Congressional Research Service

Memorandum

April 19, 2005

TO: Hon Patrick Leahy
Attention: Susanne Fleek

FROM: James E. McCarthy
Specialist in Environmental Policy
Resources, Science, and Industry Division

SUBJECT: EPA's Cap-and-Trade Rule for Utility Mercury Emissions

As you requested, this memorandum provides a short summary of the EPA cap-and-trade rule for emissions of mercury from coal-fired electric power plants. The rule, which was signed by acting EPA Administrator Stephen Johnson, March 15, has not yet appeared in the *Federal Register*; it is available on EPA's website at [http://www.epa.gov/air/mercuryrule/rule.htm].

You also asked for a discussion of the Agency's decision to delist electric utility steam generating units as sources of hazardous air pollutants and to revise its December 2000 regulatory finding that controlling mercury emissions from such sources under Section 112 is "appropriate and necessary." This decision appeared in the March 29 *Federal Register* at 70FR15994, and can be found on the same EPA website as the cap-and-trade rule.

Statutory Requirements

Electric utilities were singled out for special consideration by the 1990 Clean Air Act Amendments. Under Section 112(n) [42 U.S.C. 7412(n)], EPA was required to undertake two studies of mercury emissions and other hazardous air pollutants from electric utility steam generating units, and to report to Congress before deciding whether to impose Maximum Achievable Control Technology (MACT) standards. One study was to characterize mercury emissions from utilities, municipal waste incinerators, and other sources, determine their health and environmental effects, identify the technologies available to control emissions, and estimate the costs of such technologies. The other study was to determine the hazards to public health anticipated as a result of emissions of all hazardous air pollutants emitted by electric utilities after imposition of other requirements of the Act, and describe "alternative control strategies for emissions which may warrant regulation under this section." After considering the results of this study, "the Administrator shall regulate electric utility steam generating units under this section [Section 112], if the Administrator finds such regulation is appropriate and necessary...."

Having submitted the required reports to Congress under this section in 1997 and 1998,[1] EPA Administrator Carol Browner did find such regulation appropriate and necessary, and issued a formal finding to that effect in December 2000.[2] She also added "coal- and oil-fired electric utility steam generating units" to the Section 112(c) list of sources of hazardous air pollutants (HAPs) for which the Administrator is required to establish standards. The finding and the listing set in motion the development of MACT standards. Under a consent agreement reached with the Natural Resources Defense Council (NRDC), the standards were to be proposed by December 15, 2003, and a final MACT rule was to be signed by March 15, 2005.

The listing was not a final Agency action. In its *Federal Register* notice, December 20, 2000, EPA noted that under Section 112(e)(4), "no action adding a pollutant to the list under subsection (b) or listing a source category or subcategory under subsection (c) shall be a final agency action subject to judicial review...."[3] The Utility Air Regulatory Group (UARG) challenged the finding and listing decisions in the U.S. Court of Appeals for the D.C. Circuit.[4] The court dismissed the challenge, upholding EPA's interpretation of the statute.

EPA's Mercury Rule

The Revised Finding and Delisting. In the March 15, 2005 final mercury rules, EPA did not promulgate a MACT standard. Instead, it revisited the December 2000 analysis and reversed its regulatory finding and listing decisions. In its revised analysis, the Agency found that regulating mercury from utilities under Section 112 is neither "appropriate" nor "necessary." It is not appropriate, the Agency concluded, because the health effects of mercury from utilities remaining after imposition of other controls "do not result in hazards to public health."[5] It is not necessary, in the Agency's reasoning, because mercury could be regulated under other sections of the Act, specifically Section 111, which does not require the use of MACT.[6] Thus, the Agency removed coal- and oil-fired electric utility steam generating units from the list of HAP sources under Section 112(c).[7]

Section 112(c)(9) of the Act provides a formal mechanism for delisting sources. For HAPS such as mercury that result in adverse health effects other than cancer, the

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[1] U.S. EPA, Office of Air Quality Planning and Standards, *Study of Hazardous Air Pollutant Emissions from Electric Utility Steam Generating Units — Final Report to Congress*, February 1998, 2 vols., available at [http://www.epa.gov/ttn/atw/combust/utiltox/utoxpg.html#TEC]; and U.S. EPA, OAQPS and Office of Research and Development, *Mercury Study Report to Congress*, December 1997, 8 vols., available online at [http://www.epa.gov/ttnatw01/112nmerc/mercury.html]. Both sites visited April 5, 2005.

