analysis. Furthermore, FERC's assessment that 81 GW of "likely or very likely" retirements may result from the implementation of this suite of rules, further highlights the need—as expressed by NMA—for a more transparent and open process to deal with these important issues. Recognizing the Chairman's reservations about the results of this preliminary study, it nevertheless

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<sup>71</sup> NERC, *2010 Special Reliability Scenario Assessment: Resource Adequacy Impacts of Potential U.S. Environmental Regulations*, October 2010.

highlights EPA's failure to disclose this critical study and any other material that may exist regarding the EPA-FERC consultation process.

NMA joins Commissioner Moeller's recommendations to have FERC: (1) use its expertise to perform an analysis of EPA's rules that could impact reliability of electricity—and *disclose that analysis for public comment*—and then hold a technical conference for public input; and (2) have EPA extend the timing of these regulations as the agency's schedule "does not conform to the relevant planning horizons in the electric sector of our economy, one of the most capital-intensive sectors of industry."

Furthermore, the understatement of potential coal-fired EGU retirements and electricity prices will be especially acute if EPA holds the line with its new source emissions limits. As will be discussed below, the new source emissions standards based on the impermissible HAP-by-HAP approach makes it difficult to foresee investment in new coal. Credit Suisse projects that at a 60 GW retirement figure, there would need to be an additional 24 GW just to maintain reserve margins at 15 percent begging the important question of where will coal-dependent regions of the county replace these important sources of energy.<sup>72</sup> Despite EPA's effort to "level the playing field," the agency has done an inadequate job of informing the public as to the consequences of such a policy.

Unfortunately, where EPA's miscalculations will be most felt is the additional burden to rate paying customers. Public Utilities Commissions can hardly ask for the type of rate increase needed to offset these capital costs during times of economic prosperity let alone in the current economic condition. These consumer energy costs represent the most regressive *de facto* tax regimes as areas of the country reliant on coal-derived energy will rapidly become the most expensive. This is especially true for the "rust belt" region and states in the southeast that will be heavily impacted by EPA's faulty assumption that EGUs will shift to local bituminous coal based on DSI use, thus masking the overall jobs impact on these economically challenged areas.

In fact, the market—contrary to EPA's overly optimistic prediction—has already responded to the added pressure of these numerous CAA rulemakings. On May 26, 2011, Louisville Gas and Electric announced its plans to request a raise in residential electric bills by about 19 percent by 2016 in order to pay for upgrading its coal-fired power plants to meet rules promulgated pursuant to the CAA.<sup>73</sup> This dramatic increase is also reflected in the NERA study concluding that average electricity prices will increase by around 12 percent nationwide, with *regional*

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<sup>72</sup> Credit Suisse, April 26, 2011.

<sup>73</sup> Available at: <http://www.courier-journal.com/article/20110525/BUSINESS/305250080/LG-E-see-19-rate-increase>.



*increases as much as 24 percent.*<sup>74</sup> If EPA is unwilling to modify the proposed rule and properly tailor its provisions to address environmental concerns and ensure reliable and affordable energy, the U.S. economy will undoubtedly suffer as a result.

Lastly, Administrator Jackson in her remarks at the signing ceremony for the proposed rule noted the uptick in so-called “green jobs” that would result from implementation of this rule.<sup>75</sup> While it may be true that some jobs will be created in order to install the requisite control technology, the overall economic impact of plants being forced to retire, no foreseeable construction of new coal-fired plants, the “multiplier” effect of job losses in sectors such as coal mining, and the expected increase in electricity prices of more costly energy sources cannot even begin to be offset by these so-called “government-created” jobs. The recent NERA study projects that the combination of CSAPR and the present rulemaking will result in nationwide *net employment losses totaling 1.44 million job-years by 2020*. These net losses take into account these “green jobs” as well as the jobs lost by these regulations. In other words, employment losses under only these two EPA regulations will outnumber gains by more than *four to one through 2020*.

David Montgomery of Charles River Associates, an economist with 40 years of work in energy and environmental policy recently testified before Congress and shed further light on the “green jobs” claim:

The serious debate in environmental policy is about how the costs of new regulations compare to their benefits, and how to design the regulations to minimize costs, uncertainty and disruption. Claims that regulations that raise the cost of doing business will create new jobs are, *at best, a sideshow. Such claims only distract attention from the difficult tradeoffs that must be made between costs and benefits.* ‘Green jobs’ is not a subject that leading economists have usually taken seriously enough in professional journals.<sup>76</sup>

Based on the foregoing, it is difficult for EPA to legitimately claim that the proposed rule’s benefits analysis is accurate.

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<sup>74</sup> “Proposed CATR + MACT,” NERA Economic Consulting, Draft May 2011.

<sup>75</sup> EPA Administrator Lisa P. Jackson, *Remarks on the Mercury and Air Toxics Standards Proposal, As Prepared*, Mar. 16, 2011, available at: <http://yosemite.epa.gov/opa/admpress.nsf>

<sup>76</sup> Senate Committee on Environment and Public Works, Subcommittee on Green Jobs and the New Economy Hearing entitled, “Green Jobs and Trade,” Feb. 15, 2011.

## II. EPA'S RULEMAKING PROCESS IS LEGALLY DEFICIENT UNDER THE CLEAN AIR ACT

EPA has made it extremely difficult, indeed impossible, for the public to have a meaningful opportunity to provide comments on the proposed rule. EPA's haste in finalizing the proposed rule by November 2011 has resulted in insufficient time for comments, only ninety days despite the extraordinarily complex nature of the proposed rule. As the agency is fully aware, the proposal published in the *Federal Register* is 171 pages long and includes new MACT and new performance standard limits and compliance requirements for coal-fired EGUs as well as a new section 112(n)(1)(A) analysis. Moreover, there are over 19 technical support documents and a more than 500-page RIA in the rulemaking docket.

Furthermore, EPA has provided more time for public comment on other rulemakings that were both narrower in scope and less costly to the overall economy than the current proposal. For example, EPA augmented the original 60 day comment period for the Portland Cement MACT rule with an additional 60 days to ensure sound public participation on the 163 existing facilities (as compared to this rule's 1,200 existing units) at issue in the proposed rule.<sup>77</sup> While NMA is mindful of the 30-day extension, there is no reasonable explanation for why the agency insists on adhering to an unreasonable final deadline to deal with a rulemaking of this magnitude and significance. Given the agency's recent experience with the Industrial Boiler MACT consent decree and self-initiated reconsideration period, the agency should immediately recognize the undesirable results of a truncated rulemaking schedule.

The rushed schedule has already resulted in at least one significant error in setting the MACT standards. On May 5, 2011, UARG sent a letter to EPA identifying a critical conversion error that an NMA member company found in the agency's calculation of mercury emissions resulting in new and existing MACT floors that were 1000 times higher than the emissions identified in the dataset for those units. UARG requested the agency re-propose the rule to properly correct the mistake. EPA refused this request thereby failing to comport with the notice requirements of CAA § 307(d)(3).

Instead, EPA admitted the error and proposed to correct it by inserting the correction into a technical support document adding to an already cumbersome rulemaking docket. Rather than provide a Notice of Data Availability, the public is left to sift through the docket and discern whether to comment on the standard in the supplemental document or the one proposed in the *Federal Register*. Despite this and other important errors groups like UARG continue to discover with the proposed rule, EPA refuses to accommodate an adequate rulemaking period, undermining confidence that the agency is conducting an open and transparent rulemaking process consistent with the President's Executive Order.

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<sup>77</sup> 74 Fed. Reg. 21,136 (May 6, 2009).

Furthermore, the failure to provide evidence of the communication between FERC and other key stakeholders regarding the electric reliability issue is inexcusable. EPA cannot claim it has adhered to the statutory requirements of the CAA without installing all records related to these consultations and permitting the public an opportunity to meaningfully comment. More importantly, given FERC's reservations about EPA's portrayal of the situation, there is a glaring need for more serious collaboration on this issue with an opportunity for public participation. EPA must not sacrifice electric affordability and reliability at the feet of an arbitrary regulatory calendar.

These errors are directly at odds with the rulemaking requirements under section 307(d). Under paragraph (d)(3), a "notice of proposed rulemaking...shall be accompanied by a statement of its basis and purpose," and this statement "shall include a summary" of the "factual data on which the proposed rule is based;" and the "methodology used in obtaining the data and in analyzing the data." Lastly, paragraph (d)(3) instructs that "[a]ll data, information, and documents referred to in this paragraph shall be included in the docket on the date of publication of the proposed rule." EPA has not followed these statutory commands as the requirement to provide "all data" on which the proposal was based was not included in the preamble nor in the docket at the time the proposal was published in the *Federal Register*.<sup>78</sup>

The D.C. Circuit Court of Appeals has held that the public notice and comment requirements "are designed (1) to ensure that Agency regulations are tested via exposure to diverse public comments, (2) to ensure fairness to affected parties, (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."<sup>79</sup> These objectives have been undermined in this rulemaking process. Moreover, there are indications in the preamble that regardless of the public input, EPA has a predetermined outcome in mind when it crafted these proposed regulations. The proposed rule states, "...EPA expects that sources will begin promptly, *based upon this proposed rule*, to evaluate, select, and plan to implement, source-specific compliance options."<sup>80</sup> The Court's holding highlights the issue of whether EPA's unreasonable timeframe will effectively prevent the agency from being responsive to public comments—e.g., technical errors; lack of evidence to support §112(n)(1)(A) analysis; impermissible MACT standards under section 112; health based standards; further subcategorization; and recognition that dry sorbent injection cannot resolve the acid gas issue.

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<sup>78</sup> See also *Kennecott Corp. v. EPA*, 684 F.2d 1007, 1118 (D.C. Cir. 1982) ("In all circumstances, EPA's failure to include" documents that serve to explain the Agency's "data" and "methodology" constitutes "reversible error," insofar as their absence "makes impossible any meaningful comment on the merits of EPA's assertions.").

<sup>79</sup> *Environmental Integrity Project v. EPA*, 425 F.3d 992, 996 (D.C. Cir. 2005).

<sup>80</sup> 76 Fed. Reg. at 25,056 (emphasis added).

In light of these rulemaking concerns, NMA urges EPA to promote an open and transparent rulemaking process by immediately seeking an extension of the current final deadline. The court acknowledged that the consent decree does permit extension. "The Court appreciates industry's concern that this schedule may be too hasty for the critical and expensive regulatory decisions that will be made; however, the proposed Consent Decree allows for a change of schedule if need be."<sup>81</sup> In fact, the judge added that if the scientific and factual basis for the rulemaking requires more time, "EPA can obtain it." NMA urges EPA to immediately seek an extension.

### **III. EPA'S APPROPRIATE AND NECESSARY DETERMINATIONS ARE INCONSISTENT WITH THE CLEAN AIR ACT**

The proposed rule is based on a fundamental misreading of section 112(n)(1)(A). Congress purposefully treated EGUs differently than other source categories under section 112. Section 112(n)(1)(A) states:

The Administrator shall perform a study of the hazards to public health reasonably anticipated to occur as a result of emissions by electric utility steam generating units of pollutants listed under subsection (b) of this section after imposition of the requirements of this Act. The Administrator shall develop the results of this study to the Congress within 3 years after November 15, 1990. The Administrator shall develop and describe in the Administrator's report to Congress alternative control strategies for emissions which may warrant regulation under this section. The 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.

Based on the foregoing, Congress clearly did not intend to automatically subject EGUs to the normal "list and regulate" scheme of sections 112(c) and 112(d). Moreover, under this section, EPA could not regulate *at all* until it completed a study of the "hazards" to public health "reasonably anticipated to occur" as a result of HAP emissions from EGUs and then, only after considering the reductions of those hazards that would occur as a co-benefit of regulation of EGUs under other provisions of the CAA. Furthermore, the agency was directed to "develop and describe" alternative control strategies for emissions for any HAP emissions that "may warrant regulation under this section." Lastly, EPA could only regulate under section 112 if it found, after proper notice and comment rulemaking, that regulation of these units was "appropriate and necessary" after considering the results of the public health hazards study.

The history of EPA's various attempts at regulating mercury and other HAP emissions from EGUs under this provision is well-chronicled both in the preamble to the proposed rule and in UARG's comments. Importantly, there are two

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<sup>81</sup> *American Nurses Ass'n. v. Lisa Jackson*, Civil Action No. 08-2198 (RMC p. 3 (Apr. 15, 2010)).

inescapable facts that EPA must grapple with in its decision to not only regulate mercury emissions, but also to extend the 2000 determination as the foundation for regulating all non-mercury HAPs under section 112(d).<sup>82</sup> First, the factual record and legal issues underpinning the December 2000 determination<sup>83</sup> has never been fully ventilated in front of the D.C. Circuit. The D.C. Circuit's *vacatur* of CAMR focused exclusively on the criteria for removing or delisting EGUs from the list of section 112(c) major source categories.<sup>84</sup> Accordingly, EPA's authority to regulate EGUs under section 112(d) is directly at issue during this rulemaking.<sup>85</sup>

Second, not only is EPA's requisite factual predicate finding under § 112(n)(1)(A) for mercury legally deficient, but the agency has not even attempted to undertake the same level of analysis for any other HAP it is proposing to regulate. EPA mistakenly believes it is legally compelled to regulate all HAPs under this regulatory construct stating, "...we interpret the statute to *require* the Agency to find it appropriate to regulate EGUs under section 112 if the Agency determines that the emissions of *one or more* HAP emitted from EGUs pose an identified or potential hazard to public health or the environment at the time the finding is made."<sup>86</sup> NMA joins UARG in its disagreement with this legal conclusion.

In addition to these and other serious flaws, NMA contends that EPA's interpretation of the term "appropriate" is so overbroad that it renders the entire analytical exercise required by Congress utterly meaningless. While EPA is correct that it has the discretion to define the contours of the inquiry within the bounds of reasonableness, it cannot merely pay lip service to the fact the agency throughout this entire process has maintained that "[s]ection 112(n)(1)(A) therefore sets an *important and unique condition precedent* for regulating Utility Units under section

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<sup>82</sup> Additionally, the Court did not opine on the legal and factual substance of EPA's 2005 Revision that it was not appropriate and necessary to regulate mercury emissions from EGUs.

<sup>83</sup> On December 14, 2000, then-Administrator Browner published a "notice of regulatory finding." This so-called notice stated the Administrator's "conclusion" that regulation of mercury emissions from EGUs was "appropriate and necessary" under section 112. See 65 Fed. Reg. 79825 (Dec. 20, 2000).

<sup>84</sup> *State of New Jersey v. EPA*, 517 F.3d 574 (D.C. Cir 2008).

<sup>85</sup> As UARG correctly states, the preamble specifically cites descriptions and explanations of EPA's Utility Study and the 2005 Revision. Collectively, the rulemaking record for this proceeding does not begin and end with the material posted to Docket ID No. EPA-HQ-OAR-2009-0234, but also includes two dockets earlier—namely, Docket ID No. A92-55 and Docket Id No. EPA-HQ-OAR-2002-0056. All of these should be referenced in some way to the instant docket to ensure that all pertinent material and comments are part of the complete rulemaking record.

<sup>86</sup> 76 Fed. Reg. at 24,987 (emphasis added).

112....<sup>87</sup> EPA has not heeded this Congressional direction in the proposed rule as its interpretation of “appropriate” effectively overrides the primary congressional command to analyze “hazards to public health reasonably anticipated to occur” from EGUs.

Conversely, in order to ensure that EGUs are regulated under section 112 thereby leveling the market for electricity in the U.S.,<sup>88</sup> EPA’s “necessary” interpretation is so narrow that it precludes consideration of the many measures under the CAA that have proven to effectively reduce mercury and HAP emissions in this country. This overly narrow statutory interpretation also infects the agency’s ability to tailor its regulation of EGUs by investigating other viable regulatory programs on a cost-benefit basis.

