Senate Democratic Policy Committee Hearing

"An Oversight Hearing on the Administration's Mercury Pollution Rule"

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Good Afternoon, Mr. Chairman and members of the Committee. My name is Praveen Amar. I am the Director of Science and Policy for Northeast States for Coordinated Air Use Management (or NESCAUM). Thank you for the opportunity to appear before you today to testify on behalf of NESCAUM regarding the Environmental Protection Agency' s proposed mercury rule for coal-fired power plants. I have submitted several attachments describing our position on the proposed rule as well as a number of published NESCAUM reports on the subjects of mercury control technologies, health effects, and regulations over the last five years. I request that they be made part of the record.

First, a background on NESCAUM. We are a regional association of the eight northeastern states' air quality agencies. The eight states include the six New England states of Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont, and New Jersey and New York. For almost four decades, we have been providing scientific, technical and policy support to our member states on air pollution issues of regional interest. For example, in the recent past, we have evaluated the technical feasibility and cost effectiveness of various options to reduce emissions of major air pollutants including mercury, oxides of nitrogen (for ozone) and sulfur dioxide for acid rain. We have also evaluated the role of long-range transport with wind of various air pollutants in affecting the ambient concentrations far from their source of origin. This issue is of special importance for mercury, since mercury is a local, regional, and global pollutant, all at the same time.

My testimony today will cover three topics: First, I will provide a brief summary of the recent NESCAUM report we just completed with the Harvard Center for Risk Analysis that evaluated and "monetized" the human health benefits associated with reducing mercury emissions from coal-fired plants in the U.S. Second, I would point out that effective control technologies are available now to control mercury from these power plants to very high levels and at very reasonable costs. Finally, I will outline for you the more stringent mercury control measures the states in the Northeast and other parts of the country have already adopted for these plants based on the same information that was available to the U.S. EPA.

The NESCAUM externally peer-reviewed study entitled "**Economic Valuation of Human Health Benefits of Controlling Mercury Emissions from U.S. Coal-Fired Power Plants,"** was submitted for EPA's consideration on February 20, 2005. This was

in response to EPA's NODA (Notice of Data Availability) of December 1, 2004, in which EPA had solicited information and comments on how it should revise its Benefits Assessment Methodology for mercury emissions reductions from coal-fired power plants. In our January 3, 2005, submittal to the docket, we had noted that we were then near completion of our study undertaken to help EPA develop such a detailed benefits assessment methodology for evaluating and monetizing the benefits of controlling mercury emissions from coal fired plants as related to human mercury exposure through fish consumption. We had also provided summary of preliminary findings of our draft report to the EPA docket.

Our study evaluated two end points: cognitive impairment in children as measured by lower IQ of children born to mothers with elevated blood mercury, and fatal and non fatal heart attacks in adults associated with elevated blood mercury (the second end point was addressed for the first time in the U.S.). The report covers diverse areas of policy-relevant research including: mercury emissions, atmospheric transport and fate of mercury, atmospheric modeling of mercury deposition, relationship between mercury deposition and methylmercury levels in fish (and how they change with changes in emissions), current and future exposures of humans to mercury in fish, dose response functions, and finally, the monetization of the benefits related to reduced mercury emissions. As an example of the application of this methodology, the study quantified the benefits for the Clear Skies Act (2002-2003 version) for the year 2010 (about 30 percent reduction) and 2020 (about 70 percent reduction).

The results indicated that annual benefits for CSA (2010), associated with improved IQ, range from $75 million (assuming a neurotoxicity threshold equal to the RfD) to $194 million (assuming no threshold). The corresponding annual benefits for CSA (2020) are $119 million to $288 million. Much larger benefits are associated with avoided cardiovascular events (fatal and non-fatal). For CSA (2010) the monetized annual benefits are $3.3 billion. The corresponding annual benefits for CSA (2020) are $4.9 billion. The total annual benefits for the two endpoints range from $3.5 billion for 2010 to just over $5.2 billion for 2020.