[2] Regulatory Finding on the Emissions of Hazardous Air Pollutants from Electric Utility Steam Generating Units, 65 *Federal Register* 79825, December 20, 2000.

[3] Ibid., p.79831.

[4] UARG v. EPA, 2001 WL 936363, No. 01-1074 (D.C. Cir. July 26, 2001).

[5] U.S. EPA, Revision of Regulatory Finding, 70 *Federal Register* 16004, March 29, 2005. The full discussion begins on p. 16002.

[6] Ibid., p. 16005.

[7] The Revision of the Regulatory Finding states: "Based solely on the revised finding, we are removing coal- and oil-fired Utility Units from the Section 112(c) list." Ibid., p. 15994.

Administrator may delete a source category on his own motion whenever he determines "that emissions from no source in the category or subcategory concerned ... exceed a level which is adequate to protect public health with an ample margin of safety and no adverse environmental effect will result from emissions from any source ...."

This is not what the Agency did with regard to electric generating units. Rather than formally delist, the Agency revised the "appropriate and necessary" finding, and, having done so, found that there were no grounds on which to list the source. It, therefore, "removed" the category rather than "delisting" it. As stated in the March 29 *Federal Register* notice:

> Today, we conclude that the December 2000 finding lacked foundation and that regulation of coal- and oil-fired Utility Units under section 112 is not appropriate and necessary. Based on those decisions and our revision of the December 2000 finding, we remove coal- and oil-fired Utility Units from the section 112(c) list. We disagree with those commenters that argue that EPA cannot remove coal- and oil-fired Utility Units from the section 112(c) list without satisfying the delisting criteria in section 112(c)(9). ... coal- and oil-fired Utility Units should never have been listed under section 112(c) and therefore the criteria of section 112(c)(9) do not apply to today's action.[8]

In the proposed revision of the regulatory finding, which appeared in the January 30, 2004 *Federal Register*, EPA stated that its action "is analogous to those situations where EPA has listed a source category under section 112(c)(1), and later determined that it lacked a factual predicate for such listing and, therefore, delisted the source category without following the criteria of section 112(c)(9)." The Agency states that it has done so on several occasions, citing as an example the listing of asphalt concrete manufacturers in 1992 and its subsequent delisting in 2002.[9]

The Cap-and Trade Rule. Instead of a MACT rule under Section 112, the Agency promulgated a national cap-and-trade system to control mercury emissions from existing and new utility sources under Section 111(d). The cap will be 15 tons of emissions nationwide in 2018 (about a 70% reduction from 1999 levels, if achieved). There will also be an intermediate cap of 38 tons in 2010.

The caps will be implemented through an allowance system similar to that used in the acid rain program, through which utilities can either control the pollutant directly or purchase excess allowances from other plants that have controlled more stringently or sooner than required. As with the acid rain program, early reductions can be banked for later use, which the agency says would result in emissions of 31.3 tons in 2010, nearly 7 tons less than the cap. If this happens, it will allow utilities to delay compliance with the full 70% reduction until well beyond 2018, as they use up banked allowances rather than installing further controls. The Agency's analysis projects actual emissions to be 24.3 tons (less than a 50% reduction) as late as 2020. Full compliance with the 70% reduction might be delayed until 2030.

Co-Benefits. The reductions in mercury emissions calculated by EPA for the cap-and-trade regulations rely almost entirely on co-benefits from sulfur dioxide (SO_2) and nitrogen oxide (NOx) controls required under a separate Agency rule that was signed March 10, the

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[8] Ibid., pp. 16032-16033.

[9] 69 *Federal Register* 4689, January 30, 2004.

Clean Air Interstate Rule (CAIR). This co-benefit approach minimizes costs for electric utilities: by 2015, less than 1% of coal-fired power plant capacity will have installed equipment specifically designed to control mercury, according to EPA. By 2020, only 4% of capacity will have such equipment.