### **A. EPA’s Definition of “Appropriate” is Impermissibly Broad**

EPA broadly defines the factors it may consider in determining whether regulation under section 112(n)(1)(A), far more broadly than it did in the 2005 Revision.<sup>89</sup> Under the proposed rule, EPA roams far afield from what should be the central consideration as to whether regulation is “appropriate,” which is whether EGU emissions of HAPs create “hazards to public health.” First, EPA states that, “we interpret the statute to authorize the Agency to *base the appropriate finding on either hazards to public health or the environment.*”<sup>90</sup> The agency then goes on to explain that the “appropriate” inquiry may be based and expanded beyond impacts to the environment to also include HAP emissions from other sources. “The hazard to public health or the environment may be the result of HAP emissions *from EGUs alone or the result of HAP emissions from EGUs in conjunction with HAP emissions from other sources.*”<sup>91</sup> Lastly, the agency believes the “appropriate” prong may also consider the impacts of HAPs internationally, which “would allow the U.S. to demonstrate effective technologies to reduce Hg; such leadership could provide confidence to other countries that they can succeed in meeting their commitments.”<sup>92</sup> Indeed, it appears as if EPA believes it has the discretion to base

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<sup>87</sup> 70 Fed. Reg. at 15,994, 15998 (Mar. 25, 2005) (emphasis added); *see also* 76 Fed. Reg. at 24,987 (reaffirming the 2005 Revision stating, “...the Utility Study is an important condition precedent to making the appropriate and necessary determination).

<sup>88</sup> 76 Fed. Reg. at 24,979.

<sup>89</sup> On March 29, 2005, EPA concluded its rulemaking under section 112. EPA concluded that “[b]ecause this new information demonstrates that the level of Hg emissions projected to remain ‘after the imposition of’ section 110(a)(2)(D) does not cause hazards to public health, we conclude that it is not appropriate to regulate coal-fired Utility Units under § 112 on the basis of Hg emissions.” 70 Fed. Reg. 16,004.

<sup>90</sup> 76 Fed. Reg. at 24,988 (emphasis added).

<sup>91</sup> 76 Fed. Reg. at 24,988 (emphasis added).

<sup>92</sup> 76 Fed. Reg. at 25,015.

this determination on some broader set of criteria not contemplated by Congress under section 112(n). It does not.

EPA grounds this expansive and sweeping interpretation in the belief that Congress implicitly authorized EPA to treat these other factors at least on par with public health hazards because it was authorized to consider these other factors in the Mercury Study pursuant to § 112(n)(1)(B) and the National Academy of Sciences (“NAS”) Study in § 112(n)(1)(C). This is a distortion of the statutory language. Nowhere in section 112(n)(1)(A) does the term “environmental effects” appear nor does (n)(1)(A) require EPA to even consider the results of the Mercury Study or NAS Study prior to determining whether or not it is appropriate and necessary to regulate. Furthermore, on the face of subparagraph (n)(1)(B), the agency was not even required to complete the Mercury Study until one year *after* Congress directed the EPA to complete the Utility Study. EPA’s interpretation is without merit.

The interpretation in the 2005 Revision aligns much more closely with the statutory language than the interpretation proffered by the proposed rule or in the 2000 determination. EPA stated in 2005, “[t]his *mild direction* [mercury study], when paired with the considerable discretion inherent in any judgment about whether an action is “appropriate and necessary,” has led EPA to conclude that the statute permits the agency to consider other relevant factors when determining whether to regulate emissions from utility units under section 112;” however the agency confines this consideration by noting that “...these factors may not independently, or in conjunction with one another, justify regulation under section 112(n) when EPA has concluded that hazards to U.S. public health are not reasonably anticipated to occur.”<sup>93</sup> Thus, EPA cannot conclude that it is authorized to override the primary inquiry from Congress—*i.e.* hazards to public health reasonably anticipated to occur from EGUs.

The 2005 Revision goes on to cite the U.S. Supreme Court’s holding in *Russello v. United States*,<sup>94</sup> that “where Congress includes particular language in one section of a statute but omits it in another section of the same Act, it is generally presumed that Congress acts intentionally...in the disparate inclusion or exclusion.”<sup>95</sup> Thus, if Congress had meant for the agency to make an “appropriate” finding based on environmental factors, emissions from other source categories, and in support of international efforts, it would not have gone to such great lengths to include this particular provision in the CAA. Rather, Congress would have directed the agency to list EGUs under § 112(c) from the outset and promulgate MACT standards under section 112(d).

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<sup>93</sup> 70 Fed. Reg. at 15,998.

<sup>94</sup> 464 U.S. 16, 23 (1983).

<sup>95</sup> 464 U.S. 16, 23 (1983).

The underlying question in this exercise of statutory construction is why EPA needs to impermissibly expand the inquiry—hazards to public health—and confer great weight to and base its determination on this broader set of criteria to validate its “appropriate” finding. Again, and as detailed above, the overall accredited benefits to mercury reduction are particularly telling. Because the HAP of “greatest concern” derives so little health benefit from command-and-control regulation, the agency must use these other factors in an unlawful attempt to overcome the irrefutable fact that HAP emissions from EGUs pose little or no threat to public health. EPA’s regulation of mercury under section 112(d) is clearly contrary to the statutory scheme developed by Congress.

To ameliorate this criticism, of heavy regulation for little environmental benefit, EPA invokes the U.S. Supreme Court’s decision in *Massachusetts v. EPA* for the proposition that even if the benefits of regulating are negligible, EPA still must promulgate standards under section 112. This decision is inapposite of the facts at issue in this rulemaking.

Whereas in *Massachusetts* the Supreme Court rejected the EPA’s use of “policy considerations” as a shield to deny a rulemaking petition urging the agency to regulate GHG emissions from new automobiles,<sup>96</sup> the agency in this setting is attempting to use the very same “policy considerations” as a sword for regulating HAP emissions from EGUs. In rejecting EPA’s then-position, the Court emphasized that the agency may not rest its decision to regulate or not to regulate on “reasoning divorced from the statutory text.”<sup>97</sup> Again, the fact that EPA must highlight international efforts as a basis for regulation further illustrates its lack of proper legal and factual support under in § 112(n)(1)(A).

### **B. EPA’s “Necessary” Finding is Overly Narrow and Does Not Comport with Congressional Intent**

In contrast to EPA’s impermissibly broad reading of the “appropriate” prong, the agency’s “necessary” interpretation is so arbitrarily narrow that it clearly contravenes the intent of the statute. Moreover, it provides another example of the agency exacting the highest level of stringency on a particular source when the facts support a more reasonable approach. This interpretation renders the entire section 112(n)(1)(A) analysis superfluous.

EPA claims the only programs under the CAA that qualify under the necessary prong are those that “guarantee” emissions reductions directly from EGUs. The agency states that “[w]e may find it necessary to regulate EGUs under section 112 even if we were to conclude, based on reasonable estimations of emissions reductions, that the imposition of the CAA would, or might, significantly reduce the identified hazard, because *the only way to guarantee that such*

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<sup>96</sup> 549 U.S. at 532-34.

<sup>97</sup> *Id.* at 532.



*reductions will occur at all EGUs and be maintained is through a section 112(d) standard that directly regulates HAP emissions from utilities.”<sup>98</sup>*

Requiring this level of scrutiny is not what Congress envisioned when it carved EGUs out of the normal section 112 regulatory scheme. Indeed, Representative Oxley noted that “...if the Administrator regulates any of these units, he may regulate only those units that he determines—*after taking into account compliance with all other provisions of the CAA* and any other federal, state, or local regulation and voluntary emission reductions—have been demonstrated to cause a significant threat of adverse effects on public health.”<sup>99</sup> Clearly, Congress was more concerned with the actual impact to public health and whether those impacts were being addressed by any level of government, rather than only crediting “guaranteed” federal command-and-control efforts.

According to the proposed rule, the only program under the CAA that falls within the ambit of the necessary analysis is the Acid Rain Program (“ARP”). EPA notes that the ARP qualifies because it contained very specific emissions reduction requirements to be completed during a tight compliance timeframe. Importantly, the actual implementation of those emission targets was largely left to the individual utility where “source owners or operators could elect to install controls, such as scrubbers, switch to lower sulfur fuels at their facilities or purchase allowances from other EGUs that had reduced their emissions beyond what they were required by the ARP to achieve.”<sup>100</sup>

By comparison, EPA established a similar program with the promulgation of the Clean Air Interstate Rule (“CAIR”) pursuant to section 110(a)(2)(D)(i)(I). CAIR required a number of eastern states to develop State Implementation Plans (“SIPs”) providing for substantial reductions of SO<sub>2</sub> and NO<sub>x</sub> emissions largely through the same implementation scheme as ARP—installation of scrubbers, SCRs or purchasing allowances. In the 2005 Revision, EPA at least inherently recognized the similarity, and accordingly, analyzed CAIR’s impact and concluded that “that the technologies that most cost-effectively achieve SO<sub>2</sub> and NO<sub>x</sub> reductions for utilities are scrubbers for SO<sub>2</sub> and SCR for NO<sub>x</sub>. These technologies, as noted above, result in reductions of utility Hg emissions.”<sup>101</sup>

The proposed rule likewise acknowledges the 2005 Revision’s CAIR analysis, but simply concludes that CAIR was remanded back to the agency in *North Carolina v. EPA* with no further discussion. While CAIR was remanded by the D.C. Circuit, the court allowed it to remain in place until the agency finalized its successor—CSAPR. Like CAIR, CSAPR primarily addresses emissions from EGUs in 27 eastern

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<sup>98</sup> 76 Fed. Reg. at 24,990.

<sup>99</sup> 136 Cong. Rec. H12911, 12934 (daily ed. Oct. 26, 1990) (Statement of Rep. Oxley) (emphasis added).

<sup>100</sup> 76 Fed. Reg. at 24,990.

<sup>101</sup> 70 Fed. Reg. at 16,004.

states. EPA claims that CSAPR will require a reduction of SO<sub>2</sub> from EGUs by 73 percent from 2005 levels and 54 percent for NO<sub>x</sub> emissions. NMA contends that the consideration of the achievements of CAIR and its successor should not have ended with this conclusory statement.

Notwithstanding the similarities between CAIR/CSAPR and ARP, EPA does not include these programs within its necessary analysis. The agency claims that it is reasonable to exclude these programs by interpreting the phrase “after the imposition of the Act” as only requiring “consideration of those requirements that Congress *directly imposed on EGUs* through the CAA as amended in 1990 and for which EPA could reasonably predict emissions reductions at the time of the Utility Study.”<sup>102</sup> Had Congress intended this reading it would have specified in subparagraph (n)(1)(A) “...after the imposition of the requirements of Title IV of this chapter,” but it did not. NMA can find no legal or factual basis in support of this conclusion because Congress clearly appreciated the numerous programs, not just the ARP, which EGUs and other sources would be subject to with the amendments to the CAA. Hence the reason for § 112(n)(1)(A). EPA’s conclusion here is fundamentally flawed and cannot withstand judicial scrutiny.

Returning to the appropriate analysis, EPA is willing to supplement the record with new information to support its 2000 “appropriate” determination; however, the agency refuses to do the same record augmentation in its “necessary” analysis. EPA cannot have it both ways, especially after it already considered CAIR’s impact in the 2005 Revision.<sup>103</sup> As an aside, EPA conveniently cites CAIR in the proposed rule as a prime example of utilities “engaging in forward planning” to support its assertion that the necessary controls can be added within the MACT timeframe, but is quick to minimize the same program’s benefits in other analyses within the same rule.

Lastly, EPA’s discounting of the considerable achievements in air quality through the NAAQS program is particularly puzzling. After engaging in a series of shoulder-shrugging exercises, the agency concludes that the NAAQS program cannot be factored into the necessary analysis because “EPA cannot predict with any certainty precisely how states will ensure that the reductions needed to meet the NAAQS will be realized.”<sup>104</sup> This conclusion is suspect for at least two reasons. First, EPA does in fact have the legal authority under section 110 of the CAA to find that a state implementation plan is substantially inadequate to attain or maintain the NAAQS, also known as a “SIP Call.” After receiving the SIP Call, if the named state fails to complete a SIP revision or if EPA disapproves of such a revision, such

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<sup>102</sup> 76 Fed. Reg. at 24,991 (emphasis added).

<sup>103</sup> See *Nat’l Cable & Telecommunication Ass’n v. Brand X Internet Services*, 545 U.S. 967, 981 (2005) where an agency may pursue a different regulatory interpretation so long as it is consistent with the statute and is supported by a rational explanation for the deviation. EPA has not done so in this instance.

<sup>104</sup> 76 Fed. Reg. at 24,991.

a finding will trigger clocks for mandatory sanctions and an obligation for *EPA to impose a Federal Implementation Plan* (“FIP”). Thus, EPA clearly has the authority to hold states accountable if the NAAQS program is not being administered properly. Doubts about the implementation of the NAAQS program is not a compelling argument for excluding those benefits from the necessary analysis.

### **C. EPA is Not Compelled to Regulate EGUs under a MACT Standard**

EPA mistakenly believes that once a positive appropriate and necessary finding has been made, the agency has no choice but to list the source and promulgate MACT standards *for mercury and all HAPs* under section 112(d) despite never attempting to make a health-based finding for the other non-mercury HAPs. NMA does not concur with this statutory interpretation.<sup>105</sup> Indeed, a correct reading of the regulatory language under § 112(n)(1)(A) provides EPA with the opportunity to develop a properly tailored regulation achieving environmental benefit commensurate with the cost.

Assuming *arguendo* that EPA has adequately determined it is both appropriate and necessary to regulate *mercury emissions* from utilities, the statutory phrase “under this section” evinces the intent of Congress that a positive finding for mercury does not automatically subject EGUs to a MACT standard under section 112(d). Nowhere in section 112(n)(1)(A) is EPA directed or compelled to do this. By comparison, section 112(c)(2) does specifically compel that “the Administrator shall establish emissions standards *under subsection (d) of this section.*” (emphasis added). Therefore, had Congress wanted EGUs to be specifically regulated under § 112(d) following the appropriate and necessary determination, it would have so directed.

Additionally, the CAA directs EPA to develop and describe “alternative control strategies for emissions which may warrant regulation under this section.” This language leaves little doubt that Congress contemplated other regulatory options other than the MACT option the agency mistakenly believes it is compelled to observe. Furthermore, in developing these alternative control strategies, EPA can and should consider the cost of control technology. Despite EPA’s protestations to the contrary, the comparison of alternative control strategies necessarily implies cost. Interestingly, and with a far less compelling invitation to inject environmental concerns into the appropriate analysis, the agency steadfastly maintains that Congress did not contemplate cost as a basis for regulatory comparison. “Finally,

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<sup>105</sup> As the D.C. Circuit has made clear, 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 the regulation “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 ‘or required.’” See *Transitional Hospitals Corp. v. Shalala*, 222 F. 3d 1019, 1029 (D.C. Cir. 2000), quoting *Prill v. NLRB*, 755 F.2d 941, 948 (D.C. Cir. 1985).

significantly, nowhere in section 112(n)(1)(A) does Congress require the consideration of costs in assessing health and environmental impacts."<sup>106</sup>

This flatly distorts the statutory language. In fact, Representative Oxley stated that "[t]he conference committee produced a utility air toxics provision that will provide ample protection of the public health *while avoiding the imposition of excessive and unnecessary costs on residential, industrial and commercial consumers of electricity.*"<sup>107</sup> Moreover, EPA's argument is legally deficient as the D.C. Circuit in *Michigan v. EPA* held "[i]t is only where there is 'clear congressional intent to preclude consideration of cost' that we find agencies barred from considering costs."<sup>108</sup> Consequently, when viewed through the lens of heavy regulatory burdens for little to no incremental health benefit, the agency should promulgate alternative control strategies to deal with an issue with little impact to public health. Without such an approach the agency employs a blunt hammer in a situation begging for the precision of a sharp scalpel.

EPA's argument that the CAA requires MACT standards for *all HAPs* based on a positive mercury predicate finding is equally misguided. As stated previously, at no point in EPA's consideration of this issue has it made an affirmative health-based finding for any HAP other than mercury.

