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IN FOCUS

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EPA Reconsiders Benefits of Mercury and Air Toxics Limits

In April 2020, the U.S. Environmental Protection Agency (EPA) concluded that limits on hazardous air pollutants (HAPs) from coal- and oil-fired power plants are not "appropriate and necessary" (A&N) under Clean Air Act (CAA) Section 112(n)(1) ("Reconsideration of Supplemental Finding and Residual Risk and Technology Review," April 16, 2020). The 2020 A&N rule reversed prior A&N determinations, which led to the 2000 listing of coal- and oil-fired power plants as a major source of HAPs and the 2012 Mercury and Air Toxics Standards (MATS) limiting those HAPs. Notwithstanding the 2020 A&N rule, the 2012 MATS limits remain in effect for power plants because EPA determined that it could not meet the criteria under CAA 112(c)(9) to delist them. Furthermore, the A&N finding does not change the regulatory status of other pollution sources because CAA Section 112(n)(1) applies only to power plants. Some have raised questions about why EPA reversed the A&N finding and how it might affect regulated entities. For example, some power plant owners are concerned the A&N reversal may compromise their ability to recover from ratepayers the costs of installing MATS pollution controls. Others find this unlikely, but legal challenges to the 2020 A&N rule are expected.

The 2020 A&N rule reveals a change in EPA's interpretation of a unique statutory provision—Section 112(n)(1)—which may nonetheless set a precedent for EPA's consideration of benefits under other CAA authorities. EPA stated that the 2020 A&N rule corrects errors in the agency's consideration of benefits in a prior A&N finding. In its determination for the 2020 A&N rule, EPA excluded from consideration any co-benefits to human health from reductions in pollutants *not* targeted by MATS. This In Focus discusses EPA's reconsideration of benefits and costs and potential issues for Congress. Section 112(c) delistings and legal issues are beyond this product's scope.

Historical EPA Actions

Hazardous air pollutants (HAPs) are pollutants known or suspected to cause cancer or other serious health effects, such as reproductive problems or birth defects. Among the HAPs emitted by power plants, mercury has been of principal concern. Mercury, which occurs naturally in coal, travels through the air to water, where it is converted to methylmercury and moves up the food chain. Consumption of fish and shellfish contaminated with methylmercury is the primary source of human mercury exposure. Fetuses and children are particularly vulnerable to methylmercury exposure, which may impair neurological development. Methylmercury exposure at high levels may harm the brain, heart, kidneys, lungs, and immune system.

CAA Section 112(n)(1) required EPA to study the "hazards to public health reasonably anticipated to occur" from HAPs emitted by power plants after imposition of other CAA requirements. It also required EPA to examine the health and environmental effects of mercury emissions from these sources, available control technologies and their costs, and whether regulation of power plant HAPs was "appropriate and necessary" (42 U.S.C. §7412(n)).

In 2000, EPA determined that it was appropriate and necessary to regulate hazardous air pollutants from coal- and oil-fired power plants. This determination required EPA to take additional steps to regulate HAPs. EPA added coal- and oil-fired power plants to the Section 112 list of source categories in 2000.

In 2005, EPA changed course. EPA withdrew the 2000 A&N finding and finalized a rule to remove coal- and oil-fired power plants from the Section 112 list. Instead, EPA promulgated a cap-and-trade program to limit power plant mercury emissions under Section 111. The U.S. Court of Appeals for the D.C. Circuit vacated these 2005 actions, however, and ruled that EPA unlawfully delisted coal- and oil-fired power plants from the Section 112 list because EPA failed to comply with the statutory delisting criteria.

In 2012, EPA reaffirmed the 2000 A&N finding and promulgated the Mercury and Air Toxics Standards Rule. The rule, which remains in effect, established emissions standards to reduce mercury and acid gases from most existing coal- and oil-fired power plants.

EPA's accompanying analysis, published in 2011, projected annual benefits between $37 billion and $90 billion in 2016. Nearly all of the monetized benefits were from the rule's particulate matter co-benefits. EPA monetized one of the expected mercury impacts—intelligence quotient loss to children exposed to mercury from recreationally caught freshwater fish—but could not monetize other mercury impacts. Such non-monetized impacts may include other neurologic effects (e.g., memory and behavior), cardiovascular effects, and effects on wildlife.

EPA's regulatory impact analyses have historically reported difficulty in monetizing HAP reduction benefits but have also noted that the lack of monetized estimates does not mean the benefits lack value. Previous Administrations concluded that such benefits justify emission standards, albeit under different CAA authorities. For example, EPA's 2004 analysis of a rule to reduce power plant mercury emissions concluded that non-monetized benefits were "large enough to justify substantial investment in emission reductions" ("Benefit Analysis for the Section 112 Utility Rule").

Numerous parties petitioned the courts to review MATS. Among other things, some petitioners disagreed with EPA's conclusion that it was not appropriate to consider costs when making an A&N finding under CAA Section 112. In 2015, the Supreme Court agreed with the petitioners and remanded the rule for further consideration, but it did not address whether EPA has authority to consider monetized co-benefits in evaluating the cost of MATS (*Michigan v. EPA*, 135 S. Ct. 2699 (2015)).

