



April 11, 2022

TO: U.S. ENVIRONMENTAL PROTECTION AGENCY
FR: THE INSTITUTE OF CLEAN AIR COMPANIES
ATTN: DOCKET NO. ID EPA-HQ-OAR-2018-0794

RE: NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR COAL- AND OIL-FIRED ELECTRIC UTILITY STEAM GENERATING UNITS-REVOCATION OF THE 2020 RECONSIDERATION, AND AFFIRMATION OF THE APPROPRIATE AND NECESSARY SUPPLEMENTAL FINDING; NOTICE OF PROPOSED RULEMAKING

The Institute of Clean Air Companies (ICAC) appreciates the opportunity to offer comments in response to EPA's Proposed Rule on National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units-Reconsideration of Supplemental Finding and Residual Risk and Technology Review (EPA-HQ-OAR-2018-0794).

ICAC is a national trade association of companies that supply greenhouse gas management, air pollution control and monitoring systems, equipment, and services for stationary sources. For 60 years, ICAC member companies have helped to clean the air by developing and installing reliable, cost-effective control and monitoring systems. We support technology-neutral and flexible policies that enable cost-competitiveness and a diverse set of technologies to compete in the market.

Our comments will focus on supporting the reaffirmation of the appropriate and necessary finding and the need for regulatory certainty so technology development and investments made in mercury control can be protected from unnecessary regulatory pendulum swings.

Again, ICAC appreciates the opportunity to offer comments on this notice of proposed rulemaking, and we look forward to answering any further questions should EPA seek additional information.

Best regards,

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Introduction

The Institute of Clean Air Companies (ICAC) appreciates the opportunity to respond to the Environmental Protection Agency's (EPA) notice of proposed rulemaking on the National Emission Standards for Hazardous Air Pollutants (NESHAP): Coal- and Oil-Fired Electric Utility Steam Generating Units-Reconsideration of Supplemental Finding and Residual Risk and Technology Review (EPA-HQ-OAR-2018-0794).

ICAC is a trade association headquartered in Arlington, VA, and represents more than 30 companies in the air pollution control, greenhouse gas management, and emissions measurement industry. ICAC members have successfully developed and deployed solutions to address emissions challenges for more than 60 years and are uniquely positioned to provide their expertise on emerging clean technologies and advancing clean technology markets. ICAC members have successfully commercialized solutions for the industrial, power, oil and gas, and maritime sectors, and have worked to address challenges that emerge at the nexus of air and water pollution management. Pollutants managed by member technologies include mercury, acid gases, PM, NO_x, SO_x, VOCs, HAPs, GHGs, HCl, and coal ash. Our members have operations in all 50 states and range from multi-national corporations with thousands of employees to small businesses focused on local emission challenges.

ICAC's Critical Role as a Technical Resource for the Mercury and Air Toxics Standard (MATS)

ICAC is recognized as a trusted, unbiased technical resource for government and other stakeholders by providing information on what is technologically achievable and the relevant costs associated with technologies. ICAC members' experience in meeting emissions challenges equips our organization with valuable insights that can help inform the development of successful policies, regulations, and other mechanisms to support the advancement of clean technologies ready to deploy now and those needing further development.

Since the initial exploration of mercury control and measurement technologies in the 1990s to the continued control of mercury emissions across industry today, ICAC members have been proud to be a resource, research partner, and technology supplier to develop and deploy cost-effective solutions. Reliable measurement of mercury emissions proved to be difficult early in the testing programs and significant investment in the development of adequate technologies occurred, including the sorbent trap measurement method, the Ontario Hydro method, continuous measurement technology, and EPA Method 29. ICAC worked together with the government and other industry stakeholders to develop technology and inform regulations accordingly.

- *From the period of 1990 to 1997*, the U.S. Department of Energy's Mercury Measurement and Controls Program evolved from studies of Hazardous Air Pollutants performed in that time. These studies were performed on several power plants around the United States. The major finding concluded that mercury was not well controlled using the installed air pollution control devices.



- *In 2000*, DOE/NETL (National Energy Technology Laboratory) began a comprehensive test program of the most promising mercury control technologies at coal fired utilities around the country. This test program was completed in three distinct phases, moving from pilot-scale testing to full-scale testing, and eventually, into driving additional control efficiency at less cost to the utility. Overall, DOE/NETL co-funded over 40 full-scale mercury tests at utility sites with various air pollution control devices burning a variety of coal types. These programs were jointly funded by industry, technology developers, including many ICAC members, the government and EPRI.
- *From 2004 to 2006*, DOE and UNDEERC jointly sponsored a \$3,000,000 program to further develop the measurement of mercury emissions. ICAC members also contributed significantly to the development and documentation of EPA Method 324, which eventually was adapted and adopted as the current sorbent trap mercury measurement methods 30A and 30B.
- *In April 2012*, when the EPA Mercury and Air Toxic Standard (MATS) was issued as a final regulation, ICAC member companies determined that they could neither measure the low mercury concentrations nor reduce the emissions to meet the EPA standard for new sources at the levels proposed by EPA. Over several months following the final rule and in collaboration with EPA, ICAC became deeply involved in trying to resolve this challenge and represented the collective voices of the air pollution control and measurement industry in the U.S. and Canada. With this strong supporting technical information, EPA ultimately modified the MATS regulation and established a more achievable limit for mercury emissions from new power plants that has since been implemented nationwide with tremendous success.