The agency's attempt to shoehorn the D.C. Circuit's decision in *National Lime* to support this conclusion is also unavailing. In that case, the court's decision turned on language of § 112(d)(1) rather than the subsection at issue in the instant rulemaking. Since EGUs were purposefully omitted from that section by Congress, the decision has limited persuasive value under the present circumstances.

Moreover, EPA claims it is still appropriate to regulate non-mercury HAPs because "emissions of these HAP from some EGUs pose a cancer risk greater than one in one million to the most exposed individual."<sup>109</sup> EPA is attempting to use the delisting criteria in § 112(c) to obfuscate the proper statutory analysis. For EGUs, the delisting criteria are not applicable until the agency has actually made the proper requisite factual finding for the HAPs EPA is proposing to regulate. To date, EPA has not done this, especially for the non-mercury HAPs. Consistent with the 2005 Revision that "EPA has neither discovered information on hazards to public health arising from Utility Unit emissions of acid gases based on its own efforts, nor received such information...",<sup>110</sup> the agency still does not have the requisite data to conclude that non-mercury HAPs should be regulated under section 112(d).

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<sup>106</sup> 76 Fed. Reg. at 24,987.

<sup>107</sup> 136 Cong. Rec. H12911, 12934 (daily ed. Oct. 26, 1990) (statement of Rep. Oxley) (emphasis added).

<sup>108</sup> 213 F.3d 663, 678 (D.C. Cir. 2000), cert. den., 532 U.S. 903 (2001) (internal citation omitted).

<sup>109</sup> 76 Fed. Reg. at 24,999.

<sup>110</sup> 70 Fed. Reg. at 16,007.

#### **IV. EPA'S HAP-BY-HAP APPROACH TO DETERMINING THE MACT FLOOR IS NOT PERMITTED BY THE CLEAN AIR ACT**

EPA continues to set MACT floors based on an impermissible interpretation of the CAA. The proposed MACT standards are based on a pollutant-by-pollutant approach relying on a different set of best performing sources for each HAP standard.

For each pollutant, we calculated the MACT floor for a subcategory of sources by ranking all the available emissions data obtained through the 2010 ICR from units within the subcategory from lowest emissions to highest emissions (on a lb/MMBtu basis), and then taking the numerical average of the test results from the best performing (lowest emitting) 12 percent of the sources.<sup>111</sup>

The result of the agency's HAP-by-HAP approach is a set of standards that reflect the performance of a hypothetical set of best performing sources that simultaneously achieve the greatest emission reductions for all regulated HAPs. This analytical framework distorts the statutory language because it is unlikely that any single existing plant can meet all of the MACT limits on a continuous basis during all phases of operation without some addition and/or optimization of control devices. In fact, optimization of control device combinations for one pollutant or set of pollutants could have countervailing effects on the emissions of other HAPs.

Section 112(d)(3) of the CAA expressly requires that emission limitations for new units should not be less stringent "than the emission control that is achieved in practice by the *best controlled similar source*." (emphasis added). For existing units, the emission standards "shall not be less stringent, and may be more stringent than—the average emission limitation achieved by the best performing 12 percent of existing *sources*." CAA § 112(d)(3)(A) (emphasis added). Section 112(a) defines "major source" as any stationary sources located within a contiguous area and under common control." Section 112(a) defines "area source" as "any stationary source...that is not a major source." That same section defines the term "stationary source" consistent with the meaning articulated under CAA § 111(a). That subsection, in turn, defines a "stationary source" as "any building, structure, facility, or installation which emits or may emit any air pollutant." CAA § 111(a)(3).

Collectively, these statutory provisions evince clear congressional intent that MACT standards promulgated under section 112(d) must be based on the actual performance of an actual operating source or sources. The CAA does not permit the agency to base § 112(d) standards on a hypothetical amalgamation of ideal units nor does the statute permit the "emissions control" achieved by the best sources to be determined on a group of best performing units. If this was the intent of Congress, it would have added language ordering EPA to set new source

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<sup>111</sup> 76 Fed. Reg. at 25,041.

limits based on the performance achieved in practice by the best controlled source “for each HAP.” No such language exists for either existing or new sources.<sup>112</sup>

Based on the information EPA provided to UJAE, there is little or no evidence in the rulemaking docket to conclude that EPA seriously considered whether any existing unit can meet all of the proposed MACT standards under real world conditions. A prime example of this failure to investigate is the proposed emissions standard for particulate matter. EPA’s sample of 131 units used to determine the particulate matter floor is inappropriate and fails to account for the antagonistic effects that adding multiple different pollution control devices can have on an EGU’s HAP emissions.

As UARG states in its comments, the docket reveals that at least 47 of the 131 units selected for best performing metric for particulate matter had a baghouse without a scrubber. This is a significant oversight because either the acid gas emissions standard or CSAPR will force these plants to install either a scrubber, DSI and mercury controls. Installing these types of technology will obviously increase the particulate matter emissions, thus the sample average emissions rate is biased low. The particulate matter standard needs to reflect the impending reality of what control technology will be required of an existing plant as a result of EPA’s regulatory approach, i.e. a scrubber, mercury control and baghouse. EPA must discard these plants in setting the MACT floor for particulate matter.

Moreover, the use of DSI to meet the acid gas MACT-subcategory may actually impede the ability of a unit to comply with the mercury standards. Again UARG states it in its comments that the use of DSI and the injection of Trona generate increased levels of NOx, which in turn degrades the efficacy of activated carbon used for mercury control. This impact was witnessed during a demonstration test at the Presque Isle Station unit equipped with a Toxecon system. EPA does not even attempt to grapple with this issue. Ironically, this oversight encapsulates the entire rulemaking process—the so-called “HAP of greatest concern” may be prevented from meeting the proposed standard because of EPA’s decision to regulate acid gases without a proper regulatory foundation and claim that HAP to be effectively controlled by an unproven technology to simultaneously mask the costs of compliance and buttress a dubious benefits analysis.

Lastly, EPA errs in its MACT floor calculation for mercury as the floor should have been based on the best performing 12 percent of all existing EGUS. Section 112(d)(3)(A) of the CAA specifies that EPA must set a MACT limit for existing units

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<sup>112</sup> As stated in UARG’s comments, EPA’s pollutant-by-pollutant approach under section 112(d)(3) also renders the beyond-the-floor analysis a pointless exercise. By choosing the best performing units for each HAP, EPA moves away from what those units actually “achieve” in emissions reductions for all HAPs and, instead, attempts to define what is “achievable” by a hypothetical unit equipped with the best pollution control equipment to achieve the maximum emissions reduction for each HAP. Thus, EPA transforms the “achievable” test of section 112(d)(2) into the MACT-floor determination under section 112(d)(3).

at least as stringent as “the average emission limitation achieved by the best performing 12 percent of the existing sources (for which the Administrator has emission information).” This is the MACT-floor.

EPA should have maintained its commitment to calculate the mercury MACT floor based on the average emissions achieved by the best performing 12 percent of the units in the entire source category—127 units.<sup>113</sup> Instead, EPA used emissions data from 40 units to calculate the MACT floor average for mercury.<sup>114</sup> The agency then accounted for variability by calibrating the upper prediction limit (“UPL”) to derive the final MACT floor. Due to the variability analysis, the UPL is actually larger than the MACT floor average for the 40 units. In fact, 154 units submitted mercury emissions data below the final UPL for mercury. Similarly, EPA used 130 units for the MACT floor averages for particulate matter and HCl; however, 151 and 178 units submitted emission values below the respective UPLs.<sup>115</sup> Theoretically, each of these 154, 151, and 178 units are compliant with at least one MACT floor begging the question of how many actually comply with all of the proposed NESHAPs. In reality, only 34 units or *about 3 percent* of the total population of units are able to meet all of the proposed standards.

Moreover, this is a conservative approach as it likely overestimates the number of compliant units because measuring below the level once does not guarantee compliance on a continuous basis.<sup>116</sup> Therefore, EPA has failed to investigate a fundamental aspect of the proposed rulemaking because the MACT floor for these HAPs does not appear to be based on the top performing 12 percent of units. Such failure renders this rule arbitrary and capricious and contrary to the provisions of the Clean Air Act.

In conclusion, EPA’s HAP-by-HAP approach is not authorized under the CAA. EPA must reconsider its emissions standards to reflect the performance of an actual operating unit.

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<sup>113</sup> See UARG’s comments describing the process, including OMB’s involvement, by which EPA committed to base the MACT floor for mercury on the emissions data from the entire source category.

<sup>114</sup> Spreadsheet downloaded from EPA, floor\_analysis\_coal\_hg\_051811 REVISED.xlsx; available at: [www.epa.gov/ttn/atw/utility/utilitypg.html](http://www.epa.gov/ttn/atw/utility/utilitypg.html) .

<sup>115</sup> Spreadsheet downloaded from EPA, floor\_analysis\_coal\_hcl\_031611.xlsx; and floor\_analysis\_coal\_pm\_031611.xlsx; available at: [www.epa.gov/ttn/atw/utility/utilitypg.html](http://www.epa.gov/ttn/atw/utility/utilitypg.html) .

<sup>116</sup> See *Sierra Club v. EPA*, 167 F.3d at 665 (“if an emission standard is as stringent as ‘the emissions control that is achieved in practice’ by a particular unit, then that particular unit will not violate the standard. This only results if ‘achieved in practice’ is interpreted to mean ‘achieved under the worst foreseeable circumstances.’”).

## V. EPA'S NEW SOURCE STANDARDS VIRTUALLY ELIMINATE NEW COAL PLANTS

One of NMA's principal objectives in this rulemaking is to ensure that new coal-fueled generating sources can be permitted in a timely and economic manner, consistent with the nation's need for reliable and cost effective electricity supplies while also fully complying with the applicable environmental safeguards. EPA's emissions standards for new sources are directly at odds with this objective. The agency's decision to effectively foreclose this vital energy source will have dramatic and cascading effects on the nation's economic future. Indeed, EPA's position contradicts Secretary of Energy Steven Chu's assessment that "prosperity depends on reliable, affordable access to energy. Coal...is likely to be a major and growing source of electricity generation for the foreseeable future."<sup>117</sup>

Indeed, by foreclosing the option to build new coal plants, EPA is effecting a major change in U.S. energy policy without authority to do so under the CAA, without even notice-and-comment rulemaking on such policy, without undertaking any of the analysis required by a host of statutes and executive orders (including those set forth at the end of the preamble to EPA's proposed rule), and indeed without even admitting that it is doing so. EPA has no authority to redefine energy policy in this fashion and should make sure that the final rule departs from this practice.

EPA claims it is *possible* to build a new coal plant. During the interagency review process this question was directly posed to EPA:

Emission limits for new units are so stringent we expect they will effectively stop new coal unit construction, an impact not adequately addressed in the impact analysis. **Can EPA include a discussion of this outcome and its likelihood?"**

**EPA's Response:** Based on the 2010 ICR data, the proposed new-source limits for coal-fired EGUs are currently being met by a number of existing units for each of the HAP groups, thus we do not think *the limits will stop the construction of new coal-fired EGUs.*<sup>118</sup>

At best, this response is evasive. While it may be true that each of the individual new-unit HAPs are met by one or more existing units, it is not true that *any* plant meets *all* of the standards, as EPA well knows. Comments filed with EPA in this docket on July 8, 2011 by UJAE contains information provided to that group by EPA as to which existing units meet EPA's proposed standards for new and existing units. As shown in the tabular information attached to those comments, no existing unit *meets all of the proposed new-unit MACT standards.* As UJAE concluded:

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<sup>117</sup> U.S. Secretary of Energy Steven Chu. "Memorandum." Oct. 12, 2009.

<sup>118</sup> Interagency Comments at 15 (emphasis added).



The proposed MATS rule would preclude the construction of any new coal-based electric generating units due to the severity of its emissions limitations for mercury, acid gases and particulate matter ("PM"). Data provided by EPA on June 8, 2011, show that no unit in EPA's sample of more than 200 coal-based generating units meets the combined MATS new source emission limits for mercury, acid gases, and PM.

EPA's new-unit standards, thus, are the product of the same impermissible HAP-by-HAP approach to setting emissions standards that EPA used for setting the existing-unit standards. As is the case for existing plants, section 112(d)(3) clearly states that new standards must be based on "the maximum degree of reduction in emissions that is deemed achievable for new sources in a category...shall not be less stringent than the *emission control that is achieved in practice by the best controlled similar source...*" 42 U.S.C. § 7412(d)(3) (emphasis added). The emphasis on "source" necessarily means that a single plant can actually meet all three MACT standards during the "worst foreseeable conditions."

The flaw in EPA's use of the "Franken-plant" approach to setting standards is heightened for new units because new units will be required to use best available control technology, including wet/dry scrubbing technology, SCRs and baghouses. Use of all of these technologies together will mean that certain HAPs cannot be controlled to the same limits that they could be if not all of these technologies were deployed.

The dilemma is demonstrated in the two plants that EPA examined in setting the new-unit PM limit, the AES Hawaii and Dunkirk units. Neither plant reflects the type of coal and/or control technology expected in the operational profile of a new coal plant. In fact, both likely candidates suffer from the same basic flaw—which is, they both use a baghouse without a scrubber. Use of a scrubber, however, would increase their PM emissions.

Specifically, the AES Hawaiian plant burns some of the lowest sulfur coal in the world from Indonesia, employs a baghouse without a scrubber, and a generating capacity of only 180 MW.<sup>119</sup> As EPA is well aware, operation of a scrubber will undoubtedly increase particulate matter; and with the proposed acid gas emissions standard in place, no plant will be permitted without a scrubber and baghouse.<sup>120</sup> Furthermore, this plant supplements its coal usage by burning old tires, used motor oil, and carbon filters from the local water authority. EPA is required pursuant to section 112(d)(3)(A) to set new source limits based on the "emission control that is achieved in practice by the best performing similar source." AES Hawaii clearly does not meet this statutory requirement. The Dunkirk

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<sup>119</sup> See floor\_analysis\_coal\_pm\_031611.xlsx, floor\_analysis\_coal\_hcl\_031611.xlsx, and floor\_analysis\_coal\_hg\_051811.xlsx.

<sup>120</sup> Indeed, the HCl results for the AES plant reported in the ICR data are *66 times* the proposed new unit HCl standard.

plant, by contrast, burns PRB coal with a fabric filter and DSI but no scrubbing technology. This unit could not meet current Best Available Control Technology ("BACT") requirements for the control of SO<sub>2</sub> and NO<sub>x</sub> emissions.<sup>121</sup> Like the Hawaiian plant, to meet BACT this plant would need scrubbing technology for SO<sub>2</sub> control, selective catalytic reduction ("SCR") for NO<sub>x</sub> control and a baghouse or fabric filter for PM control. Thus, these plants are not representative of the operational profile for new coal units.

Indeed, the RIA forecasts the type of control equipment needed to comply with the proposed standards—" [a]cid gas emissions (including SO<sub>2</sub>) can be reduced with flue gas desulfurization (FGD, also known as "scrubbers") or with dry sorbent injection (DSI)...An alternative to wet and dry scrubber technology is dry sorbent injection (DSI), which injects an alkaline powdered material (post combustion) to react with acid gases. The reacted product is removed by particulate matter (PM) control device. DSI technology is most efficient with a baghouse downstream but can function with an electrostatic precipitator (ESP) downstream as well."<sup>122</sup> Regardless of whether EPA's assessment of DSI is correct, a new plant will not exist with just a fabric filter. Therefore, selection of a plant that does not have this control technology will not exist in reality, and accordingly, its selection as the best performing "similar" source is contrary to the plain language of the CAA.

This HAP-by-HAP issue is not just limited to the particulate matter standard as the feasibility of meeting the new mercury standards is also questionable. The plant selected as the best performing for mercury as cited in the May 18, 2010 data revision—the 20-year-old Nucla plant—also suffers from the same basic flaws as identified in the particulate matter example. The Nucla plant is a circulating fluidized bed plant in Colorado that burns a particular type of coal that has a significant amount of inertinite as compared to most other U.S. coals. This factor increases the amount of unburned carbon in the fly ash and promotes better mercury capture. Given this key difference in feedstock, EPA should have selected a more representative plant for the best performing source. Furthermore, and illustrative of the Franken-plant issue, this particular plant's total particulate matter measurement during ICR stack testing is almost an order of magnitude above the proposed new unit total PM limit.

