6-2004 34 ELR 10485

ELR
NEWS & ANALYSIS

ARTICLES

A Perfect Storm: Mercury and the Bush Administration, Part II

by Lisa Heinzerling and Rena I. Steinzor

The Storm Continues

In December 2003, the U.S. Environmental Protection Agency (EPA) proposed a rule to control mercury emissions from power plants and issued a final rule for mercury from chlor-alkali facilities. For power plants, EPA offered a mélange of proposals, while making clear that it strongly prefers to allow commercial trading in this toxic substance, imposing only minimal, long-delayed additional controls for mercury.[1] For chlor-alkali facilities,[2] EPA announced it simply did not know where as much as 65 tons of mercury (more than the mercury now emitted by all of the power plants in the country)[3] had gone—"somewhat of an enigma," EPA called it[4]—and then essentially grandfathered the nine old chlor-alkali facilities that still use mercury as an input to production.[5]

In the first installment of this two-part series, we argued that four powerful pressure systems—a "perfect storm,"[6] we said—should have combined to avoid these unhappy results.[7] Science, law, economics, and justice all pointed clearly in the direction of swift and stringent controls on mercury emissions. In that Article, we focused on science and law, first canvassing the large scientific consensus concerning the threats posed by mercury and then detailing the legal problems with EPA's actions. Since we wrote the Article, our discussion of the risks of mercury has gained even greater currency with the issuance of a new advisory by EPA and the Food and Drug Administration (FDA), which for the first time[8] warns pregnant women, women of child-bearing age, and their children about the mercury-related risks of eating that great American staple, canned tuna.[9]

In this Article, we turn to economics and environmental justice. These analytical frameworks reveal other, equally troubling problems with EPA's decisions on mercury.

With respect to economics, EPA's own analysis of its mercury proposals documented *net* benefits (benefits *minus* costs) of $13 billion from the regulation of power plants—*even without any calculation of the independent benefits of reducing the adverse health effects caused by mercury exposure, e.g., neurological injury to babies and children*. The benefits that were quantified and monetized

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1. Proposed National Emission Standards for Hazardous Air Pollutants; and, in the Alternative, Proposed Standards of Performance for New and Existing Stationary Sources: Electric Utility Steam-Generating Units; Proposed Rule, 69 Fed. Reg. 4652 (Jan. 30, 2004) [hereinafter Proposed Power Plant Rule]. Although EPA first announced its proposal in December 2003, it did not publish the proposal in the *Federal Register* until January 30, 2004. EPA subsequently published a supplemental notice setting forth a model rule for its trading alternative. Supplemental Notice for the Proposed National Emission Standards for Hazardous Air Pollutants; and, in the Alternative, Proposed Standards of Performance for New and Existing Stationary Sources: Electric Utility Steam-Generating Units; Proposed Rule, 69 Fed. Reg. 12398 (Mar. 16, 2004) [hereinafter Proposed Power Plant Rule Supplemental Notice].
2. Chlor-alkali facilities produce chlorine and caustic soda. Caustic soda (sodium hydroxide) is "an essential ingredient in an array of industrial operations, including pulp and paper, textiles, soap and detergents, bleach, petroleum products and alumina, along with many other uses in the chemical processing industry." *See* http://www.dow.com/causticsoda/index.htm.
3. EPA estimates that coal-fired utility units emit approximately 48 tons of mercury per year. Proposed Power Plant Rule, *supra* note 1, at 4691.
4. National Emission Standards for Hazardous Air Pollutants: Mercury Emissions From Mercury Cell Chlor-Alkali Plants; Final Rule, 68 Fed. Reg. 70904, 70920 (Dec. 19, 2003) [hereinafter Final Chlor-Alkali Rule].
5. *Id*. at 70918 (categorizing chlor-alkali plants in such a way as to allow mercury cell plants to continue using their outmoded technology). Since our first Article was written, the Natural Resources Defense Council, Inc. (NRDC) has sued to overturn the rule on chlor-alkali plants. For NRDC's press release on the lawsuit, see http://www.nrdc.org/media/pressreleases/040217.asp.
6. Several readers of the first Article in this series, Lisa Heinzerling & Rena I. Steinzor, *A Perfect Storm: Mercury and the Bush Administration*, 34 ELR 10297 (Apr. 2004), have suggested that the *real* "perfect storm," made famous by Sebastian Junger's book and the movie based on it, consisted of three, not four, weather systems, contrary to our account. Bob Case, the now-retired National Oceanic and Atmospheric Administration (NOAA) meteorologist who gave the storm its famous name, seems to count four weather systems that contributed to the event, and we relied upon his count in our first piece. *See* NOAA, *NOAA Meteorologist Bob Case, The Man Who Named the Perfect Storm*, *at* http://www.noaanews.noaa.gov/stories/s444.htm. In any case, we are pleased to have such careful readers.
7. Heinzerling & Steinzor, *supra* note 6, at 10297-98.
8. *See* http://www.epa.gov/ost/fishadvice/factsheet.html#diff.
9. U.S. EPA & FDA, JOINT FEDERAL ADVISORY FOR MERCURY IN FISH: WHAT YOU NEED TO KNOW ABOUT MERCURY IN FISH AND SHELLFISH (2004), *available at* http://www.epa.gov/waterscience/fishadvice/advice.html.

