

Mercury Emissions

The Next Challenge for Coal-Powered Electric Generation Plants

By Tim Hogan

The next cast of the regulatory net over coal-powered electric generation facilities will target mercury emissions.

While coal power plants in 31 Eastern states are facing proposed EPA regulations limiting SO₂ and NO_x emissions, EPA is also working on mercury emission regulations covering coal and oil-fired power plants. The mercury emission rules are scheduled for publication by March 2011.

The Concern

Utilities' coal-powered generation facilities are responsible for roughly 40 percent of the nation's mercury emissions. Annual mercury emissions from the top 100 power producers range from 7 pounds to 8,110 pounds. This disparity in emissions is due to the type of coal used and its mercury content, as well as the control technologies utilized to reduce SO₂, NO_x, and particulates.

The concern with mercury is that once in the atmosphere, it is eventually deposited on the earth's surface and microorganisms in soils and sediments convert some part of it into methylmercury, a highly toxic form of mercury.

Regulatory Landscape

In 2000, EPA determined mercury emissions from coal-fired plants should be regulated. Section 112 of the Clean Air Act (CAA) addresses emissions of hazardous air pollutants, including mercury, and requires issuance of technology-based standards for major sources. EPA is required to establish standards for major sources that require the maximum degree of reduction in emissions of hazardous air pollutants. These standards are commonly referred to as "maximum achievable control technology" or "MACT" standards. EPA has yet to establish MACT standards for mercury emissions from coal-fired electric generation plants.

In 2005, EPA adopted the Clean Air Mercury Rule, a cap-and-trade program, which would have created interstate trading, in order to reduce mercury emissions from power plants by 50 percent by 2018. In *New Jersey v. EPA*, the D.C. Circuit court vacated EPA's approach. The court held that the rule violated the CAA when it sought to regulate mercury-emitting power plants through the cap-and-trade program developed under Section 111, rather than with a traditional MACT standard under Section 112. A consent decree requires EPA to propose technology-based standards to control emissions of mercury by March 2011, and to establish final MACT standards by November 2011.

EPA is now in the process of developing a MACT standard for coal and oil-fired electric generating plants in order to regulate emissions of mercury and other hazardous air pollutants. The underpinnings for this standard will be based on data collected through CAA Section 114 information requests. In these requests, EPA is requiring all US coal and oil-fired electric generating plants to submit emissions data for mercury, nickel and other hazardous

air pollutants.

The lack of federal standards has not deterred states from issuing their own regulations. Currently, 21 states have issued regulations requiring the reduction of mercury emissions from utilities.

The Technology

The case for stringent mercury controls is building. In 2008, DOE reported systems that inject sorbents – powdery substances that bind mercury – such as powdered carbon, into a coal-fired power plant’s flue gas, are ready for commercial deployment. Results from the use of sorbents are claimed to have the potential of reducing mercury emissions by as much as 90 percent. The National Energy Technology Lab in Pittsburg places the figure at a 50 percent reduction from 1999 levels based on its field tests. The GAO, in an October 2009 report, determined that the cost of purchasing and installing sorbent injection systems and monitoring equipment averaged about \$3.6 million per plant, for plants only operating a sorbent system. The sorbent injection system has been utilized in 30 full-scale demonstration projects performed by DOE, Electric Power Research Institute and the utility industry. When fabric filter devices are utilized to assist the sorbent injection systems, coupled with monitoring equipment, the cost are reported to increase to \$16 Million. Annual operating costs of sorbent injections systems, which are driven primarily by the cost of the sorbent material, are well under \$1 Million.

Key Issues

As EPA moves forward with the development of MACT standards, key questions remain regarding exactly what data EPA will ultimately decide to utilize. For example, EPA must decide whether the proposed MACT standards will take into account the type of coal utilized in a specific plant. EPA must also consider the wide range of operating conditions and boiler configurations at existing plants, and how these varied operating conditions will impact the application of proposed MACT standards.

These issues will affect the stringency of EPA’s proposed MACT standards. Given the existing state requirements and EPA’s renewed focus on mandatory laws to reduce emissions, the pace at which companies look to reduce their emissions will likely increase. Solutions that co-benefit not only mercury emissions but other pollutants like particulates, SO₂ and NO_x will find an expanding market.

If you have any questions about this newsletter, please contact the authors listed above or the Riddell Williams attorney with whom you normally consult.

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