EPA claims that its standards for a new coal-fired EGU are simply a product of the stack testing data; hence, the standards are achievable. Again the interagency comments shed important light on EPA's lack of reasoned decision-making:

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<sup>121</sup> Additionally, the same EPA spreadsheet showing AES Hawaii to be the best performing source and the basis for the new unit PM limit (UPL = 0.049 lb/MWh) also shows that Dunkirk's UPL is equivalent to 0.14 lb/MWh. Accordingly, if EPA is relying on Dunkirk as the best performing, it must significantly alter the new unit PM

<sup>122</sup> RIA, "7.4 Pollution Control Technologies," at 205.

Is it possible that EPA intended to propose a mercury standard for new sources of 0.00001 lb/MWh rather than 0.00001/GWh? Based on a quick analysis, the standard appears to be three orders of magnitude more stringent than the standard for existing plants and would require greater than 99% total mercury removal at all new PC-fired coal plants. This proposed standard is also below the detection limit of CEMS instrumentation—has EPA considered this in requiring Hg CEMS?

**EPA's Response:** The fact that the proposed new-source limit is three orders of magnitude more stringent than the limit for existing sources is a *reflection of the data.*<sup>123</sup>

This was not a reflection of the data. As mentioned previously, UARG effectively forced the agency to admit a substantial error in calculating the emissions standard for mercury. In fact, it was the exactly the same error the interagency commentor raised, confusing MWh and GWh, and was summarily dismissed by EPA.

Even accounting for this error in calculation, EPA still does not provide persuasive evidence based on the data that a coal-fired EGU can meet all of the new source emissions standards. A review of the 2007 EIA-860 Report, which EPA considered in developing the proposed rule, reveals that in the past decade only 40 new coal-fired EGUs have been built or are currently under construction.<sup>124</sup> Of those 40 units, 18 have begun to operate and reported mercury emissions data to EPA.<sup>125</sup> Without considering variability, and more than likely operating in unrepresentative test conditions, the mercury emissions data for these plants averaged 1.8 #Hg/TBtu. Only two units reported tests below 0.2 #Hg/TBtu and the lowest recorded emissions was 0.07 #Hg/TBtu. Thus, on average, these units do not consistently achieve the existing source standards let alone the far more stringent new source emissions standards for mercury.

Not only do the foregoing examples illustrate EPA's indefensible and impractical method for setting emissions standards, they also highlight some of the ever growing uncertainties surrounding the construction of a new coal-fired plant. In fact, the preamble admits as much stating that, "[a]lthough multiple coal-fired EGUs have recently commenced operation and several are currently under construction, *no new coal-fired EGUs have commenced construction in either 2009 or 2010.* In addition, forecasts of new generation from both the EIA and Edison Electric Institute *do not project any new coal-fired EGUs being constructed in the short term.* This is an indication that, in the near term, few new coal-fired EGUs

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<sup>123</sup> Interagency Comments at 13.

<sup>124</sup> 76 Fed. Reg. 25,022.

<sup>125</sup> Mercury Floor Analysis, floor\_analysis\_coal\_hg\_051811REVISED.xls, available at: <http://www.epa.gov/ttn/atw/utility/utilitypg.html>.

will be subject to NSPS amendments.<sup>126</sup> Adding EPA's new source standards will ensure this trend becomes a self-fulfilling prophesy.

Indeed, EPA seems to be motivated by the improper purpose of phasing out coal plants. Although the agency states that mandating fuel switching from coal to natural gas represents an "unreasonable regulatory option,"<sup>127</sup> the preamble further notes the agency's desire to "level the playing field" and that "...the proposed rule will require companies to make a decision—control HAP emissions from virtually uncontrolled sources or retire these sometimes 60 year old units and *shift their emphasis to more efficient, cleaner modern methods of generation*, including modern coal-fired generation."<sup>128</sup>

Prior to making a final decision, EPA must conform to the strictures of and legislative intent behind section 112. The House Report on section 112, for example, states: "In the determination of MACT for new and existing sources, consideration of cost should be based on an evaluation of the cost of various control options. The Committee expects MACT to be meaningful, so that MACT will require substantial reductions in emissions from uncontrolled levels. *However, MACT is not intended to require unsafe control measure, or to drive sources to the brink of shutdown.*"<sup>129</sup> EPA's new source emissions standards run counter to this intent.

The agency must give careful consideration to the deleterious consequences of proposing standards that effectively preclude the construction of new coal-fired EGUs in this country. Replacing the lost generation of existing coal-fired EGUs without the option of new coal will clearly increase the cost of electricity and impact the overall economy. Comparing the levelized cost of electricity (LCOE) for solar generation, for example, is more than six-times the cost of coal-based, while wind power is roughly 60 percent more expensive.<sup>130</sup>

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<sup>126</sup> 76 Fed. Reg. at 25,072.

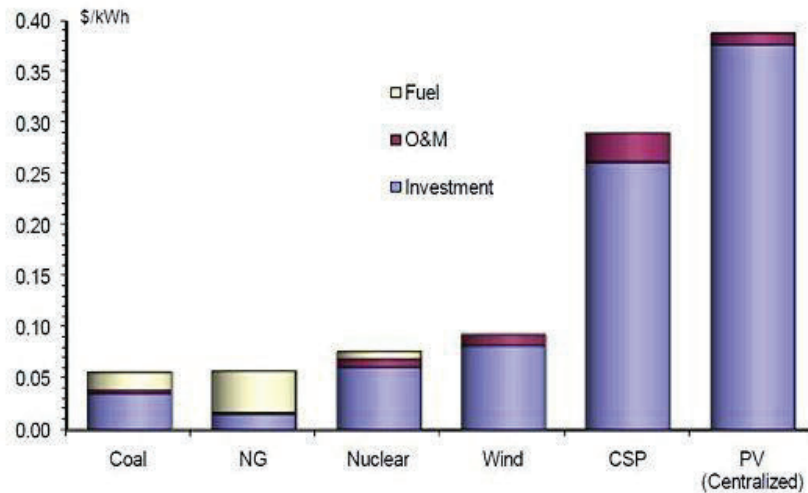
<sup>127</sup> 76 Fed. Reg. at 25,048.

<sup>128</sup> 76 Fed. Reg. at 24,979 (emphasis added).

<sup>129</sup> House Rep. 101-490, Part 1, at 328.

<sup>130</sup> Black and Veatch.

**Table 4**  
**Levelized Cost of Electricity (LCOE)**



Source: Byrne et al, 2008. Data Sources (NEA/IEA 2005, Falk et al 2008, LAZARD 2008, ESMAP/World Bank 2008, IEA 2008)

Even replacing coal with natural gas is problematic given that over 70 percent of the LCOE for gas is based on the cost of the fuel itself, which is highly volatile. Prices for natural gas spiked from \$6/MMBtu to \$13/MMBtu in 2005 due to declining production from shrinking domestic reserves and interruptions caused by Hurricanes Ivan and Katrina. Additionally, within two years proven shale gas reserves have created numerous environmental issues, including hydrofracking, drinking water contamination and significantly more methane emissions. Clearly, this policy discussion should not be made by administrative fiat but only after due consideration has been given at the congressional level.

NMA urges EPA to examine a constructive policy framework that removes this and other regulatory impediments and promotes the deployment of advanced coal technologies. In the United States, replacing our older coal plants with advanced supercritical generation could create \$1.2 trillion in economic benefits and 6 million jobs during construction. Moreover, this economic success would not have to be at the expense of maintaining or improving our environmental progress as some 440 million metric tons of CO<sub>2</sub> would be avoided even without deploying carbon capture and storage.<sup>131</sup>

<sup>131</sup> International Energy Agency: "Coal-Fired Power Generation: Replacement/Retrofitting Older Plants," 2008; Management Information Services and Peabody analysis.

## VI. EPA'S PERFORMANCE STANDARDS RUN COUNTER TO THE CAA

Under section 111(a)(1) of the CAA:

The term "standard of performance" means a standard for emissions of air pollutants which reflects the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction and any nonair quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated.

New Source Performance Standards ("NSPS") must therefore reflect the degree of emission reduction achievable through the application of the best adequately demonstrated system of continuous emission reduction, taking into account cost, nonair environmental impacts and energy policy issues. EPA has failed to adhere to this statutory construct.

NMA incorporates and adopts by reference the comments of UARG regarding EPA's proposed NSPS for subpart Da. NMA believes that EPA's ill-advised rulemaking schedule has created overly aggressive and inflexible performance standards that will further stymie economic growth in this country. As mentioned previously, EPA's stated goal to "level the playing field" in the electric generating sector is short-sighted and will discourage improvement in technology, raise the cost of electricity and harm the economic well-being of this country. EPA needs to rescind its proposed revisions for new and reconstructed subpart Da units and reinstate the former standards of performance.

Of particular concern, CAA § 111(a)(1) requires EPA to "tak[e] into consideration the cost of achieving such reduction..." Notwithstanding this requirement, EPA did not even attempt to calculate the costs of its proposed NSPS for Total PM and SO<sub>2</sub>. Rather the agency states that "the proposed EGU NESHAP PM and SO<sub>2</sub> standards for new EGUs are as stringent as or more stringent than the proposed NSPS amendments, and we have concluded that there are *no costs or benefits associated with these amendments.*"<sup>132</sup> This rationale fundamentally distorts the requirements of the CAA and is arbitrary and capricious.

Moreover, this failure is even more disconcerting considering that EPA's own benefits analysis clearly states that the Utility MACT rule has little to do with the HAPs at issue, but rather creating a regulatory backstop for reducing ambient concentrations of particulate matter. Simply stated, EPA has inappropriately conducted dual analyses of these proposed regulations. It has justified the Utility MACT rule, which does not permit consideration of costs in setting the MACT floor, by claiming co-benefits from this NSPS. Yet the agency refused to conduct an independent analysis of the costs of the proposed NSPS—which is required under

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<sup>132</sup> 76 Fed. Reg. at 25,072.

section 111. For this reason, EPA's NSPS for PM and SO<sub>2</sub> are arbitrary and capricious and contrary to the CAA.

## **VII. EPA SHOULD EXERCISE ITS DISCRETION TO PROPERLY TAILOR THIS RULE**

Both the text of the CAA and its legislative history grant EPA considerable discretion to establish alternative forms of emissions control narrowly tailored to substantially reduce the burden of regulation while still achieving the desired health results. At each opportunity throughout the proposed rule, EPA declined to exercise this discretion primarily to preserve the benefits attributable to regulating criteria pollutants. This rationale is not permitted by the CAA. Accordingly, NMA urges the agency to reevaluate its commitment to the Franken-MACT approach to regulating HAP emissions from EGUs.

### **A. EPA Should Develop Health Based Emissions Standards for Acid Gases**

Congress provided EPA with valuable regulatory flexibility under section 112(d)(4) to match the stringency of a HAP emission limitation to the level determined necessary to fully protect human health. The consequences of EPA's defective HAP-by-HAP standard setting approach highlights the need for a legislative backstop to ensure the emissions standards are no more stringent than necessary. Indeed, the legislative history of section 112(d)(4) supports this notion by stating, "[f]or some pollutants a MACT emissions limitation may be far more stringent than is necessary to protect public health and the environment."<sup>133</sup> Consequently, health based emissions standards provided an alternative regulatory mechanism for HAPs "where health thresholds are well-established...and the pollutant presents no risk of adverse health effects, including cancer..."<sup>134</sup> EPA should uphold the commitment from President Obama to eliminate unnecessary and inefficient regulation by promulgating health-based standards.

Based on EPA's inhalation risk analyses, the agency has the factual basis to develop health based emissions standards for acid gases as none of those HAPs are listed as carcinogenic and have defined health thresholds. As described above, EPA has estimated hazard quotients ("HQ") for these HAPs and determined that if an HQ is below 1.0 a health based standard may be set in lieu of a MACT standard. The agency reports that the HQ for HCl never exceeded 0.05 in any of its risk assessments—or values that are 20 to 200 times lower than the RfC for HCl.<sup>135</sup> In other words, for EGUs the predominant HAP in the acid gas MACT sub-group has a maximum risk that is only 5 percent of the level considered protective of health with an added safety buffer.

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<sup>133</sup> S. Rep. No. 101-228 (1990) at 171.

<sup>134</sup> *Id.*

<sup>135</sup> 76 Fed. Reg. at 25,051 n. 170.

Despite this information, the agency cites its regulatory authority under section 112 but claims that it does not have the requisite information to do so. “In the case of this proposed rulemaking, we have concluded that we do not have sufficient information at this time to establish what the health-based emissions standards would be for HCl or the other acid gases from EGUs alone, much less for EGUs and other sources of acid gas HAP located at or near facilities with EGUs.”<sup>136</sup> This argument is unpersuasive. Given the amount of time and resources the agency has expended collecting data from EGUs as evidenced by the foregoing risk analysis, there is little reason to believe that the agency, in conjunction with groups like EPRI or UARG, could not develop a practical solution to this issue.

Furthermore, the agency does have the technical tools and expertise to set § 112(d)(4) standards for acid gases as evidenced by the first round of industrial boiler MACT rulemakings in 2004. Those health based standards represented a win for both industry and the environment. EPA has also created regulatory precedence for addressing HCl as a threshold pollutant in promulgating the Pulp and Paper NESHAP (1998) and the Lime Manufacturing NESHAP (2002) where the agency wholly exempted HCl from the MACT requirement. Unfortunately, EPA seems unwilling to support such a common-sense approach.

Closer examination of the record, however, makes it seem unlikely that the absence of information or lack of technical expertise is the real driver in the agency’s decision to not exercise its discretion. The interagency comments provide useful insight into the agency’s intent. These comments note EPA’s reluctance to develop § 112(d)(4) standards due to the agency’s overreliance on the co-benefits derived from PM2.5 to fully support the benefits analysis.<sup>137</sup>

Citing the loss of co-benefits from criteria pollutants is not a permissible use of discretion. Section 112(d)(2) provides an express list of factors EPA may consider in setting § 112(d) standards—including “the cost of achieving such emission reductions, and any non-air quality health and environmental impacts and energy requirements.” Noticeably absent from this list is consideration of non-HAP air quality benefits, such as the co-benefits of reducing PM2.5 emissions. The restriction evinces clear congressional direction that the agency should not consider non-HAP air quality benefits in setting standards under § 112(d). Furthermore, the D.C. Circuit also rejected such a practice holding that Section 112 “prohibits the addition of any criteria pollutant to ‘the list’ of HAPs, with a single exception for certain precursor pollutants not relevant for this case. This prohibition extends of necessity not only to rules that literally list a criteria pollutant as a HAP but to any rule that in effect treats a criteria pollutant as a HAP.”<sup>138</sup> Therefore, EPA’s failure to set § 112(d)(4) standards based on this rationale runs counter to the CAA.

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<sup>136</sup> 76 Fed. Reg. at 25,051.

<sup>137</sup> Interagency Comments at 8.

<sup>138</sup> *Nat’l Lime Ass’n v. U.S. EPA*, 233 F. 3d 625, 638 (D.C. Cir. 2000).



## **B. EPA Should Subcategorize to Ensure all Coals Meet the Proposed NESHAPs**

Section 112(d)(1) provides the agency discretion to distinguish “among classes, types and sizes of sources within a category or subcategory in establishing standards.” Under section 111, the agency has set prior regulatory precedence for subcategorizing coal-fired power plants based on the sulfur levels of the type of coal burned.<sup>139</sup> This approach was subsequently validated by the D.C. Circuit in *Sierra Club v. Costle*.<sup>140</sup> The Court observed that “[o]n the basis of this language alone, it would seem presumptively reasonable for EPA to set different percentage reduction standards for utility plants that burn coal of varying sulfur content.”<sup>141</sup> Therefore, the Court determined that the agency could create subcategories based on the type of fuel burned.