Over the past decade, ICAC members have continued to be actively engaged in the MATS rulemaking:

- In 2013, ICAC [submitted comments](#) to EPA on MATS Startup and Shutdown
- In 2013, our members composed a [white paper](#) titled: “Conducting a Successful Mercury Control Demonstration Test at a Coal-Fired Power Boiler”
- In 2015, our members released another [white paper](#) titled: “Process Implementation Guidance for Powdered Sorbents at Electric Generating Units”
- In 2015, ICAC released a new [Guidance Document](#) of Startup and Shutdown Under MATS.
- In 2019, ICAC provided a [technical briefing](#) to support the EPA Office of Water’s understanding of mercury control technologies used at US coal-fired electric generating units (EGUs).
- And in 2019, our members [submitted comments](#) on the proposed revisions to the MATS rule.

ICAC members remain ready to provide information to help inform EPA’s efforts on this rulemaking and welcome the opportunity for additional conversations with agency members.

Affirmation of the Appropriate and Necessary Supplemental Finding

ICAC supports EPA's reaffirmation of the appropriate and necessary finding. Mercury control is successful and very cost-effective today for coal-fired processes (including power plants) as a result of the decades of technology development work that was driven by confidence in national-level mercury control regulation. MATS was a transformative regulatory event that irrevocably changed the entire power sector, with implementation largely completed by 2016. The benefits achieved from the implementation of MATS have outweighed the costs to reduce emissions which had been initially overestimated when the regulation was first developed. Additionally, the investments made by industry to support the implementation of MATS have also provided economic benefits to communities across the nation by creating manufacturing, logistics, engineering, and construction jobs. These investments should and need to be protected from regulatory pendulum swings.

Between 2014 to 2016, owners invested \$6.1 billion in coal-fired electric generating unit controls for 88 GW of generation. According to a declaration by James E. Staudt in *White Stallion Energy Center, LLC, et al. v. U.S. EPA*, the 2014 estimated cost of MATS compliance was already \$7 billion per year less than EPA's original estimates, with the "true cost" totaling approximately \$2 billion – less than one quarter of EPA's estimates.¹ Operating costs under all of MATS (including mercury controls) have dropped to a range of less than \$1.00/MW-hr (averaging \$0.50/MW-hr) for coal-fired power plants.²

The benefits of MATS went well beyond the public health benefits obtained from preventing exposure of children to mercury from recreationally caught freshwater fish. The high-end Regulatory Impact Analysis estimate of \$90 million of benefits reflects the enormous conventional pollutant reductions produced by the rulemaking. The implementation of these solutions led to an 89% reduction in mercury emissions from 2007 to 2017. Other emissions reduced due to the implementation of MATS included PM_{2.5} (11%) and HCl (5.8%).³ Not accounted for in the compliance cost or emissions benefits from the implementation of MATS are the large spike in retirements of coal-fired units (39,000 MW) and the resulting emissions reductions that came as the cost of natural gas decreased alongside the compliance costs of MATS.

Additionally, air pollution control and measurement suppliers invested in the commercialization, scale-up, and distribution of the equipment necessary for MATS compliance. These investments included new production facilities, creation of new supply chains, and the mining of raw material for activated carbon production. New jobs were created across the country, particularly in Texas, Louisiana, Oklahoma, Mississippi, Wyoming, Kentucky, Virginia, West Virginia, Ohio, and Pennsylvania. The economic benefits to the local communities have been significant and

¹ Staudt, James E., PhD. *Control Technologies to Reduce Conventional and Hazardous Air Pollutants from Coal-Fired Power Plants*. Boston: NESCAUM, 2011.

² Staudt, J.E., "Update of the Cost of Compliance with MATS – Ongoing Cost of Controls," White Paper by Andover Technology Partners, May 2017.

³ U.S. EPA presentation to ICAC members, 2020 ICAC-EPA Roundtable Meeting, Research Triangle Park, NC



the industry continues to develop and improve their products today for mercury control and new uses of their products.

Technologies to Control Mercury Emissions

Through the work of ICAC members and through extensive testing of many innovative ideas, technologies were developed which now effectively control mercury emissions. There are multiple mercury control strategies which have a proven track record. The effectiveness of these strategies varies by plant and is influenced by parameters, including coal type, halogen and sulfur contents, boiler operating conditions, and air pollution control equipment type and operation. These successful environmental solutions include equipment, measurements, activated carbon as well as reagents and sorbents. Solutions also involve other strategies such as fuel blending and existing control optimization, non-carbon sorbents, improvements to carbon-based sorbents, wet and dry scrubber additives, and oxidizing coal additives. With these multiple options in place and a robust industry of technology suppliers that drive innovation through internal research and development, the costs of compliance for end users have reduced over time. ICAC is confident that the technological and cost improvements for mercury control will continue to meet the current and future market and environmental demands.

Conclusion

ICAC remains committed to regulatory actions that support environmental stewardship and protect human health. ICAC member companies are proud of their role in helping to clean the air by developing and installing reliable, cost-effective control and monitoring systems that have enabled compliance with environmental requirements. In addition to mercury, ICAC has achieved reductions across a broad range of pollutants, including, NO_x, SO_x and particulate matter, as well as VOCs, acid gases and a host of other toxic air pollutants. ICAC stands ready to assist EPA in further cost-effective air pollution reduction efforts and in developing the most accurate and reliable monitoring systems for air pollutants.