The EPA's proposed rule, we believe, does not go far enough and it gets there rather very late. It appears that the agency's cost-benefit analysis minimizes the benefits of mercury reductions and ignores the results of our well-conducted study that estimated that the benefits would be much greater. What that means is that much greater benefits estimated by us should justify even further reductions through much more stringent controls than proposed by EPA. Since cost-benefit analysis is required for major government regulations and it can help in identifying and selecting optimum choices, it is imperative that we do it carefully since it has the potential to inform smart decision making, but, if not done right, it can also mislead.

Our analysis found that cutting power plant's mercury emissions by the amounts included in the CSA could yield human health benefits – including reduced cognitive impairment in infants and children and fewer heart attacks in adults- of between $100 million and $5

billion per year, depending on what share of the population suffers what degree of health damage.

In contrast, the EPA Rule estimates less than $4 million in benefits specifically related to mercury emissions. The EPA also estimated the costs of its Rule were much more than the benefits, so it decided not to call for more stringent emission cuts. However, our study suggests that larger AND faster cuts are indeed justified.

Two factors explain much of the difference between the two estimates. First, we included the effects of mercury emission reductions we get through eating saltwater fish such as tuna and cod, which is how most of us are exposed. The EPA included only the effects on freshwater fish such as catfish, citing scientific uncertainty about how (and how quickly) reductions in emissions translate into lower mercury levels in ocean fish. Second, the higher estimates of benefits in our report include the effects of mercury on fatal heart attacks as well as on children's cognitive development. The EPA included only the effects on children. The evidence that mercury raises the risk of heart attacks is not conclusive, but we believe it is sufficiently persuasive that the effect should be counted. The EPA deemed the science too uncertain to quantify the benefits.

Rather than omit these factors, a better approach would be to estimate how much the benefits might change if these factors were real and to express the results in a range, which is what we did. The White House recently called for such an approach in analyses. Mercury may indeed cause heart attacks. That should be included as a possible outcome. We do get most of our mercury from saltwater fish. That should not be left out just because science cannot determine exactly how changes in emissions translate into changes in the mercury levels in the fish.

I think it is fair to ask whether the emission reduction targets in the EPA mercury rule are the right ones, because its analysis was not sufficiently inclusive. It is also fair to ask what such a limited approach does to the public trust in the process of environmental rule making. For credibility and public confidence, the practitioners of cost-benefit analysis should be honest about the imprecision of their estimates by evaluating the full range of plausible outcomes. And by acknowledging how much their results depend on including and excluding uncertain but potentially important factors.

It is important to note that our report monetizes the human health benefits associated with the CSA as proposed in the years 2002-2003. It does not evaluate monetized benefits associated with EPA's earlier proposed MACT approach under Section 112 or EPA's preferred approach of performance standards under Section 111 of the Clean Air Act or other much more stringent and technologically feasible control levels (for example, about 90 percent control as proposed by the States Stakeholders during the 2001-2003 Mercury Workgroup process that was coordinated by the EPA) since EPA did not undertake modeling of these scenarios with its IPM model. However, it should be obvious that monetized benefits would be substantially higher for the proposal offered by the States Stakeholders for only a small increase in costs. Thus, we stand by our previous comments in support of a 90 percent reduction in mercury emissions from coal-fired plants.

Control Technologies are Commercially Available Now to Substantially Reduce Mercury Emission from Coal-Fired Power Plants

The NESCAUM states strongly disagree with EPA's stated position that mercury emission control technologies are currently not available and will not be until at least 2010. The findings of recent NESCAUM analyses demonstrate that commercially available control technologies, as well as rapidly emerging technologies, are capable of achieving 90 percent and higher emission control. Clearly, EPA's proposals to achieve only 20 percent reduction by 2010 (from 48 tons to 38 tons per year) are not credible given the factual record.

For example, Activated Carbon Injection (ACI) technology has been applied to municipal waste combustors in the U.S. for over five years (in some cases approaching ten years) and is routinely achieving greater than ninety percent reductions, with some units achieving controls as high as 99 percent. While there are relevant differences between municipal waste combustors and coal-fired power plants, the application of ACI technology to coal-fired boilers does not depend upon any new technology breakthrough. Rather, as has been successfully demonstrated through studies funded by the U.S. Department of Energy, it is a matter of traditional technology transfer to these larger boilers.

