

**EPN Comments on National Emission Standards for Hazardous Air Pollutants:
Coal- and Oil-Fired Electric Utility Steam Generating Units
Review of the Residual Risk and Technology Review**

Docket No.: EPA-HQ-OAR-2018-0794

June 22, 2023

Founded in 2017, the [Environmental Protection Network](https://www.environmentalprotectionnetwork.org) (EPN) harnesses the expertise of more than 550 former Environmental Protection Agency (EPA) career staff and confirmation-level appointees from Democratic and Republican administrations to provide the unique perspective of former regulators and scientists with decades of historical knowledge and subject matter expertise.

EPN is pleased to comment on EPA's proposal to update and strengthen the National Emission Standards for Hazardous Air Pollutants for Coal- and Oil-Fired Electric Utility Steam Generating Units (EGUs), commonly known as the Mercury and Air Toxics Standards (MATS), to reflect recent developments in control technologies and the performance of these power plants.

EPA's proposals to tighten the emissions standard for filterable particles (fPM), to reduce emissions of non-mercury metals, and to tighten the startup and shutdown requirements for all coal- and oil-fired power plants will, as EPA says, produce significant public health benefits. Requiring that all plants monitor these fPM emissions with continuous emissions monitors (CEMS) will ensure that the goals of these measures are met.

We are also pleased to see that EPA is proposing to tighten the mercury emissions standard at power plants that are burning lignite, so that they will meet the same standard applying to units firing other coals. Recent data outlined in the proposal shows that the use of brominated activated carbon to control lignite-fueled plant mercury emissions is less expensive than previously thought and that this new information demonstrates its cost-effectiveness. The control efficiency of brominated activated carbon in reducing mercury emissions at individual plants by over 90% has been confirmed over many years with extensive tests, and no associated environmental impact issues have been identified.

The proposal's contention that the anticipated enhanced use of brominated activated carbon at lignite plants as a result of this rule could have "positive non-air impacts" seems reasonable. The summary of mercury control technologies used at each lignite plant shows that most use a combination of halogen-based mercury control techniques, including brominated activated carbon; precombustion treatment of coal with bromine; and spraying bromine into the combustion chamber. As the proposal emphasizes, the amount of bromine associated with brominated activated carbon use is much less than the amount used with these other technologies. Moreover, unlike these other technologies which can release halogens to air and water at various points, the bromine remains bound to the particles where it reacts to capture gaseous mercury and then, in turn, is captured by downstream pollution control devices, e.g., a fabric filter. For these reasons, we agree that any cross-media transfers of bromine to receiving water bodies and emitted to the atmosphere with the use of brominated activated carbon "are not expected (or would certainly be lower) with the use of brominated solvents" relative to these other technologies.

MATS currently requires a less stringent mercury emission standard for lignite-burning plants than is required for other coal-fired plants owing to earlier questions of the performance and cost-effectiveness of controls on lignite-burning plants. As a result, lignite-burning plants are emitting “beyond their weight.” The proposal indicates that 16 of the top 20 mercury-emitting electric power plants use lignite as a fuel. Taken as a whole, the proposal states that in 2021 lignite burning plants emitted almost 30% of the mercury from the power generating sector while producing only 7% of the country’s electricity.

MATS successfully reduced emissions of mercury by coal- and oil-fired electric power plants. As a result of MATS and other changes in the industry, emissions of mercury from the electricity-generating industry, once the largest anthropogenic source of mercury emissions, have fallen from pre-MATS levels of 29 tons per year to less than three tons per year in 2021.

EPA’s proposal and Residual Risk Analysis indicate that, owing to MATS, no coal- or oil-fired power plant — in itself or together with other such plants — results in an exceedance of the methylmercury Oral Reference Dose (RfD). However, we are pleased that the proposal recognizes that a potential exists for human health effects to occur for exposures *below* the 2001 methylmercury RfD. This is because the value developed more than two decades ago does not reflect consideration of recent analyses and studies, including those addressing various neurological (e.g., IQ) and cardiovascular endpoints. Such a consideration of these and other studies would likely lead to a more protective RfD value. As the proposal notes, one of the key epidemiological studies on which the RfD is based suggests a no threshold value. Consideration of recent mercury health science in an updated RfD could lead to more accurate health risk assessments and help clearly reveal the benefits of this action and other mercury control actions to the public.¹ *We urge EPA to resume efforts to update the methylmercury RfD.* Not only would a revised health assessment value that reflects evaluation of all relevant health studies aid development of future health impact analyses of power plant mercury emissions, it would also strengthen other U.S. efforts to control mercury from other sources.

A team of researchers at Harvard University recently published a paper that maps EGU-related mercury deposition in 2020.² The researchers identify remaining mercury hotspots next to lignite burning facilities where EGUs are contributing up to 8% of total mercury deposition. The analysis, relying on an assumed proportionality of deposition to fish concentrations, concludes that such deposition plausibly can result in exposures that *exceed* the RfD for the most highly exposed individuals. Notably, these hotspots are in North Dakota and Texas, home to most of the lignite-burning power plants in the US. The proposed tightened lignite standard would reduce these exposures and those found elsewhere in lignite plant environs. We recommend that EPA carefully consider these findings.

In addition, the Harvard analysis explored the relationship of certain demographic characteristics to mercury exposure that reveals a negative correlation between income and education level with mercury exposure

¹ We are aware that within the past five years, EPA’s Office of Research and Development had initiated an effort to revise the 2001 RfD that would take into consideration new analyses and studies. But we note that EPA’s Integrated Risk Information System (IRIS) (<https://www.epa.gov/iris/>), which provides health effects information, including toxicity values such as RfDs, indicates no planning activity beyond 2020 regarding the updating of the RfD.

² Sociodemographic Disparities in Mercury Exposure from United States Coal-Fired Power Plants, Mona Q. Dai, Benjamin M. Geyman, Xindi C. Hu, Colin P. Thackray, and Elsie M. Sunderland *Environmental Science & Technology Letters* 5 June 2023, <https://pubs.acs.org/doi/10.1021/acs.estlett.3c00216>.

from power plants. The analysis examined a sample of various types of coal-fired power plants and confirmed that those subgroups most highly exposed to mercury from power plants are among the U.S. population's most vulnerable. These include low-income individuals, people of color, and persons with low education levels. The analysis showed that in 2020, greater proportions of low-income individuals live next to US coal-fired power plants that remained active compared to plants that retired between 2010 and 2020. We urge EPA to consider these findings in its environmental justice analysis. Although Harvard's analysis included no specific examination of subgroups living near lignite-fueled plants (and EPA's own analysis of a sample of 12 lignite plants found little demographic difference from the national average in the subgroups residing near these plants), EPA's proposed mercury emission reductions would likely lead to reduced exposures for individuals living in lignite plant environs, including those in Texas and North Dakota. These regions, particularly in North Dakota, have large indigenous populations that live in proximity to EGUs.

In sum, the proposed regulation would provide important public health benefits. We urge EPA to finalize the proposal and to resume work on the methylmercury RfD that would allow the agency to more fully report to the public the benefits of such actions.