were a regulatory windfall: they were the "co-benefits" associated with reducing sulfur dioxide (SO_2) and nitrogen oxide (NO_x), two air pollutants that are otherwise regulated under new EPA rules issued around the same time as the mercury proposal.[10] EPA claimed these co-benefits in the context of its mercury rule proposals because reducing SO_2 and NO_x under those other rules will also result in reductions—as yet unquantified—of mercury emissions.[11] Unfortunately, EPA's calculations tend to obscure the single most remarkable fact about its mercury proposals: none of the alternatives EPA suggests with respect to mercury require utilities to do anything more to control mercury than they are doing already to control SO_2 and NO_x. Only in 2018—at the earliest—will mercury-specific control requirements kick in, at which time, under EPA's proposed trading alternative, total allowable emissions are reduced further.

Thirteen billion dollars is, as these things go, a whopper of a net benefit. Yet the public record reveals that no one—neither EPA officials nor the supposedly cost-benefit-minded economists at the Office of Management and Budget (OMB)—asked whether we might get an even more wonderful cost-benefit profile if we regulated mercury more stringently. Indeed, EPA officials ordered career personnel at the Agency not to perform the kind of scientific and economic analysis usually performed for this kind of rule.[12] And the dominant concern of the "efficiency" hawks at OMB appears to have been to make the risks of mercury appear as low as possible.

We tell the same sad story when justice is the theme. In offering its proposal to allow commercial trading in mercury emissions, EPA violated several of the most basic principles for designing an effective and enforceable trading regime. Allowing trading in a toxic substance makes practically inevitable the creation of dangerous hot spots that threaten the health of neighborhoods around the plants. Compounding this overriding problem, the "cap" EPA proposes to set on total emissions is exceedingly generous, requiring no new, mercury-specific controls until 2018 at the very earliest. By allowing unlimited banking of emissions credits, the Agency has shot holes through even that supposedly "certain, fixed"[13] albeit overly generous cap, with the embarrassing result that under the Agency's own modeling, it may be 2026 until mercury emissions are reduced to one-half as much as they are now. The weakness of the Agency's trading proposal was cast in sharp relief by the findings of a recently released analysis by EPA's Office of Research and Development (ORD) showing that technologies capable of achieving 70-90% reductions will be available as early as 2010.[14] The trading regime EPA proposes to create is, quite simply, a disaster waiting to happen, and its deep problems unfortunately threaten to undermine the case for emissions trading in other, more promising and appropriate contexts.