Indeed, EPA explicitly acknowledged the need for subcategorization based on coal ranks in CAMR. The agency stated, “EPA continues to believe that it has the statutory authority to subcategorize based on coal rank and process type, as appropriate for a given standard.”<sup>142</sup> Here the agency recognized the need to subcategorize based on coal rank by providing separate emissions standards for lignite. While NMA is supportive of EPA’s decision to subcategorize for lignite, the agency needed to further subcategorize especially given the stringency of the proposed acid gas standard.

In the proposed rule, EPA declined to further subcategorize beyond lignite because “the data did not show any difference in the level of HAP emissions.”<sup>143</sup> Based on the information EPA provided to UJAE, however, emissions data demonstrate that the proposed acid gas standard will in fact create differences in the level of emissions. Thus, without further subcategorization the proposed rule will fundamentally discriminate between coal types.<sup>144</sup>

UJAE stated in its comments that many well-controlled units—those with scrubbing technology—will not meet the acid gas standard burning higher sulfur coals.<sup>145</sup> EPA should have developed an alternative SO<sub>2</sub> standard that takes fuel

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<sup>139</sup> 40 C.F.R. § 60.43a.

<sup>140</sup> 657 F.2d 298 (D.C. Cir. 1981).

<sup>141</sup> *Id.*

<sup>142</sup> 70 Fed. Reg. 28,606, 28,612 (May 18, 2005).

<sup>143</sup> 76 Fed. Reg. at 25,037.

<sup>144</sup> See Comments of the Unions for Jobs and the Environment (“UJAE”), EPA-HQ-OAR-2009-0234-16469, July 8, 2011.

<sup>145</sup> *Id.*

sulfur content into account through subcategorization. For example, a standard could be set for units burning higher-sulfur coals such as 2.0 percent and higher, with a lower standard for units consuming lower sulfur coal. Additionally, EPA should seriously consider subcategorizing the HCl standard based on coal chemistry (e.g., CI or S) to ensure that well-controlled units equipped with scrubbers and SCRs can meet the proposed standard.

Acting on this recommendation is supported by the record and better aligns with the agency's position in CAMR. EPA stated in CAMR, "[a]t some point in the future, the performance of control technologies on Hg emissions could advance to the point that the rank of coal being fired is irrelevant to the level of Hg control that can be achieved..."<sup>146</sup> While controls for mercury emissions have arguably reached this point based on the proposed MACT standard, this is not the case for acid gas control for higher sulfur coals. If a well-controlled unit burning higher sulfur coals cannot meet the standard, EPA needs to revise accordingly through further subcategorization to ensure that all coals are able to meet the applicable standards.

Furthermore, without further subcategorization the economic impacts on individual Midwestern states will be particularly acute as huge segments of the U.S. coal reserve will be disenfranchised by this rule. EPA did not even attempt to legitimately analyze this issue. Thus, agency's proffered rationale for declining to further subcategorize based on the acid gas standard is belied by the record. EPA needs to better align with its previous position in CAMR and further subcategorize based on coal type.

Lastly, and returning to the beyond-the-floor measure for lignite, EPA's measure for that coal type must be revised. The proposed height-to-depth ratio as part of that definition would exclude some existing lignite boilers in multiple states. EPA should therefore remove the height-to-depth ratio from the definition of "units designed for coal < 8,300 Btu/lb." Furthermore, consistent with the comments in Part III above, EPA only utilized emissions data from two units to set the floor for this subcategory within the top 12 percent for all three MACT subgroups. As a result, and inconsistent with the direction in section 112(d)(3), EPA's proposed standard represents limits achieved by the top 0.5% of existing sources. EPA must use—at a minimum—five units to set a MACT floor. Failure to do so renders this determination inconsistent with the CAA.

### **C. EPA Should Promulgate GACT Standards for Area Sources**

Section 112(d)(5) authorizes the agency to issue standards or requirements that provide for the use of generally available control technologies ("GACT") or management practices in lieu of the traditional MACT standards for area sources. The CAA defines area sources as those that emit or have the potential to emit less than 10 tons per year of any single HAP and 25 tons per year for all HAPs. Congress recognized that the risks posed by HAP emissions from area sources were

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<sup>146</sup> 70 Fed. Reg. at 28613.

far less than emissions from major sources warranting less stringent rulemaking standards. Therefore, EPA should reconsider and promulgate GACT standards for area sources.

Many EGUs owned by small public power or municipal utilities fall within the definition of an area source. Some of these units are small (less than 100 MWs) and pose relatively low risk to public health. Furthermore, many units have installed control technology or employ fluidized bed technology to reduce emission levels to the point of meeting the area source definition. Like the health based standards issue, EPA recognizes its discretion to set GACT for area sources but declines based on suspect rationale. The proposed rule states, "EPA believes the standards for area source EGUs should reflect MACT, rather than GACT, because *there is no essential difference between area source and major source EGUs with respect to emissions of HAP.*"<sup>147</sup>

This argument misses the mark. If the overall issue underlying this rulemaking is protection of public health, then the relative size of the EGU should make little difference. Units that emit such small amounts of mercury present little, or no, risk to public health. In fact, EPA conceded as much when it noted that approximately 390 of the smallest emitting coal-facility units account for less than 5 percent of the total mercury emissions.<sup>148</sup> Regardless of whether this is a product of the unit's size or due to the benefit of advanced control technologies, these sources should not have to wade through regulatory uncertainty simply because the agency does not want to engage in the analytical rigor necessary to make this proposed rule a little more palatable for the regulated community. Instead, the proposed rule will ultimately result in a huge burden on the smallest units, many of which are owned by public power producers, impairing electric reliability and affordability for little environmental benefit.

### **VIII. EPA SHOULD PROVIDE THE MAXIMUM AMOUNT OF TIME TO COMPLY WITH THIS RULE**

Coal-fired EGUs currently face a daunting array of air quality requirements. These requirements are often duplicative, inefficient, and create considerable uncertainty for an industry that is providing the country with one of its most crucial resources—safe, affordable and reliable power generation. The command-and-control regulatory regime being proposed is no exception to this labyrinth of regulation. Therefore, NMA requests EPA to provide the greatest amount of flexibility afforded to it under the Clean Air Act to comply with the proposed rule.

While NMA is mindful of EPA's recognition that existing sources need to be "provided up to 3 years to comply with the final rule; [and] if an existing source is unable to comply within 3 years, a permitting authority has the discretion to grant such a source an extension up to a 1-year extension on a case-by-case basis, if

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<sup>147</sup> 76 Fed. Reg. at 25,021 (emphasis added).

<sup>148</sup> 69 Fed. Reg. at 4,699.

such additional time for the installation of controls,<sup>149</sup> the agency is strongly encouraged to exercise its discretion and provide that fourth year to utilities without exception. The three-year compliance window is simply insufficient for designing, financing, procurement, permitting, constructing, and process startup testing the applicable universe of needed control technology installations.

There is regulatory precedent for the agency providing a fourth-year blanket exception. In the preamble to the Marine Tank Vessel Loading MACT rule, which only impacted 20 marine terminals, the agency stated, "...[t]he Agency agrees with the commenters that many MACT sources would probably require 1-year waivers if there was a 3-year compliance date for MACT sources in the final rule...Therefore, the Agency believes that the sources controlled under section 112 ... should automatically receive a waiver of 1 year that will allow a total of four years from September 19, 1995 to comply with the MACT emission reduction requirements."<sup>150</sup> EPA should follow this precedent and eliminate doubt that a source can receive the additional year to comply as the Utility MACT rule and the IB MACT rule will impact more than 2,000 coal-fired boilers.

In addition, the agency needs to begin working with the White House, DOE, NERC and other stakeholders to investigate the discretion afforded by the Presidential Exemption under section 112(i)(4), which authorizes the President to exempt any stationary source from compliance with the MACT standards for a period of not more than two years. EPA needs to conduct this due diligence because it has failed to properly calibrate both the type of needed technology and the process utilities employ in developing and implementing a compliance program.

As mentioned previously, this proposed rule looks markedly different even optimistically assessing the market penetration for DSI. Adding at least another 26 GW of scrubbers to the already projected amount within three-to-four years will assuredly create construction and permitting bottlenecks, electric reliability issues and a myriad of other issues as detailed by UARG without additional, up-front decision-making time.<sup>151</sup> Furthermore, Administrator Jackson's ill-founded assumption that "over 50 percent of the power generation fleet" has no further need to retrofit to meet the demands of this proposed rule will add another layer of existing units that will need to update or retrofit scrubbing technology. Lastly, EPA has overlooked the interrelated nature of the now numerous coal-centric CAA rules. The IB MACT rule alone will cause more than 900 industrial coal boilers to compete with EGUs for retrofit technology during this same time period. These three

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<sup>149</sup> 76 Fed. Reg. at 25,054.

<sup>150</sup> 60 Fed. Reg. 48,388 (Sept. 19, 1995).

<sup>151</sup> UARG estimates that 48 months are needed to install a single scrubber at a large unit; 50 months to install a single scrubber at a small unit; 51 months to install two scrubbers at a facility; and 54 months to install three or more scrubbers at a facility. Additionally, it will take an estimated 5.5 years for 90 percent of units that need to install fabric filters.

examples reinforce the need for additional compliance time based on EPA's miscalculation of the type of needed technology.

Moreover, despite EPA's declarations that utilities routinely engage in forward planning, the fact of the matter is that these retrofits require time and careful planning. This planning does not happen in a vacuum, but rather as part of an interconnected grid where work at one plant can affect energy supplies across an entire region. EPA also portrays utilities as largely autonomous, while in investor-owned utilities and some cooperative and publically-owned utilities must involve public service commissions in their decision-making, and publically-owned utilities must often undertake public decision-making processes. This cannot happen while the rule is subject to change due to comments submitted by the public. EPA's reluctance to acknowledge these facts provide another example of the agency trying to have it both ways—on the one hand, EPA attempts to refute EGU's, like AEP, compliance plans as speculation based on a proposed rule, but in the same breath places the onus on industry to immediately develop compliance plans based on that same proposal.

Additionally, the agency's position that utilities possessed the foreknowledge for the past decade that existing sources would be subject to the requirements of the proposed rule is historically inaccurate. Beginning with Administrator Browner's "necessary and proper" finding for mercury, utilities may have reasonably predicted some form of mercury control, but there is no factual basis to conclude that a utility would have foreseen compliance with multiple MACT standards. The subsequent 2005 Revision reinforced EPA's approach that only mercury would be regulated under some provision of the CAA. These historic precedents drastically differ from the rule being proposed by the agency. As such, utilities and their regulators would not have authorized spending billions on speculative outcomes.

Taken together, EPA's miscalculations and over simplifications require the full amount of time afforded by the CAA to comply with the proposed rule.

## **CONCLUSION**

Based on the foregoing, it is abundantly clear this rule will severely harm economic growth, drive up energy costs and curtail employment for little environmental gain. In EPA's haste to complete this rule, the agency has developed a proposal infected with numerous miscalculations so as to prevent meaningful comment. Specifically, the development of a rule that does not practically consider further development of one of the country's most critical and abundant natural resources to offset the loss of early retirements is unwise and stunningly short-sighted. NMA respectfully requests EPA withdraw the current proposal and re-propose a rule that is properly tailored to achieve a win for both the environment and the economic well-being of this country.

# United States Senator Lisa Murkowski

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Wednesday August 03 2011

## Murkowski: FERC Responses Raise New Concerns About Reliability

WASHINGTON, D.C. - Sen. Lisa Murkowski, R-Alaska, today said she remains concerned about the impacts that new regulations by the Environmental Protection Agency could have on the reliability of the nation's power grid.

In May, Murkowski asked the Federal Energy Regulatory Commission, which is responsible for reliability, to explain how the commission is working to ensure that EPA's new regulations do not adversely affect reliability. FERC's responses, which arrived Monday in the form of three separate letters from different members of the commission, prompted the following response from Murkowski:

"EPA's rulemakings could have a serious impact on the affordability and reliability of our nation's energy supply, especially given the sheer number of new regulations the agency has rolled out in such a short time period.

"I was somewhat reassured last year when Chairman Jon Wellinghoff outlined plans for an interagency task force to address this important issue. Although I was concerned about the transparency of that effort, I was hopeful it would provide FERC with an opportunity to inform the rulemaking process through a thoughtful and thorough analysis of potential consequences.

"In May, I sent a letter to FERC seeking to clarify its collaboration with EPA on regulations that could force the shutdown of a significant portion of the nation's coal-fired electricity fleet. I asked a number of questions to determine whether the commission was doing its part to monitor and protect electric reliability in this turbulent regulatory landscape. Having received FERC's responses this week, I must say that I am now less confident of that being the case.

"The commission's staff has preliminarily estimated that up to 81 gigawatts of existing generation are 'likely' or 'very likely' to be retired as a consequence of new EPA rules. That's nearly 8 percent of our installed capacity for electric generation and a retirement at that scale could have drastic consequences for many parts of our country.

"Equally concerning is FERC's admission that it has not completed a full reliability study - only an informal, preliminary analysis. There is no indication that FERC plans to press ahead and complete such a study. Instead, Chairman Wellinghoff's letter suggests that 'the planning processes used by utilities to identify and plan for the infrastructure and resources they will need are the most appropriate vehicles for this analysis.' If this is true, more time will be required to complete such planning processes.

"I continue to believe that FERC is in a good position to provide the information needed to answer these questions, but it's highly unlikely that it could be possible under the timeframe EPA

has established for its regulations. We must ensure that FERC is able to weigh in on any reliability concerns that arise, and we must be sure that the information in these letters and anything else that emerges can be made a part of the record on EPA's rulemakings."

Murkowski said FERC's responses ultimately raise more questions than they answer, including:

Should utilities or FERC be responsible for reliability analyses, and when will those analyses be completed?

Why has FERC not conducted its own formal study or sought to have utilities complete that work, especially in light of EPA's aggressive regulatory schedule?

Why did FERC opt to proceed informally in light of the seriousness of the matter and its impact on matters within the Commission's jurisdiction?

Is it possible to definitively state that reliability is not jeopardized by EPA's rulemakings?

What process will facilitate access to information that FERC says it currently lacks?

Copies of the FERC Commissioners' letters to Sen. Murkowski are attached, as is her original letter to FERC.

###

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**Related Files:**

[FERC Spitzer response 8-1-11.pdf](#) (114.8 KBs)

[FERC Moeller response 8-1-11.pdf](#) (706.5 KBs)

[FERC Chairman response 8-1-11.pdf](#) (1.4 MBs)

[05.17.11 Senator Murkowski letter to Chairman Wellinghoff.pdf](#) (1.2 MBs)

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FEDERAL ENERGY REGULATORY COMMISSION

WASHINGTON, D. C. 20426

August 1, 2011

The Honorable Lisa Murkowski  
Ranking Member  
Committee on Energy and Natural Resources  
Dirksen 304  
United States Senate  
Washington, D.C. 20510

Dear Senator Murkowski:

Thank you for your May 17, 2011 letter regarding the potential reliability implications of the Environmental Protection Agency's ("EPA") proposed rules and any work that the Federal Energy Regulatory Commission ("Commission") may have undertaken in this area.

As described in the attached documents, Commission staff made an informal assessment of the reliability impacts of the proposed rules, but they have not conducted any full studies for a variety of reasons. First, it is important to note that staff's informal assessment necessarily included assumptions of what the EPA regulations would require. Only one of the EPA regulations is yet final, and the informal assessment was performed before that regulation was finalized, and before some of the other regulations were formally proposed.

Second, staff's informal assessments used only publicly available data. In some cases, generation retirement decisions may not even have been made by the generation owners. Consequently, an in-depth analysis could not be conducted because complete information was not available.