Hot Spots. Besides the stretched-out implementation schedule, one of the main criticisms of the cap and trade proposal has maintained that it would not address "hot spots," areas where mercury emissions and/or concentrations in water bodies are greater than elsewhere. It would allow a facility to purchase allowances and avoid any emission controls, if that compliance approach makes the most sense to the plant's owners and operators. If plants near hot spots do so, the cap-and-trade system may not have an impact on mercury concentrations in the most contaminated areas. By contrast, a MACT standard would have required reductions at all plants, and would therefore be expected to improve conditions at hot spots.

Availability of Technology. Critics argue that the mercury regulations should be more stringent or implemented more quickly. To a large extent, these arguments and EPA's counter-arguments rest on conflicting assumptions concerning the availability of control technologies. As noted, controlling SO_2, NOx, and mercury simultaneously, as the agency prefers, would allow utilities to maximize co-benefits of emission controls. Controls such as scrubbers and fabric filters, both of which are widely used today to control SO_2 and particulates, have the side effect (or co-benefit) of reducing mercury emissions to some extent. Under EPA's cap-and-trade regulations, both the 2010 and 2020 mercury levels would be achieved almost entirely through co-benefits. Thus, hardly any controls would be required to specifically address mercury emissions, and the costs specific to controlling mercury would be minimal. It would not be until the mid-2020s in EPA's analysis that technology specifically designed to control mercury would be installed on a significant scale.

Besides citing the cost advantage of relying on co-benefits, EPA has claimed that technology specifically designed to control mercury emissions (such as activated carbon injection, ACI) would not be generally available until after 2010. This assertion is widely disputed. ACI and fabric filters have been in use on municipal waste and medical waste incinerators for nearly a decade, and have been successfully demonstrated in at least 16 full-scale tests at coal-fired power plants, for periods as long as a year. Manufacturers of pollution controls and many others maintain that, if the agency required the use of ACI and fabric filters at power plants, reductions in mercury emissions as great as 90% could be achieved at reasonable cost in the near future.

Costs and Benefits. The Agency can take cost into consideration under the MACT or cap-and-trade rules, and cost to electric utilities appears to have been a determining factor in EPA's analysis. In its proposal, however, calculations of the overall societal costs and benefits seemed to support the imposition of a more stringent standard. In December 2003, the Agency projected MACT compliance costs at $945 million per year, versus quantifiable annual benefits (from longer lives and less illness) of more than $15 billion (a 16 to 1 advantage). The final rule completely changes this analysis. It concludes that the quantifiable benefits of mercury control using cap and trade are at most $43 million per year, with annual costs as high as $896 million. EPA's calculations of benefits did not include consideration of an academic study that it had sponsored that found benefits of mercury control at least two orders of magnitude higher than those in the Agency's final analysis.

Legal and Regulatory Issues. The cap-and-trade rule has raised a number of legal and regulatory issues. Some argue that the Agency is required by the statute to impose MACT standards on each individual plant once it has decided to control mercury emissions.[10] (For a discussion of the legal issues, see CRS Report RL32203, *Legal Analysis and Background on the EPA's Proposed Rules for Regulating Mercury Emissions from Electric Utilities*.) Other questions have arisen regarding the role of industry lobbyists in crafting portions of the EPA proposal, about whether the rule development process complied with certain Agency and Executive Order requirements, and about the Agency's cost-benefit analysis.[11] Nine states filed suit to overturn the Agency's cap-and-trade decision on March 29; a tenth state subsequently joined them.[12]

Enclosures

[10] The proposed MACT standards (which were also criticized as weak) would have applied on a facility-by-facility basis, and would have resulted in emissions of 34 tons of mercury annually, a reduction of about 30% from the 1999 level. The standards would have taken effect in 2008, three years after promulgation, with possible one-year extensions.

[11] See Office of Inspector General, U.S. EPA, *Additional Analyses of Mercury Emissions Needed Before EPA Finalizes Rules for Coal-Fired Electric Utilities*, February 3, 2005, "At a Glance," at [http://www.epa.gov/oigearth/reports/2005/20050203-2005-P-00003-Gcopy.pdf], visited April 5, 2005, and U.S. GAO, *Clean Air Act:Observations on EPA's Cost-Benefit Analysis of Its Mercury Control Options*, February 2005, Report no. GAO-05-252.

[12] New Jersey v. EPA, No.05-1097 (D.C. Cir.) filed Mar.29, 2005.