In short, EPA has brushed aside the clear implications of economics and justice just as casually as it brushed aside the implications of science and law. Blasted by a barrage of criticism labeling these proposals (among other things) as the "next arsenic,"[15] faced with news accounts documenting extensive industry influence on EPA's explanation of its proposal for power plants,[16] and embarrassed by the contradictions between EPA's claims about the efficacy of trading and modeling showing much worse results, EPA Administrator Michael Leavitt told the press that he has ordered his staff to do more analysis and to consider altering its proposals for power plants.[17] Within days, however, EPA Assistant Administrator Jeffrey Holmstead, the chief architect of the controversial scheme, reassured the utility industry that such reconsideration would be limited to details of the trading system's design, as opposed to a comprehensive reevaluation of the soundness of EPA's overall approach.[18] As this Article goes to press, EPA has neither formally withdrawn the proposal nor halted the period for public comment.

This Article opens with an analysis of EPA's abortive efforts to minimize benefits of mercury controls, and then undertakes an exploration of its overly generous and exceedingly porous cap-and-trade proposal. This proposal, we conclude, cannot be fixed with tinkering. EPA should withdraw the proposal and start where it left off a year ago, when it was still committed to the legally correct and environmentally preferable maximum achievable control technology (MACT) regime for mercury.

What Does Economics Have to Do With It?

Economics enters into the mercury rulemaking process in two ways, first via the statute itself and second via an Executive Order.

The statutory opening for economic considerations is §112(d)(2) of the Clean Air Act (CAA).[19] Section 112 requires EPA to set standards for hazardous air pollutants that are, like mercury, listed in the statute. We explained in the first part of this series why we think EPA was obligated to set standards for mercury under §112 of the Act, rather than under the more lenient §111, as the Agency desires.[20] Section 112(d)(2) provides that standards for new sources may not require less stringent controls than the controls achieved "in practice by the best controlled similar source," and that standards for existing sources may not require less stringent

10. Rule to Reduce Interstate Transport of Fine Particulate Matter and Ozone (Interstate Air Quality Rule); Proposed Rule, 69 Fed. Reg. 4566 (Jan. 30, 2004) [hereinafter Interstate Air Quality Rule].
11. Because it is so flummoxed about what numerical reductions in mercury to expect from the SO_2 and NO_X rules, EPA is unable to establish the Phase I cap for mercury in its trading rule proposals. *See* discussion at *infra* notes 83, 84 and accompanying text.
12. Tom Hamburger & Alan C. Miller, *Mercury Emissions Rule Geared to Benefit Industry, Staffers Say*, L.A. Times, Mar. 16, 2004 [hereinafter Hamburger & Miller].
13. Proposed Power Plant Rule, *supra* note 1, at 4701.
14. Steve Cook, *Developing Technology Could Help Cut Mercury by 70 Percent, EPA Research Says*, Env't Rep. (BNA), Mar. 26, 2004, at 645 [hereinafter Developing Technology].
15. Margaret Kriz, *The Next Arsenic: Safeguarding the Food Chain*, Nat'l J., Feb. 14, 2004, at 458. The reference is to a similar controversy early in the Bush Administration when newly minted EPA Administrator Christine Todd Whitman held up rules to reduce arsenic in drinking water, only to be met with a firestorm of criticism in the media. Ultimately, she relented, releasing the rule within months of her initial misstep.
16. Hamburger & Miller, *supra* note 12; Eric Pianin, *Proposed Mercury Rules Bear Industry Mark*, Wash. Post, Jan. 31, 2004, at A4.
17. Hamburger & Miller, *supra* note 12; *see also* Jennifer 8. Lee, *EPA May Tighten Its Proposal on Mercury*, N.Y. Times, Mar. 16, 2004, at A25.
18. Darren Samuelsohn, *EPA Will Spotlight Cap-and-Trade Approach in New Mercury Analysis*, Greenwire, Mar. 25, 2004.
19. 42 U.S.C. §7412(d)(2), ELR Stat. CAA §112(d)(2). *See also id.* §7412(b)(1) (listing pollutants to be regulated).
20. Heinzerling & Steinzor, *supra* note 6, at 10305-10.

controls than those achieved by the best performing 12% of sources (with certain limited exceptions).[21] EPA may, however, require *more* stringent controls than those achieved by the best performers. Indeed, EPA is obligated to require