Third, at meetings with EPA, Commission staff emphasized that the appropriate vehicles for addressing the impact on electric reliability of the EPA rules in detail are the planning processes used by utilities to identify and plan for the infrastructure and resources they will need to meet future needs. These processes have all the necessary data and tools for such analyses. In comparison, the data and tools available to FERC are more limited. Therefore, this informal assessment offered only a preliminary look at how coal-fired generating units could be impacted by EPA rules, and is inadequate to use as a basis for decision-making, given that it used information and assumptions that have changed.



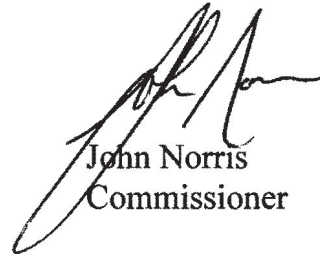
Finally, it is important to note that available data indicates that industry has added significant amounts of generating facilities when circumstances warranted.

If the Commission can be of further assistance on this or any other Commission matter, please let us know.


Sincerely,



Jon Wellinghoff  
Chairman



John Norris  
Commissioner



Cheryl LaFleur  
Commissioner

## FERC Response to Senator Murkowski Proposed EPA Rules

1. With respect to the impact on electric reliability of the listed EPA rules affecting generation of electric power, please list and describe the Commission's actions taken; studies conducted; assistance provided to any other agency, including EPA; collaborative efforts with any other agency; and provision of data to any other agency.

*Answer: Commission staff and individual Commissioners have consulted with EPA and other agencies. Also as described below, the Commission has not conducted any full studies on the EPA rules, but Commission staff has made an informal assessment of the reliability impacts of EPA's rules (copy provided).*

### **Limited Scope of Commission Staff's Informal Assessment**

*At meetings with EPA, Commission staff has emphasized that the appropriate vehicles for addressing the impact on electric reliability of the EPA rules in detail are the planning processes used by utilities to identify and plan for the infrastructure and resources they will need to meet future needs.<sup>1</sup> These processes have all the necessary data and tools for such analyses. In comparison, the data and tools available to both EPA and FERC are more limited. Commission staff has also identified relevant issues that can and should be addressed within these processes. Further, staff's informal assessments used only public data.*

*It is important to note that staff's informal assessment necessarily included assumptions of what the EPA regulations would require. Only one of the EPA regulations is yet final, and staff's informal assessment was performed before certain of the regulations were proposed. On this point, a June 2011 report issued by staff of the Bipartisan Policy Center concluded that:*

*scenarios in which electric system reliability is broadly affected are unlikely to occur. Previous national assessments of the combined effects of EPA regulations reach different conclusions, in part because they make quite different assumptions about the stringency and timing of new requirements and about the availability and difficulty of implementing control technologies. In some cases these assumptions deviate from the specifics of EPA's recent proposals in meaningful ways. Moreover, market factors, such as low natural gas prices, are as relevant as EPA regulations in driving coal plant retirements.<sup>[2]</sup>*

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<sup>1</sup> The planning authorities include, but are not limited to the Midwest Independent Transmission System Operator, PJM Interconnection, LLC, the California Independent System Operator, and Tennessee Valley Authority.

<sup>2</sup> Bipartisan Policy Center, Staff Paper: Environmental Regulation and Electric System Reliability (June 13, 2011).

*This statement is equally true of staff's informal assessment. As noted, Commission staff's informal assessment was based on information that was publicly available at the time it was conducted and included assumptions regarding the potential EPA rules that have changed during the EPA rulemaking process and may continue to change. While that informal, preliminary assessment showed 40 GW of coal-fired generating capacity "likely" to retire, with another 41 GW "very likely" to retire, an in-depth analysis could not be conducted because complete information was not available. In performing the informal assessment, Commission staff chose certain factors to consider, such as SO<sub>2</sub> controls, age of the plant, and whether the plant owner had already announced plans to retire the plant. Commission staff then decided to weight each factor. As these inputs to the informal assessment have changed, projected outcomes would necessarily change. Therefore, this informal assessment offered only a preliminary look at how coal-fired generating units could be impacted by EPA rules, and is inadequate to use as a basis for decision-making, given that it used information and assumptions that have changed.*

*Commission staff's informal assessment of the proposed EPA regulations was performed based on assumptions of what the EPA regulations might require. For example, similar to other national studies performed at the time, staff's informal assessment assumed that the steam generating units employing once-through cooling systems could be required to replace their cooling water systems with closed-loop cooling systems.<sup>3</sup> However, EPA states that under its proposed rules, closed-loop cooling systems are not required of existing facilities and that "in meeting the impingement requirement that a limited number of fish be killed by a facility, the facility would determine which technology to employ to meet the impingement limit."<sup>4</sup>*

### **Consultations**

*Commission staff has had numerous consultations with EPA concerning its proposed power sector rules. Staff also has participated in meetings attended by the Council on Environmental Quality (CEQ), Department of Energy, and the EPA. Each consultation generally concerned a single proposed rule, rather than the cumulative effect of all of the EPA proposed rules. Commission staff's discussions with EPA staff were primarily with EPA's air quality staff and concerned EPA's air quality rules.*

*Commission staff discussions with EPA and other agencies generally concerned the EPA's analysis of its various upcoming rules – particularly their effects on power plants and grid reliability. At some of these meetings, outside studies as well as FERC's and EPA's assessments of the impacts of the individual potential EPA rules were discussed. The agencies discussed the underlying approach to EPA's analysis and potential limitations of the analysis, and next steps.*

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<sup>3</sup> See, e.g. NERC Assessment at 2.

<sup>4</sup> EPA, Clean Water Act Section 316(b) Existing Facilities Proposed Rule: Qs and As (March 28, 2011).

*In a meeting with EPA and CEQ at Commission Headquarters on October 27, 2010, Commission staff discussed the results of its informal assessment of projected coal generation retirements, which included an explanation of the assessment's methodology. As discussed above, this informal assessment had several limitations. The informal assessment of reliability impacts was based on information that was publicly available at the time it was conducted and included assumptions regarding the potential EPA rules that have changed during the EPA rulemaking process and may continue to change. While that informal, preliminary assessment showed 40 GW of coal-fired generating capacity "likely" to retire, with another 41 GW "very likely" to retire, an in-depth analysis could not be conducted because complete information was not available. In some cases, generation retirement decisions may not even have been made by the generation owners. In performing the informal assessment, Commission staff chose certain factors to consider, such as SO<sub>2</sub> controls, age of the plant, and whether the plant owner had already announced plans to retire the plant. Commission staff then decided to weight each factor. As these inputs to the informal assessment have changed, projected outcomes would necessarily change. Therefore, this informal assessment offered only a preliminary look at how coal-fired generating units could be impacted by EPA rules, and is inadequate to use as a basis for decision-making, given that it used information and assumptions that have changed. This assessment was not transmitted to the EPA or CEQ either in paper form or electronically. EPA and CEQ staff questions centered on the amount of generation that might be affected, its impact on the reliability of the power grid, the methods by which the data was acquired, the weighting of the factors, and the basis used for conclusions on which units would be considered at-risk for retirement.*

*Commission staff, CEQ and EPA also discussed the effect of planned and needed new generation to compensate for the reliability impacts of retirements, the ability of such new generation to come online before the retirement of coal units is expected to begin between 2015 and 2018, the deliverability of new generation, the issues regarding single-source fuel dependencies, and finally which EPA regulations were most likely to be implemented within the near future.*

*In subsequent discussions with EPA, Commission staff discussed the generation investment strategy used by the industry and why Commission staff believes that a comprehensive approach is needed when studying the impacts of the EPA rules. EPA and Commission staff discussed various scenarios concerning replacing retired generation with renewable resources, including that renewable generation may not provide a one-to-one replacement for retiring capacity given the unique characteristics of different generation types and their impact on grid stability.*

*In discussing whether there is enough time for new generation to come online by 2018 to offset coal retirements, Commission staff identified several factors that can extend the project build horizon. These include the long lead time needed for some equipment, potential protests against pipeline siting and construction, transmission siting and construction issues, and environmental permitting. These factors may slow the industry response in replacing retired units.*

*In discussions concerning the EPA efforts to model the effect these regulations could have on generation retirements, Commission staff recommended that such efforts should include the modeling of transfer limits, placement and timing of capacity additions and the cumulative impact of all the upcoming EPA regulations. Specifically, the Commission staff identified the following reliability considerations: (1) regional resource adequacy, (2) deliverability and transmission flows on the grid, (3) black start units and (4) voltage and frequency response.*

*Importantly, Commission staff has emphasized that the appropriate vehicles for addressing these issues are the planning processes used by utilities to identify and plan for the infrastructure and resources they will need to meet future needs.<sup>5</sup> These processes have all the necessary data and tools for such analyses. In comparison, the data and tools available to both EPA and FERC are limited and incomplete.*

*At least one staff discussion with EPA staff focused on Commission approved public utility tariff rules relating to generation retirements. Commission staff discussed public utility tariff requirements for reliability-must-run generation, generation retirements and related Commission decisions. Commission staff later sent EPA information detailing FERC policies and key orders that explain those policies.*

*In addition to the staff consultations, certain Commissioners also met with representatives from EPA. On December 17, 2010, Chairman Wellinghoff met with Administrator Jackson at EPA regarding the proposed rules. Chairman Wellinghoff also had a phone conversation with Gina McCarthy, Assistant Administrator for the Office of Air and Radiation, on the morning of October 26, 2010 to discuss NERC's report on the reliability impacts of EPA's regulations. On November 29, 2010, Commissioners Norris and LaFleur and their staffs met with Ms. McCarthy and other EPA staff. The meeting consisted of an overview and discussion of EPA's current Clean Air Act rulemaking activities. On May 3, 2011, Commissioners LaFleur and Moeller and their staffs met with Ms. McCarthy, other EPA staff, and staff from DOE. The subject matter of this meeting concerned the EPA's proposed rules and their potential impacts in terms of cost and reliability, specifically discussing the analyses that EPA has performed to try and quantify these impacts.*

2. Regarding collaborative efforts between FERC and EPA described above, has an Inter-Agency Task Force been established? If so, please state or provide:
- a. the date it was established;
  - b. the source of its authority;
  - c. a copy of its charter;
  - d. a description of the scope of its work;

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<sup>5</sup> Some of the larger planning authorities are the Midwest Independent Transmission System Operator, PJM Interconnection, LLC, and the California Independent System Operator.

- e. a schedule of its meetings, including a list of its meetings to date and any planned meetings;
- f. any minutes of its meetings; and
- g. a list of the agencies and agency officials participating.

*Answer: While Chairman Wellinghoff has stated that he believed that an Interagency Task Force was being formed, he was broadly referring to the informal consultations described in response to question number 1. The Commission has not participated in any interagency task force or other working group to address the impact of EPA's proposed power sector rules. All meetings attended by Commission staff concerning the proposed rules are summarized in response to question number 1.*

3. Please describe all work being jointly performed by FERC staff, including work done in collaboration with EPA – whether in connection with an Inter-Agency task force or otherwise – regarding the potential impact of EPA regulations on the retirement of electric generating units and, to the extent such information has been developed, the specific type and characteristics of units that may face retirement as a consequence of such regulations.

*Answer: The only work performed by Commission staff is discussed above in response to question 1. Commission staff has not performed any work jointly with any other agency regarding the potential impact of the EPA regulations. As explained in response to question 4, Commission staff performed an informal assessment of projected coal generation retirements.*

4. Please describe FERC's efforts to explain the effect of potential retirements on electric reliability. If research, data, or analysis has been developed by or supplied to FERC, please provide it. If no analysis has been conducted, please explain why.

*Answer: Commission staff performed an informal assessment of projected coal generation retirements. The informal assessment was based on information that was publicly available at the time it was conducted. While that informal, preliminary assessment showed 40 GW of coal-fired generating capacity "likely" to retire, with another 41 GW "very likely" to retire, an in-depth analysis could not be conducted because complete information regarding the specific units planned for retirement is not available. In some cases, generation retirement decisions may not even have been made by the generation owners. In performing the informal assessment, Commission staff chose certain factors to consider, such as SO<sub>2</sub> controls, age of the plant, and whether the plant owner had already announced plans to retire the plant. Commission staff then decided to weight each factor. As these inputs to the informal assessment have changed, projected outcomes would necessarily change. Therefore, this informal assessment offered only a preliminary look at how coal-fired generating units could be impacted by EPA rules, and is inadequate to use as a basis for decision-making, given that it used information and assumptions that have changed. This assessment was not transmitted to*

*the EPA or CEQ either in paper form or electronically. EPA and CEQ staff questions centered on the amount of generation that might be affected, its impact on the reliability of the power grid, the methods by which the data was acquired, the weighting of the factors, and the basis used for conclusions on which units would be considered at-risk for retirement.*

5. Please describe fully FERC's powers to protect electric reliability in the event of plant retirements, and what measures FERC plans to take to ensure electric reliability or an explanation of why such measures have not been devised. Please provide the following assessments, or an explanation of why such assessments have not yet been devised:

- a. an assessment of generation adequacy in the face of retirements of significant generating units in transmission-constrained areas;
- b. an assessment of the effect of retirements of generating units in organized markets for energy and capacity (e.g. on prices and unit commitment); and,
- c. a general assessment of the capacity to permit and construct new electric generation units in a timely manner such that electric supplies from retired plants are replaced and anticipated demand growth is met.

*Answer: As discussed in response to question 4, Commission staff has only performed an informal assessment of projected coal generation retirements. The informal assessment of reliability impacts was based on information that was publicly available at the time it was conducted. An in-depth analysis could not be conducted because complete information regarding the specific units planned for retirement is not available. In some cases, generation retirement decisions may not even have been made by the generation owners.*

*Commission staff believes that the appropriate vehicles for addressing these issues are the planning processes used by utilities to identify and plan for the infrastructure and resources they will need to meet future needs.<sup>6</sup> These processes have all the necessary data and tools for such analyses. In comparison, the data and tools available to FERC staff are limited and incomplete. In addition, section 215 of the FPA does not allow the Commission to order new facilities to be built.*

*With respect to the Commission's authority to protect electric reliability in the event of plant retirements, the Commission has acted under section 207 of the Federal Power Act to ensure reliability in a case involving the Clean Air Act.<sup>7</sup> Section 207 states that "whenever the Commission, upon complaint of a State commission, after notice to each State commission and public utility affected and after opportunity for hearing, shall find*

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<sup>6</sup> Some of the larger planning authorities are the Midwest Independent Transmission System Operator, PJM Interconnection, LLC, and the California Independent Transmission System Operator.

<sup>7</sup> The answers to this question concern only the Commission's authority and do not discuss any possible DOE authority.

*that any interstate service of any public utility is inadequate or insufficient, the Commission shall determine the proper, adequate, or sufficient service to be furnished, and shall fix the same by its order, rule, or regulation.” Action under section 207 may only be taken after a hearing. This may consist of a paper hearing allowing for comments to be submitted to the Commission. In a 2006 decision, the Commission relied on section 207 to order two utilities to file a long-term plan for transmission upgrades to address reliability concerns raised by the possible shutdown of certain generating facilities pursuant to the Clean Air Act. District of Columbia Public Service Commission, 114 FERC 61,017 (2006). The Commission’s remedy did not conflict with the requirements of the Clean Air Act, and instead reconciled the requirements of the Federal Power Act and the Clean Air Act.*

*FERC also has approved tariff provisions and agreements allowing system operators to require the continued operation of generating facilities so long as the owners of those facilities are reimbursed for the cost of operating, including any costs incurred in ensuring compliance with environmental rules. In Order No. 890-A,<sup>8</sup> for example, the Commission stated that:*

*Reliability problems caused by the lack of available resources should be dealt with through ... means, such as negotiation of must-run service agreements.<sup>9</sup>*

*Such agreements have been used by Regional Transmission Organizations or Independent System Operators to ensure continued operation of needed facilities while ensuring appropriate compensation for the costs incurred by those units.<sup>10</sup>*

*Similarly, during the California energy crisis, the Commission required generating facilities to run whenever requested by the system operator. However, the Commission*

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<sup>8</sup> Preventing Undue Discrimination and Preference in Transmission Service, Order No. 890, FERC Stats. & Regs. P 31,241, order on reh'g, Order No. 890-A, FERC Stats. & Regs. P 31,261 (2007), order on reh'g, Order No. 890-B, 123 FERC ¶ 61,299 (2008), order on reh'g, Order No. 890-C, 126 FERC ¶ 61,228 (2009), order on clarification, Order No. 890-D, 129 FERC ¶ 61,126 (2009).