As I note above, EPA's rule is based on the assumption that control technologies that are capable of achieving substantial mercury emission reductions would not be available until much later (2010 and beyond). It is illuminating to view the EPA's mercury rule in the context of the encouraging relationship evident over the last several decades between environmental regulatory drivers and technological development. A major finding of our September 2000 NESCAUM study (submitted as part of our record) was that innovation in control technologies has occurred only AFTER regulatory drivers with well-defined and stringent emission targets and deadlines were adopted. This dynamic has occurred even when control options were limited or untested at the time regulations were introduced.

As a part of the September 2000 study, NESCAUM undertook extensive case studies and developed case histories for the development and field implementation of control technologies for NOx and SO_2 emissions from power plants in the U.S. The case studies spanned over a 50-year period and clearly demonstrated the positive role well designed regulatory drivers have played in moving the technology forward.

Since compliance costs are an important factor in most regulatory decisions, the NESCAUM report also reviewed the cost histories associated with case histories of NOx and SO2 control from power plants. In both cases, early estimates consistently overstated actual compliance costs, often by a factor of two or more. Likely reasons included poor or incomplete information, overly conservative assumptions (generally motivated by the industry's desire to bolster the case against regulation), and a failure to account for the technological innovation that appears only after concrete regulatory drivers are in place.

Based on this strong historical evidence of successful technology implementation that was driven by regulatory drivers at the federal level for SO_2 and NOx controls, we believe that controlling mercury emissions from power plants would be no exception.

A useful and practical way to express the true cost of mercury control is in terms of cost to the ratepayer (e.g., mills per kWh of electricity). When this approach is followed, the costs are even lower than the costs currently being incurred for control of pollutants such as NOx and SO2 from power plants. Note that the costs for NOx and SO2 were considered cost-effective by industry and regulatory agencies, and were the basis for recent federal regulations (CAIR and acid rain legislation).

Status of More Stringent Control Regulations in the States

What is clear is that many states in the Northeast and other parts of the U.S., based on the same technical and cost information that has been widely available to the EPA, have decided to adopt regulations/rules/legislation that are more than three times more stringent than EPA's rule and achieve these reductions almost a decade ahead of the EPA's rule, which by being a decade late would forgo the important public health benefits for a whole decade since the effects of mercury emissions are cumulative.

Many states have already adopted stringent limitations on mercury emissions from new and existing power plants. For example, four out of five states in the NESCAUM region that have coal-fired power plants have already adopted stringent mercury rules and New York is in the process of evaluating the need to address mercury emissions from coal-fired power plants. Connecticut has passed legislation that requires 90 percent mercury control by July 2008. Massachusetts's proposed regulations require 85 percent control by 2008 and 95 percent Hg control by 2012. The state of New Jersey has adopted new rules that would require up to 90 percent Hg control by 2007 with the possibility of a five-year extension if multi-pollutant control option is chosen by the utility. The state of New Hampshire's proposal, currently going through legislative process, would require a statewide reduction of about 60 percent in mercury emissions by 2009, and a statewide reduction of 80 percent by 2011 Outside the Northeast, the states of Indiana, North Carolina, and Wisconsin are requiring from 75 to 90 percent reductions in the next 8 to 10 years. In a recent MACT determination for a new coal-fired boiler, the state of Iowa required a Hg control level of at least 83 percent and the use of activated carbon injection (ACI)as MACT.

In summary, we believe that uncontrolled emissions of mercury from coal-fired power plants are a serious threat to public health and environment. Second, control technologies to reduce mercury emissions by 90 percent and higher are not only commercially available now, they also are cost effective. Third, states in the Northeast and other parts of the country have already adopted standards that are much more stringent than proposed in the EPA's mercury rule and would achieve reductions much earlier in time. Given these facts, we strongly oppose the EPA's mercury rule because it falls far short of what we believe is needed, achievable, cost effective and statutorily mandated.

I thank you for your time. I would be happy to answer any questions you may have.