> the maximum degree of reduction in emissions of the hazardous air pollutants subject to this section (including a prohibition on such emissions, where achievable) that the Administrator, taking into consideration the cost of achieving such emission reduction, and any non-air quality health and environmental impacts and energy requirements, determines is achievable in the category or subcategory to which such emission standard applies. . . .[22]

In simple terms, §112(d)(2) requires EPA to consider more than what sources actually *have achieved in practice*; actual achievement marks the lower limit of what EPA must require of sources under §112. Section 112(d)(2) also requires the Agency to consider *what is achievable*—to go beyond the achievements already made in practice and to imagine how much more might be done. In contemplating the "achievable," EPA must consider economic costs. Thus economics enters the §112(d)(2) picture at the moment when EPA is contemplating doing more (not less) by way of regulating hazardous air pollutants. As we shall see, however, EPA failed to heed the language of §112(d)(2) insofar as it failed seriously to consider the economics of more stringent alternatives to its preferred approach.

Economics also enters the regulatory process through Executive Order No. 12866, a President Clinton-era order that requires agencies to conduct cost-benefit analyses for significant regulatory initiatives.[23] In the Bush Administration, this Executive Order has taken on a whole new, large life. John Graham, the head of the OMB's Office of Information and Regulatory Affairs (OIRA), which is responsible for implementing Executive Order No. 12866, has asserted authority to return proposals to agencies if they do not meet the test of cost-benefit analysis or are otherwise inconsistent with the president's "policies and priorities."[24]

OIRA Today

The result of OIRA's new assertiveness has been significant intrusion by the office into the rulemaking processes of the federal agencies.[25] Even where statutes do not require or even allow the cost-benefit analysis contemplated in Executive Order No. 12866 and its accompanying guidance,[26] Graham's OIRA has pushed for intricate cost-benefit analysis and has delayed and/or undermined agency proposals that fail to deliver it.

In the fall of 2001, for example, EPA presented to OIRA for its review a proposal to regulate air pollution from non-road, spark-ignition (not diesel) engines. EPA offered the results of a cost-benefit analysis showing a regulator's dream come true: the rule would, the Agency had concluded, actually pay for itself, by generally saving consumers in fuel costs more than would be spent retooling engines to comply with the rule.[27] Oh, and the rule would also save lives, prevent illness, and protect natural resources—but the Agency had not quantified these benefits; even without them the rule passed the cost-benefit test with flying colors.[28] OIRA's response? It sent the proposal back to EPA for more analysis, explaining that it harbored doubts that regulation could provide economic benefits that the market had not, and seeking precise estimates of the number and monetary value of "all the benefits" of the proposed rule.[29] A year and 687 pages of analysis later, EPA returned to OIRA with the happy report that yes, the rule would indeed save consumers money—and it would also save many lives, prevent many illnesses, and protect natural resources.[30] Finally, OIRA let the final rule pass.[31]

OIRA has also pressed for earlier involvement in the agencies' rulemaking deliberations. Executive Order No. 12866 requires cost-benefit analysis to accompany agency proposals when the proposals are brought before OIRA for its review.[32] In a memorandum to the heads of agencies, Graham has reinforced this requirement, emphasizing how important it is that cost-benefit analysis be done early on in the agency's decisionmaking process.[33]

Graham has touted these innovations as means of helping the Administration achieve "smart regulation," which he says is "not uniformly pro-regulation or anti-regulation.