<sup>9</sup> Order No. 890-A at P 950.

<sup>10</sup> See, e.g., *ISO-New England, Inc*, 132 FERC ¶ 61,044 (2010); *Exelon Generation Company, LLC*, 132 FERC ¶ 61,219 (2010); *PSEG Energy Resources & Trade and PSEG Fossil LLC*, 111 FERC ¶ 61,121 (2005). See also, e.g., ISO-New England, tariff section III.13.2.5.2.5 (delineating the process for a de-list bid rejected for reliability reasons), PJM Interconnection, tariff section V.113 (governing the generation deactivation process), and California Independent System Operator, tariff sections 41.1 (Procurement of RMR Generation), 41.4 (Reliability Must Run Contracts) and 41.3 (Reliability Studies and Determination of RMR Unit Status).



*allowed an exception for purposes of compliance with other applicable law.<sup>11</sup> Again, the Commission was able to reconcile the requirements of the Federal Power Act and other laws.*

*In Order No. 890, the Commission also required certain transparency provisions regarding retired generation, requiring transmission providers to make available, upon request, modeling data concerning the dates and capacities of new and retiring generation as well as new and retired generation included in models for future years.<sup>12</sup>*

*A completed application for Network Integrated Transmission Service also requires information regarding off-system network resources that include any RMR unit designations required for system reliability or contract reasons.<sup>13</sup> Again, the Commission has not asserted that this authority can be used to approve violations of environmental laws. Instead, the owners of affected generating facilities were “made whole” for the costs they incurred to continue to operate.*

*I do not foresee a need to require utilities to operate in violation of federal environmental laws or regulations. As it has in the past, the Commission would seek to find ways to require or allow utilities to operate when needed for reliability or other purposes while being compensated adequately and without violating other federal laws. If future circumstances present an unavoidable conflict between FERC’s authority for the reliability of the power grid and requirements imposed under other federal laws, the appropriate resolution of this conflict will need to be determined at that time. Moreover, available data indicates that industry has added significant amounts of generating facilities when circumstances warranted. As a point of reference, EIA data shows that between 2000 and 2004, an annual average of 38.74 GW of capacity was added nationally, with a peak addition of 58.06 GW in 2002.*

6. The Clean Air Transport Rule specifically lists ensuring electric reliability as a “key guiding principle.” Please describe any research, documentation or analysis FERC has provided EPA for this rule.

Answer: *The Commission has not provided EPA with any research, documentation or analysis on the Clean Air Transport Rule, except for discussion of Commission staff’s informal assessment as described above.*

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<sup>11</sup> See *San Diego Gas and Elec. Co.*, 95 FERC ¶ 61,115 (2001) (“Under a must-run obligation, no generator will be required to run in violation of its certificate or applicable law.”).

<sup>12</sup> *Order No. 890* at P 148.

<sup>13</sup> Pro forma Open Access Transmission Tariff § 29.2.

7. Regarding the Commission's FY 2010 Performance and Accountability Report to Congress, quoted above, and the staff analysis of electric reliability impacts referenced in the quotation, please describe or provide:

- a. the study and all supporting materials including research;
- b. a list of any other agencies involved in the production of the study with information on their involvement
- c. actions FERC has taken or plans to take based on the study; and
- d. how and where the study has been made public, or why it has not been released

*Answer: As discussed in response to question 4, Commission staff performed an informal assessment of projected coal generation retirements. The informal assessment of reliability impacts was based on information that was publicly available at the time it was conducted. An in-depth analysis could not be conducted because complete information regarding the specific units planned for retirement is not available. In some cases, generation retirement decisions may not even have been made by the generation owners. This assessment has not been made public because it is an informal assessment based on available information and is not complete. Materials concerning this informal assessment are attached.*

8. In your view, would compliance with EPA or other environmental regulations excuse a violation of FERC-approved electric reliability standards? If so, should the Commission refrain from imposing penalties for these violations?

*Answer: The Commission has not seen a circumstance where compliance with EPA or other environmental regulations has caused a violation of FERC-approved electric reliability standards. As it has in the past, the Commission would seek to find ways to require or allow utilities to operate when needed for reliability or other purposes while being compensated adequately and without violating other federal laws. If future circumstances present an unavoidable conflict between FERC's authority for the reliability of the power grid and requirements imposed under other federal laws, the appropriate resolution of this conflict will need to be determined at that time.*

9. Please assess whether FERC has sufficient statutory authority to protect electric reliability in collaboration with other federal entities that are undertaking rulemakings.

*Answer: Apart from the issue of cyber security and other national security threats and vulnerabilities, I do not see a need for further statutory authority to protect electric reliability at this time.*

10. Is FERC or any other agency, to your knowledge, soliciting or relying upon advice or assistance from any entity established pursuant to the Federal Advisory Committee Act?

*Answer: No.*

## APPENDIX A

### Meetings with EPA

Below is a list of CEQ and EPA's Clean Air Division (EPA CAD) meetings Commission staff has attended concerning the potential retirement of coal fired generation as a result of the EPA proposed rules. Document descriptions relating to these meetings are attached as an appendix. No physical or electronic copies of FERC's data or analysis were given to EPA. EPA CAD and FERC Staff will continue to meet on an as needed basis.

#### **September 8, 2009 12:30-4:30 PM**

EPA Headquarters

Participants: staff from EPA, FERC and members from industry

Meeting to discuss EPA regulatory actions and their effect on the electric generating sector.

#### **August 18, 2010 2:15 PM – 3:15 PM**

Meeting at White House Conference Center, Jackson Place

Participants: staff from EPA, CEQ, FERC and others

The Council for Environmental Quality (CEQ) convened a meeting to discuss EPA analysis of upcoming rules affecting power plants and the impacts of the rules on costs, reliability, generation mix, etc. At the meeting, it was mentioned that several outside studies to explore this topic have been completed or are underway. CEQ said it was important for the Administration to develop analytics to provide a coherent and unified view on potential impacts.

EPA presented two alternative scenarios for the power sector, using the Integrated Planning Model (IPM), which illuminates a range of issues including retirements and reliability implications. Discussion on the underlying approach, limitations of the analysis, and next steps ensued. EPA provided an overview presentation of Clean Air Act requirements for the power sector and a timeline of upcoming EPA regulations.

#### **September 8, 2010 2:00 PM-3:00 PM**

Meeting at FERC

Participants: staff from EPA and FERC

EPA asked to visit with FERC staff to follow up on the August 18 discussion of the EPA modeling assumptions.

#### **October 5, 2010 2:00 PM – 3:00 PM**

Meeting at White House Conference Center, Jackson Place

Participants: staff from EPA, CEQ, FERC and others

CEQ arranged a meeting to discuss assessing the potential impact to the bulk power system from the proposed EPA regulations. FERC staff attended this meeting.

**October 20, 2010 1:00 PM – 3:00 PM**

Meeting at White House Conference Center, Jackson Place

Participants: staff from EPA, CEQ and FERC

CEQ arranged a follow-up meeting with staff from EPA and FERC to discuss how EPA and CEQ thought FERC might be able to provide perspective on an EPA analysis of the bulk power system. EPA CAD staff has been assessing potential impacts to the bulk power system that stem from implementation of proposed EPA clean air regulations over the next three years. These EPA regulations are the Clean Air Interstate Rules, now known as the Transport Rules.

EPA CAD's analysis focused only on the effects that the Transport Rules would have on the nation's electric generation capacity— specifically the reduction of coal plants. EPA CAD's analysis did not consider the cumulative impact from additional legislative initiatives, including water restrictions, coal ash byproduct sequestration or any renewable generation mandates.

The CEQ proposed that FERC staff meet with EPA CAD staff to further explore EPA CAD's assumptions, data granularity and methodology, and for FERC staff to explain the methodology of its coal generation assessment. There were differences between the results obtained by the EPA CAD assessment and FERC staff informal assessment with respect to the amounts of coal units that might shut down across the country. The overarching goal of this future meeting was to exchange information.

**October 26, 2010**

Chairman Wellinghoff had a phone conversation with Gina McCarthy, Assistant Administrator for the Office of Air and Radiation, to discuss NERC's report on the reliability impacts of EPA's regulations.

**October 27, 2010 10:00 AM – 12:00 PM**

Meeting at FERC

Participants: staff from EPA, CEQ and FERC

EPA CAD organized a meeting with FERC staff and CEQ to discuss how proposed EPA regulations that will affect coal plants might affect reliability of the grid and potential methods by which these impacts could be analyzed. Data from EPA's modeling efforts was compared with the results of FERC staff's informal assessment.

The meeting began with a presentation of the FERC staff informal assessment which included detailed explanations of the assessment and methodology used. FERC staff explained that the assessment had data limitations and was based on publicly available information and more information would be needed to have a complete assessment.

Commission staff emphasized that its informal assessment was limited in nature because it made many assumptions regarding what the pending EPA rules may or may not do. The questions asked by attendees about the FERC staff informal assessment centered on the methods by which the data was acquired, the weighting of the factors, data limitations, and the basis used for conclusions on which units would be considered at-risk for retirement.

The group then discussed the potential effect of planned and needed new generation on the reliability impacts of retirements, the ability of such new generation to come online before the retirement of coal units is expected to begin between 2015 and 2018, and finally which EPA regulations were best defined and most likely to be implemented within the near future.

The CEQ representative discussed whether nameplate capacity numbers of proposed generation would show that there would be enough capacity following the fast retirement of a sizeable amount of generation. FERC staff stated that renewable generation may not provide a one to one replacement for the capacity that is retiring given the different characteristics of the units.

The EPA CAD representative discussed timelines for new generation to come online to offset coal retirements. In response, Commission staff identified several factors that can extend the project build horizon, such as long lead time equipment, backlash against pipeline siting and construction, transmission siting and construction issues, along with other factors that could slow the market response. The EPA CAD representative concluded the discussion by stating that the Clean Air Transport Rule and Mercury MACT Rule were closer to being final than the coal combustion residuals or Clean Water Act regulations.

EPA CAD staff concluded the meeting by outlining next steps and planning future meetings for further discussion. The EPA CAD asked FERC staff to evaluate the generation data produced by the EPA CAD model and compare the units that have been predicted to retire by that model with those units designated as at-risk by the FERC staff initial assessment. In addition, they expressed a desire for FERC staff to produce system production cost runs and reliability metric studies using the generation retirement lists created by the EPA CAD model. The CEQ representative also expressed a desire for FERC staff to complete sensitivity studies regarding the major risk factors and begin evaluation of a best case scenario.

#### **November 4, 2010 10:30 AM – 12:00 PM**

Conference Call

Participants: staff from EPA and FERC

EPA CAD staff held a conference call with FERC staff as a follow up to the meeting of October 27th. The purpose of the call was to engage further discussion regarding FERC staff initial coal retirement projections, assumptions and methodology with the EPA. At that time, the EPA was only considering the Transport rule which was scheduled to take

effect in June 2011. EPA CAD staff has been seeking assistance from FERC staff in analyzing the effect on reliability of the Maximum Achievable Control Technology (MACT) rule for which they would provide further data as produced by their model in December 2010.

FERC and EPA CAD staff discussed the generation investment strategy used by the industry and the need for a cumulative approach when studying the impacts of the EPA rules.

**November 29, 2010 – 2:30-4:00 pm**

EPA Headquarters

Participants: Commissioners Norris and LaFleur, FERC staff, EPA: Gina McCarthy, Assistant Administrator for the Office of Air and Radiation, EPA staff

Subject: An overview and discussion of EPA's current Clean Air Act rulemaking activities.

**February 10, 2011 3:45 PM – 5:00 PM**

Meeting at EPA HQ

Participants: staff from EPA, CEQ, DOE and FERC

EPA convened a meeting to discuss communication strategy. Agenda for this meeting

- Introductions (5+ minutes)
- Status/Update on EPA's Rules (10+ minutes)
- Status/Update on ongoing EPA-FERC meetings ( 5 to 10 minutes)
- Focus on key next Rules (Toxics Rule will be proposed March 16 and Cooling Water Rule will be proposed March 14), timeline, messaging, and next steps (30+ minutes)

**February 14, 2011 Lunch Meeting**

Participants: staff from FERC and EPA

EPA staff contacted FERC Staff to request that EPA staff and FERC staff have lunch together during the National Association of Regulatory Utility Commissioners annual meeting. EPA and FERC staff discussed ways in which EPA staff could participate in regional transmission planning processes to monitor how utilities plan to comply with the EPA rules.

**February 16, 2011 10:00 AM – 12:00 PM**

Meeting at FERC

Participants: staff from EPA, CEQ, DOE and FERC

FERC staff attended a meeting with staff from the EPA CAD, DOE, and CEQ with regard to the implications of the upcoming EPA Transport and Toxics rules. The group

received a presentation of EPA modeling efforts that predicted these regulations could cause the retirement of approximately 9 GW of generation capacity. Concerns regarding the modeling of transfer limits, capacity additions and the cumulative impact of all the upcoming EPA regulations were also discussed. EPA CAD staff sought to work with FERC and DOE staff over the next several months to better identify and address issues that could affect grid reliability. Issues to be addressed included the impact of the upcoming rules on: (1) regional resource adequacy, (2) transmission flows on the grid, (3) black start units and (4) voltage and frequency.

**March 14, 2011 8:00 AM – 9:00 AM**

Conference Call

Participants: staff from EPA and FERC

FERC staff sat in on a conference call with EPA CAD staff regarding coal plant retirements expected as a result of announced EPA regulations. The EPA CAD staff discussed how they had retooled their analysis, slightly downgrading the amount of expected retirements as a result of the Clean Air rules. The EPA issued the proposed toxics standards on March 16 (two days after this meeting), with a final rule to be issued by November 16, 2011.

FERC staff discussed how the EPA CAD's modeling did not take into account the cumulative effect of its proposed regulations and emphasized that Commission staff does not have the ability to produce such a study. FERC staff shared the suggestion made by industry groups that the regional planning processes would be an excellent place for the EPA to receive further input regarding pending regulations effect on grid reliability. EPA CAD staff proposed to conduct bi-weekly conference calls with FERC to keep each other informed of any developments.

**March 30, 2011 8:00 AM – 9:00 AM**

Conference Call

Participants: staff from EPA and FERC

On March 24 the EPA released details on the proposed Clean Water Act rule. EPA staff stated that the rule was much less stringent than industry had expected. FERC staff offered to send news articles and other public information to EPA CAD staff as well as list of sources for coal retirement information.

**April 4, 2011 11:30 AM – 12:30 AM**

Meeting at FERC

Participants: staff from EPA and FERC

At the request of EPA staff, FERC staff met with EPA staff regarding FERC approved public utility tariff rules relating to generation retirements. FERC staff discussed public utility tariff requirements for reliability-must-run generation, generation retirements and related Commission decisions. FERC staff followed-up with a reply email detailing FERC policies and key orders that explain those policies.

**April 13, 2011 8:00 AM – 9:00 AM**

Conference Call

Participants: staff from EPA and FERC

EPA provided FERC staff a study which was intended to forecast which coal fired power generation units will be retrofitted or retired by 2015 as a result of EPA's recent proposal for Maximum Achievable Control Technology (MACT) standards for hazardous pollutants on electric utility emissions. FERC staff noted EPA modeling inconsistencies and provided information on publicly announced retirements and retrofits that were not taken into account on the EPA study.

**April 27, 2011 8:00 AM – 9:00 AM**

Conference Call

Participants: staff from EPA and FERC

EPA CAD and FERC staff discussed the EPA's modeling of the EPA's Utility MACT Rule (Toxics Rule). The EPA discussed questions, industry studies and recent retirement announcements that may concern the proposed Toxics Rule. To more fully evaluate industry concerns, FERC staff suggested that the EPA follow up on earlier suggestions to engage in the regional planning process with entities such as PJM, MISO and SERC. FERC and EPA agreed to meet in mid-June to assess any further developments from NERC, regional processes or comments submitted to the EPA.