In 2016, EPA finalized a supplemental A&N finding based on its review of the 2012 rule's estimated costs. EPA evaluated whether compliance costs were "reasonable" and compared the estimated compliance costs to the estimated benefits, including co-benefits. EPA concluded that it was appropriate and necessary to regulate mercury and other HAPs from power plants after considering regulatory costs.

2020 Appropriate and Necessary Finding

In 2020, EPA reversed the 2016 supplemental finding, concluding that HAPs regulation is not appropriate and necessary under Section 112(n) because monetized costs exceed monetized HAP reduction benefits. The 2020 A&N rule revised the 2016 benefit-cost comparison by excluding the monetized co-benefits. This exclusion resulted in the estimated compliance costs ($9.6 billion in 2015), outweighing the monetized HAP benefits ($0.5 million to $6 million, depending on the discount rate, in 2016).

The 2020 A&N rule concluded that EPA's benefit-cost comparison for the 2016 supplemental finding was flawed because it included co-benefits from non-HAP pollutants. While EPA acknowledged that estimation of all benefits and costs, including ancillary impacts, is consistent with federal guidance, the agency concluded that it had erred when it gave equal consideration to benefits (HAP reductions) and co-benefits (non-HAP reductions) when making its 2016 A&N finding under Section 112(n). The 2020 A&N rule concluded that an A&N finding under Section 112(n)(1) must instead be justified "overwhelmingly" by HAP reduction benefits.

This interpretation marks a change from that of the prior Administration's EPA, which concluded that nothing in the CAA prohibits EPA from considering co-benefits in a benefit-cost analysis for an A&N finding. The 2016 supplemental finding characterized the non-HAP reductions as a "direct result of achieving the HAP emission limits under MATS" and included these monetized co-benefits in the total benefits estimate. EPA's 2016 supplemental finding also pointed to the CAA legislative history, noting that Senate Report 101-228 expected that HAP limits "would have a collateral benefit of controlling criteria pollutants as well and viewed this as an important benefit of the air toxics program" (81 *Federal Register* 24439, April 25, 2016).

The 2020 A&N rule also reveals a potential shift in EPA's assessment of non-monetized benefits. EPA's 2011 MATS analysis stated that non-monetized benefits "could be substantial, including the overall value associated with HAP reductions, value of increased agricultural crop and commercial forest yields, visibility improvements, and reductions in nitrogen and acid deposition and the resulting changes in ecosystem functions" ("Regulatory Impact Analysis for the Final Mercury and Air Toxics Standards," 2011). The 2020 A&N rule acknowledges HAP reduction benefits from MATS that cannot be monetized but finds that the value of those benefits is unlikely to alter the agency's conclusion. Specifically, EPA determined that the costs of the MATS would likely outweigh the HAP reduction benefits even if the agency were able to monetize all of them. EPA noted that many of the non-monetized HAP reduction benefits relate to illnesses, which have had lower economic values than mortality effects in its past analyses.

Federal Guidance on Benefit-Cost Analysis

Separate from the CAA, federal guidelines inform EPA's benefit-cost analyses. For example, Office of Management and Budget Circular A-4 directs agencies to assess whether the benefits of a proposal justify the costs. It does not require monetized benefits to outweigh monetized costs. Circular A-4 recognizes that quantified benefit and cost estimates may not capture all anticipated benefits and costs and directs analysts to identify non-quantified impacts "of sufficient importance to justify consideration in the regulatory decision."

EPA has also developed its own guidance, *Guidelines for Preparing Economic Analyses*, to complement Circular A-4 and other guidance. EPA has recently drafted updates to its *Guidelines*, which its Science Advisory Board is reviewing. Among other things, the draft update affirms that economic analysis should account for all benefits and costs of a proposal and advises distinguishing benefits from co-benefits. It also advises considering whether "more economically efficient or appropriate ways" are available to obtain co-benefits if the proposal is expected to "induce large" co-benefits. In addition, EPA's forthcoming proposed rule is expected to provide guidance regarding the agency's approach to benefits assessment.

Potential Issues for Congress

EPA's approach to benefits in the 2020 A&N rule may set a precedent for future rulemakings. Although EPA linked the 2020 A&N analysis to its interpretation of CAA Section 112(n)(1), the EPA Administrator has said on the record that the analysis foreshadows a more general analytical approach in future air pollution rulemakings. EPA has not specified whether that means it would exclude or give less weight to co-benefits in other air rulemakings. Such modification of co-benefit estimates would result in less favorable assessments, on a benefit-cost basis, of the rules. As EPA develops its benefits proposal and updates its *Guidelines*, Congress may exercise oversight over how EPA factors benefits and costs into regulatory decisions. Issues include consideration of non-monetized benefits and whether excluding co-benefits is consistent with the CAA.

Kate C. Shouse, Analyst in Environmental Policy

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