21. 42 U.S.C. §7412(b)(3).
22. *Id*. §7412(d)(2).
23. Exec. Order No. 12866, 58 Fed. Reg. 51735 (Oct. 4, 1993), Admin. Mat. 45070.
24. Memorandum for the President's Management Council from John D. Graham, Presidential Review of Agency Rulemaking (Sept. 20, 2001), *available at* http://www.whitehouse.gov/omb/inforeg/oira_review-process.html [hereinafter Graham Memo to President's Management Council].
25. For an analysis of OIRA's actions, see U.S. General Accounting Office, Report to Congressional Requesters, Rulemaking: OMB's Role in Reviews of Agencies' Draft Rules and the Transparency of Those Reviews (2003) (GAO 03-929).
26. OIRA recently revised its guidance for agencies conducting cost-benefit analyses. *See* OMB, OIRA, Circular A-4, Regulatory Analysis (2003), *available at* http://www.whitehouse.gov/omb/circulars/a004/a-4.pdf.
27. *See* U.S. EPA, Draft Regulatory Support Document: Control of Emissions From Unregulated Non-Road Engines (2001) (EPA 420-D-01-004).
28. *Id*. ch. 7 (providing monetary estimates of costs of rule, along with estimates of tons of pollution avoided).
29. *See* OMB, OIRA, Letter to the Environmental Protection Agency on "Control of Emissions From Non-Road Large Spark-Ignition Engines and Recreational Engines (Marine and Land-Based)" (Sept. 24, 2001), *available at* http://www.whitehouse.gov/omb/inforeg/spark_engines_epa_sep2001.html.
30. U.S. EPA, Final Regulatory Support Document: Control of Emissions From Unregulated Non-Road Engines §10 (2002) (EPA 420-R-02-022), *available at* http://www.epa.gov/otaq/regs/nonroad/2002/cleanrec-final.htm.
31. U.S. EPA, Control of Emissions From Non-Road Large Spark-Ignition Engines, and Recreational Engines (Marine and Land), Final Rule, 67 Fed. Reg. 68241 (Nov. 8, 2002).
32. 58 Fed. Reg. at 51741.
33. Graham wrote:

> The [regulatory impact analysis (RIA)] must provide an assessment of benefits, costs, and potentially effective and reasonably feasible alternatives to the planned regulatory action (*see* [§]6(a)(3)(C)). This is submitted to OIRA along with the applicable draft regulatory action. Preparing RIAs helps agencies evaluate the need for and consequences of possible [f]ederal action. By analyzing alternate ways to structure a rule, agencies can select the best option while providing OIRA and the public a broader understanding of the ranges of issues that may be involved. Accordingly, it is important that a draft RIA be reviewed by agency economists, engineers, and scientists, as well as by agency attorneys, prior to submission to OIRA.

Graham Memo to President's Management Council, *supra* note 24.

The science and economics may point in very different directions depending on the case."[34] Smart regulation, Graham has claimed, is about "sound science and economics."[35]

The Administration's rhetoric is, however, very different from the reality. In truth, cost-benefit analysis in the Bush Administration has been a one-way street—used to justify delaying or weakening regulation, not to strengthen it.[36] When cost-benefit analysis almost certainly would justify strengthening regulation, especially environmental regulation, OIRA has kept it holstered in its belt.

The most telling examples of this one-sided approach have come in the context of air pollution. In the fall of 2003, OIRA issued a report on the costs and benefits of federal regulation that was notable for its firm conclusion that air pollution regulation was one of the biggest—if not the biggest—regulatory bargains around. Between 1992 and 2002, the CAA's regulatory programs had, according to OIRA, produced from $121-193 billion in benefits while imposing $23-27 billion in costs.[37] Nevertheless, the Administration has insisted on undermining the very kinds of programs that produce such fantastic results. When it does so, however, it is careful *not* to conduct the kind of cost-benefit analysis it has used to delay or undermine other regulatory efforts—the kind of cost-benefit analysis that, when it comes to air pollution, almost certainly would show that more regulation is better. Thus, when the Bush Administration relaxed requirements for power plants and other facilities under the new source review (NSR) program, it declined to conduct an economic analysis of the consequences of its actions.[38]

The very same thing is happening with mercury. The full tale of EPA and OIRA's hurried and one-sided look at the economics of regulating mercury speaks volumes about Graham's description of cost-benefit analysis as a force for "sound science and economics" in the regulatory process.