**May 3, 2011**

Commissioner LaFleur, Commissioner Moeller, and members of their staffs met with Gina McCarthy, Assistant Administrator for the Office of Air and Radiation, and staff from EPA, along with staff from the DOE.

The subject matter of this meeting concerned the EPA's proposed rules and their potential impacts in terms of cost and reliability, specifically discussing the analyses that EPA has performed to try and quantify these impacts.



## **APPENDIX B**

### **Files and Data Received From and Shared with EPA**

Below is a list of files and data received from and shared with EPA CAD. **No physical or electronic copies of data or quantitative analysis were given by Commission staff to EPA.** Commission staff shared with EPA CAD some questions regarding the IPM model and its results. This is reflected in the April 21, 2011 entry.

#### **General Data**

- Coal Retirement Effects on Reliability Final.pptx- This was a presentation prepared regarding FERC's initial analysis of the potential impacts of the upcoming EPA regulations.

#### **Commissioner Cheryl LaFleur**

- Cheryl LaFleur.pdf- This contains e-mail correspondence between Commissioner LaFleur's staff and EPA staff.
- EPA Addressing the Environmental Impacts of the Power Sector.pdf – This document was presented to Commissioners LaFleur and Moeller.
- NREL Coal Study.pdf – This is a study done by NREL to analyze potential coal plant retirements due to EPA regulations.
- EPA Reducing Pollution from Power Plants – This presentation was given at the November 29, 2010 meeting with Commissioners Norris and LaFleur.

#### **Michael Bardee**

- Michael Bardee.pdf - This contains e-mail correspondence regarding a meeting organized by EPA staff.
- Email.pdf- This contains e-mail correspondence by EPA staff, inviting FERC staff and industry representatives to a meeting.

#### **E-Mails to EPA**

##### **Questions and comments**

- Database Questions Response.docx - This is the EPA CAD's response to questions they received from OER Staff regarding the IPM model and its results. The file also contains the questions asked by FERC.
- FW Responses to Your Questions.msg – E-mail correspondence regarding the EPA's modeling efforts.
- Re These are some of the questions.msg – E-mail correspondence regarding the EPA's modeling efforts.
- These are some of the questions.msg – E-mail correspondence regarding the EPA's modeling efforts.

### **Announcements and studies shared with EPA**

- (WF) Are Coal And Nuclear Pains Gas' Gains.msg – E-mail correspondence sharing news regarding the impact of EPA regulations on coal generation.
- CITI Report.msg – E-mail correspondence sharing news regarding the impact of EPA regulations on coal generation.
- Coal Retirement Announcements.msg – E-mail correspondence sharing news regarding the impact of EPA regulations on coal generation.
- Dominion plans to sell Kewaunee.msg – E-mail correspondence sharing news regarding the impact of EPA regulations on coal generation.
- EPA rules.msg – E-mail correspondence sharing news regarding the impact of EPA regulations on coal generation.
- FirstEnergy prioritizing.msg – E-mail correspondence sharing news regarding the impact of EPA regulations on coal generation.
- Future of FirstEnergy.msg– E-mail correspondence sharing news regarding the impact of EPA regulations on coal generation.
- FW (CITI) Notes from Management Meeting.msg– E-mail correspondence sharing news regarding the impact of EPA regulations on coal generation.
- FW Macquarie - Utilities and merchant power.msg– E-mail correspondence sharing news regarding the impact of EPA regulations on coal generation.
- Gregoire Signs TransAlta Bill.msg– E-mail correspondence sharing news regarding the impact of EPA regulations on coal generation.
- ICF International Integrated Energy Outlook.msg– E-mail correspondence sharing news regarding the impact of EPA regulations on coal generation.
- LG&E and KU plan to retire about 800 MW.msg– E-mail correspondence sharing news regarding the impact of EPA regulations on coal generation.
- Morris 5 480 MW of AEP coal capacity.msg– E-mail correspondence sharing news regarding the impact of EPA regulations on coal generation.
- Southern's Fanning talks EPA1.msg– E-mail correspondence sharing news regarding the impact of EPA regulations on coal generation.
- UBS Utilities.msg– E-mail correspondence sharing news regarding the impact of EPA regulations on coal generation.

### **Data received from and shared with EPA**

#### **August 18, 2010**

- EPA Key Preliminary Results from Modeling Future Utility Controls Aug 18.pdf – This is a presentation given by the EPA discussing the results of the IPM modeling of changes in the generation mix.

#### **October 27, 2010**

- Coal Retirement Effects on Reliability EPA CEQ Meeting 1.pptx - This is a presentation that was gone through during the meeting to give a brief

background on the work being done at FERC. **This contains maps of at-risk units and OER retirement estimates.**

- Comparison of EPA and OER.xls - This chart contains charts showing the scores assigned by the OER assessment to the plants under consideration in the EPA's model. **The chart contains all modeling data from the OER's assessment of coal generation and the EPA's output.**
- EPA Model Data – Parsedfile\_TR SB Limited Trading 2014.xls - This is the output from the EPA's IPM program based on inputs for the Transport rule. This contains only the "policy case" output.
- Coal Retirement Reports DEA.xls - This is a comparison of the levels of capacity that are predicted to retire under currently released studies. It includes estimates from both FERC and the EPA as well. **This contains NERC and OER reserve margin and capacity estimates.**
- NERC and OER Reserve Margin Comparison.xls - This contains charts of the impact the retirement of at-risk capacity as estimated by both OER and NERC would have on regional reserve margins. **This contains NERC and OER reserve margin and capacity estimates.**
- Planned Capacity Projects.xls - These charts show planned capacity additions by year overlaid with OER retirement estimates. **This contains estimated at-risk capacity from the OER assessment.**
- Retirement and Construction Data.xls - These charts show both planned capacity and planned retirements by year. **It also contains estimated at-risk capacity that could be retired from the OER assessment.**

#### February 16, 2011

- FERC Potential Assistance if required.docx - This is a file that was received from the EPA detailing ways in which FERC staff could assist the EPA CAD in their analysis including reviewing retirement estimates and modeling, regional resource adequacy, transmission congestion, voltage issues, frequency response issues and impacts to black start units.
- FERC-DOE\_Review.docx - This file lists EPA CAD's suggested ways in which DOE and in particular FERC could assist the EPA CAD staff with analysis efforts which would include reviewing retirement estimates and modeling, regional resource adequacy, transmission congestion, voltage issues, frequency response issues and impacts to black start units.
- ParsedFile\_BC\_24.xlsx - This is the output from the EPA CAD's IPM program based on inputs for the Transport rule and the Toxics rule. This contains only the "policy case" output.
- ParsedFileDescription.docx - This contains details and information on each of the columns and data types included in the "policy case" output.
- Resource Adequacy and Reliability\_v3.docx - This report details the EPA CAD's analysis regarding potential impacts to reliability due to the retirement of capacity predicted by IPM.

- Toxics and TR Closures-134 CAMD Units Heat Inputs-Feb 15 2011.xlsx - This contains unit specific data on those units considered to be at-risk in the EPA's model.

#### **April 4, 2011**

- Base Case.xls - This is the output of the "base case" of the EPA CAD's modeling efforts.
- Policy Case.xls - This is the output of the "policy case" of the EPA CAD's modeling efforts.

#### **April 4, 2011 Carlson**

- EPA RMR Gen Retire Inquiry(3) - Memo detailing FERC Reliability Must Run policies and key orders that explain those policies.

#### **Files prepared for initial staff assessment**

- OER Screening Tool.xls- This contains a tool by which FERC was able to make an initial estimate of what the potential impacts of upcoming EPA regulations may be.
- Coal Retirement Effects on Reliability Final.pptx- This was a presentation prepared regarding FERC's initial analysis of the potential impacts of the upcoming EPA regulations.

#### **Additional spreadsheets and charts**

- EPA Analysis.xls- This contains charts and an analysis of the output from the EPA's IPM modeling efforts for the Toxics Rule.
- Maps for at Risk Units.doc- This contains maps of several regions with units designated as at-risk for retirement by the Screening Tool developed by FERC.
- PROMOD Results.xls- This contains the analysis of a PROMOD study done of the potential impact of the upcoming EPA regulations and capacity retirements in PJM.
- Regional Data on Coal Retirement and NERC Report Comparison.xls- This file contains charts and analysis comparing estimates from initial FERC analysis with the results of NERC's study of the impact of the upcoming EPA regulations.
- Review of EPA Data.doc- This file contains analysis of the output from the EPA's IPM modeling efforts for the Toxics Rule.
- Slides Using New Data.ppt – This contains updated slides for the presentation on the potential impacts of the upcoming EPA regulations.
- Upcoming and Retiring.doc- This file contains charts comparing the amount of capacity expected to be retired and constructed in each NERC region through 2020.

## Summaries

- April 27 Meeting.doc- This file contains a summary of the meeting attended by FERC and EPA staff on April 27<sup>th</sup>.
- Comparison and Summary of ParsedFile.doc- This file summarizes the results from the initial IPM run completed by the EPA and shared with FERC on October 27<sup>th</sup>.
- February 16 Meeting.doc- This file contains a summary of the meeting attended by FERC and EPA staff on February 16<sup>th</sup>.
- Meeting to Review Coal Retirements and EPA Regulations.doc- This file contains a summary of the meeting attended by FERC and EPA staff on October 27<sup>th</sup>.
- New Air Pollution Transport Rule.doc- This contains a summary of the new information released by the EPA regarding the Clean Air Transport Rule.
- November 4 Meeting.doc- This file contains a summary of the meeting attended by FERC and EPA staff on November 4<sup>th</sup>.

## Outside reports and summaries

- Bernstein Coal Ash Report Summary.doc- This file contains a summary of the *Bernstein Report on EPA Proposal for Coal Ash Regulation* completed on May 5<sup>th</sup>.
- Citi 2010 Overview of Major Upcoming EPA Environmental Policies 012710.pdf – This is a study completed by Citi regarding the impact of EPA regulations on coal generation.
- Citi Power, Gas, Coal & Alt Energy Conference 060810.pdf - This is an updated analysis completed by Citi regarding the impact of EPA regulations on coal generation.
- Citi Proposed Coal Ash Rules Look Light; Dirty Power Positive 050510.pdf - This is an updated analysis completed by Citi regarding the impact of EPA regulation of coal ash on coal generation.
- CS Report Analysis 2.doc- This file address questions raised by the Credit Suisse report released in September 2010.
- Exelon CRA Report.pdf – This is a study completed by CRA regarding the impact of EPA regulations on coal generation.
- MJBAandAnalysisGroupReliabilityReportAugust2010.pdf – This is a study completed by MJ Bradley regarding the impact of EPA regulations on coal generation.
- NREL Report v2.doc- This summarizes the *Presentation Analyzing Potential Impacts of Coal Plant Retirements in the U.S.* that was completed on October 6<sup>th</sup>.
- Press Release for MJBA and Analysis Group Reliability Report August 2010.pdf – This the press release related to the MJ Bradley study of the upcoming EPA regulations.
- Summary of INGAA Report on Renewable Integration.doc- This summarizes the INGAA Report *Firming Renewable Electric Power*

*Generators: Opportunities and Challenges for Natural Gas Pipelines* that was released on March 21, 2011.

- Summary of NERC Climate Change Part 2.doc – This answers questions raised by NERC’s report on climate change regulations.
- Summary of NERC Reliability Assessment of EPA Regulations FINAL ver1.doc- This summarizes the *2010 Special Reliability Scenario Assessment: Potential Resource Adequacy Impacts of U.S. Environmental Regulations October 2010 Report*.
- Summary of NERC Reliability Impacts of Climate Change Initiatives.doc- This summarizes the *NERC Reliability Impacts of Climate Change Initiatives* that was completed on July 28, 2011.
- Summary of Report by CRA on Coal Retirements (3).doc- This summarizes *A Reliability Assessment of EPA’s Proposed Transport Rule and Forthcoming Utility MACT* by Charles River Associates that was completed on December 20, 2010.
- Summary of Report Prepared for Clean Energy Group final.doc- This summarizes *Ensuring a Clean, Modern Electric Generating Fleet While Maintaining Electric System Reliability* by M.J. Bradley & Associates.
- Summary of the December 8th Coal Retirement Presentation by the Brattle Group.doc- This summarizes the December 8<sup>th</sup> presentation by the Brattle Group regarding the potential impact of upcoming EPA regulations.
- Updated Summary of NERC Reliability Assessment of EPA Regulations.doc- This summarizes the *2010 Special Reliability Scenario Assessment: Potential Resource Adequacy Impacts of U.S. Environmental Regulations 9/2/2010 Draft*.
- EEI\_PeerReview\_Tierney\_Cicchetti\_May2011.pdf – This is an analysis of EEI’s study of the impact of the EPA’s regulation on coal generation.
- BPC report on EPA regs.pdf – This is an analysis by BPC of the economic impacts of the EPA’s regulations on coal generation.
- Summary of the Environmental Regulation and Electric System Reliability Report by the Bipartisan Policy Center.doc - This summarizes the *Environmental Regulation and Electric System Reliability Report* by the Bipartisan Policy Center.

#### **OMB Data**

##### **February 15, 2011**

- *Toxics\_Rule\_OMB\_021611.ppt* – This is a briefing provided by the EPA regarding its upcoming regulations affecting power plants.

##### **February 24, 2011**

- *Resource Adequacy and Reliability for Toxics Rule 02-24-11.pdf*- This file contains analysis of IPM’s predictions regarding the impact of the Toxics Rule on resource adequacy and reliability.

**February 28, 2011**

- 2\_28\_2011DRAFT - Toxics Rule Direct Emp Analysis TSD\_Draft.pdf- This file contains a draft of the analysis regarding the Toxic Rule's impact on jobs.
- 2\_28\_2011EO12866\_CoolingWaterIntakes 2040-AE95 Draft Market Model Results 20110225.doc- This file contains a summary of the Market Model Analysis completed for 316(b).

**March 4, 2011**

- Resource Adequacy and Reliability\_v4.doc- This file contains analysis of IPM's predictions regarding the impact of the Toxics Rule on resource adequacy and reliability.
- Projected Retirements.doc- This contains a list of the units excluded from the IPM modeling efforts as they are already planning to retire in addition to those units the model projects will retire in both the base and policy cases.

**March 8, 2011**

- Interagency Working Comments under EO 12866 on EGU MACT Underlying Science- This includes a summary of comments provided on the EPA's MACT regulations RIA Chapter 5.

**March 9, 2011**

- 3\_9\_11\_ToXR\_Base\_Case.epa.zip- This file contains output for the base case from the IPM analysis of the Toxics Rule's impacts.
- 3\_9\_11\_ToXR\_Policy\_Case.epa.zip- This file contains output for the policy case from the IPM analysis of the Toxics Rule's impacts.

**March 11, 2011**

- Toxics Rule Resource Adequacy and Reliability 03-09-11\_final.docx - This file contains analysis of IPM's predictions regarding the impact of the Toxics Rule on resource adequacy and reliability.
- Chapter 4.pdf – This contains technical information supporting conclusions made in the EPA's regulation of power plants.

**March 14, 2011**

- Summary of Interagency Working Comments on draft EGU MACT under EO 12866 Interagency Review\_03 04 \_Response\_031411.doc- This is a summary of comments on EGU MACT Preamble, RIA, the October 2002 EPA Study, and the TSD titled "RESOURCE ADEQUACY AND RELIABILITY IN THE IPM PROJECTIONS FOR THE TOXICS RULE."

- Summary of Interagency Working Comments on draft EGU MACT under EO 12866 Interagency Review\_03 04 \_Response\_031411.doc- This is a summary of comments on comments on the MACT Floor and supporting spreadsheets, IPM documentation, feasibility study, and the planned/expected retirements.