EPA's About Face

EPA's announcement in December 2000, that regulation of mercury from power plants was appropriate and necessary under §112 of the CAA set in motion a chain of events familiar to any student of the regulatory process. EPA's career employees went to work trying to identify pollution controls that would satisfy §112's requirements. EPA formed a stakeholder panel that met for 21 months to consider the issues involved in establishing the MACT standard that everyone assumed EPA would promulgate.[39] By the spring of 2003, the working group had agreed upon a set of model runs they wanted EPA to do in order to help decide what controls to require. Experts outside of EPA, not associated with the working group, also had weighed in with promising descriptions of the raft of control technologies that would be available once the regulatory framework had gelled.[40]

Meanwhile, on a parallel track, the Administration had announced that as part of its signature "Clear Skies" proposal it wanted the U.S. Congress to consider repealing the mandate that EPA establish technology-based requirements for power plant emissions and instead adopt a trading approach. This venture into the troubled waters of applying trading to a highly toxic substance had prompted extensive criticism from the environmental community and its allies in Congress, although most of those involved with the Clear Skies legislative debate were preoccupied with other issues, including the legislation's omission of carbon dioxide (CO_2) and whether the caps it set on the pollutants it did cover were sufficiently stringent.[41]

Despite their obvious recognition that the Administration was testing the political waters on mercury trading, none of the key stakeholders thought that EPA would do anything other than promulgate a MACT standard for mercury in the absence of final passage of such legislation, a prospect that appeared remote then and even more remote now. These perceptions were described in U.S. Senate testimony on the Clear Skies legislation delivered on April 8, 2003, by David

34. John D. Graham, Stimulating Smarter Regulation: OMB's Role, Speech to American Hospital Ass'n (July 17, 2003), *available at* http://www.whitehouse.gov/omb/inforeg/graham_ama071702.html.

35. *Id*.

36. Two days before announcing his more interventionist approach to reviewing agency regulations, Graham issued two "prompt" letters, designed to spur rather than to discourage regulatory actions. One encouraged the FDA to label trans fatty acids in foods, and the other encouraged the Occupational Safety and Health Administration (OSHA) to consider making automated external defibrillators in workplaces a regulatory priority. OMB, Press Release, OMB Encourages Lifesaving Actions by Regulators (Sept. 18, 2001), *available at* http://www.whitehouse.gov/omb/pubpress/2001-35.html. Although some scholars have made much of these prompt letters (*see*, *e.g.*, Robert W. Hahn & Cass R. Sunstein, *A New Executive Order for Improving Federal Regulation? Deeper and Wider Cost-Benefit Analysis*, 150 U. Pa. L. Rev. 1489, 1523-34 (2002)), it is important to keep in mind several things about them: (1) since Graham issued these two most important prompt letters (on trans fats and defibrillators), two days before announcing his newly invigorated approach to reviewing agency actions, no prompt letter suggesting tightened regulation has been issued; (2) the letter regarding defibrillators resulted solely in another letter, from OSHA to employers, telling them of the benefits of defibrillators (*see*, *e.g.*, John Graham, Speech to Council of Scientific Society Presidents (May 6, 2002), *available at* http://www.whitehouse.gov/omb/inforeg/scientific_society_speech050602.html); and (3) the rulemaking on trans fatty acids was begun, not at Graham's behest, but in 1999, during the Clinton Administration. FDA, Food Labeling: Trans Fatty Acids in Nutrition Labeling, Nutrient Content Claims, and Health Claims; Proposed Rule, 64 Fed. Reg. 62746 (Nov. 17, 1999).

37. OIRA, Informing Regulatory Decisions: 2003 Report to Congress on the Costs and Benefits of Federal Regulations and Unfunded Mandates on State, Local, and Tribal Entities 7, tbl. 2 (2003), *available at* http://www.whitehouse.gov/omb/inforeg/regpol-reports_congress.html; *see also* Eric Pianin, *Study Finds Net Gain From Pollution Rules; OMB Overturns Past Findings*, Wash. Post, Sept. 27, 2003, at A1.

38. U.S. EPA, Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NSR): Baseline Emissions Determination, Actual-to-Future-Actual Methodology, Plantwide Applicability Limitations, Clean Units, Pollution Control Projects; Final Rule, 67 Fed. Reg. 80186, 80241 (Dec. 31, 2002) (stating only that proposal had been submitted to the OMB for review); U.S. EPA, Technical Support Document for the Prevention of Significant Deterioration and Nonattainment Area New Source Review Regulations II-7-1 to II-7-2 (2002), *available at* http://www.epa.gov/ttn/nsr/rule_dev.html (stating that no RIA was required for the rule because OMB "has determined that the final rule is significant for novel policy reasons but not for economic reasons," and declining to require RIA in response to commenter's claim that the NSR program in its unrevised form produced benefits 7-10 times greater than costs).

39. Proposed Power Plant Rule, *supra* note 1, at 4656.

40. Northeast States for Coordinated Air Use Management (NESCAUM), Environmental Regulation and Technology Innovation: Controlling Mercury Emissions From Coal-Fired Boilers (2000) [hereinafter NESCAUM 2000 Report].

41. *Testimony of David G. Hawkins, Hearings on S. 485, Clear Skies Act of 2003, U.S. Senate Comm. on Env't and Public Works, Subcomm. on Clean Air, Climate Change, and Nuclear Safety* (Apr. 8, 2003), *available at* http://epw.senate.gov/108th/Hawkins_040803.htm [hereinafter Hawkins Testimony].

Hawkins of the Natural Resources Defense Council, Inc. (NRDC), who was a member of EPA's working group for the mercury rule:

> In the regulatory development process now underway, EPA is evaluating performance requirements that would achieve a reduction to 5 tons per year. The weakest option being analyzed by the agency (at the request of the utility industry) is a level only slightly higher than the administration plan's second-phase target of 15 tons.
>
> No one, including the administration, has contended that a standard as weak as the administration plan's first-phase target—26 tons—could pass muster under the MACT requirement of current law. Even a MACT standard that reduced emissions by only 70[%] would cut mercury pollution to 15 tons 10 years earlier than the administration legislation.
>
> The administration plan, however, would repeal the MACT requirement and delay any initial mercury reductions to 2010. After that, the administration plan would allow 26 tons per year from 2010 through 2017, and 15 tons every year thereafter. Compared to the 5-ton level, the administration plan would allow more than five times as much mercury pollution through 2017, and three times as much each year after. From 2008 through 2020, that would be 284 tons more cumulative loading of mercury under the administration plan.[42]

Clearly, no one had yet informed the working group that EPA's approach to mercury regulation was about to change dramatically.

Around the same time that Hawkins delivered his testimony, EPA cancelled the working group's next meeting, and never reconvened the group.[43] William Wehrum, counsel to Holmstead, told EPA career staff attending a meeting on the mercury rule not to do the model runs the working group had requested.[44] Although he was present at the same meeting, Holmstead reportedly did not respond to staffers' objections to cancelling the analysis.[45] Later, Holmstead stated that the analysis was cancelled partly due to "White House concerns."[46]

From this point forward, it appears, there was no longer any serious discussion of requiring mercury reductions that would be consistent with the reduction rates—some on the order of 90%[47]—that EPA had identified early on in its deliberations regarding mercury.[48] Instead, EPA chose not only to move to a trading approach, but also initially to require only those reductions that would already be initiated as a result of the Interstate Air Quality Rule (IAQR) being developed by EPA at the same time.[49]

EPA decided, in other words, that its preference was for power plants to have to do nothing extra (until 2018 at the earliest) beyond reductions otherwise required by controls on SO_2 and NO_x.

EPA's economic analysis of the power plant rule discusses two scenarios: the single MACT alternative that EPA ultimately selected and its trading proposal. Regarding EPA's (least favored) proposal to impose MACT under §112, EPA's failure to consider alternatives in detail is legally problematic because, as noted, §112 requires EPA to analyze not only what is achieved in practice, but also what is *achievable*, in setting §112 standards. Even its analysis of what is achieved in practice falls very short. EPA declined to require the controls achieved in practice because EPA thought there was too much variability in these controls to justify mandating them. Thus, the Agency adjusted the level of control achieved in practice to account for this variability.[50] Incredibly, in doing so, EPA simply lifted whole passages from the publication of an industry trade group, Western Energy Supply and Transmission (WEST) Associates.[51]

EPA's failure seriously to consider alternatives to its preferred proposal also should have gotten it into trouble under Executive Order No. 12866. As noted, OIRA has not been shy about requiring more analysis from EPA under this order. Yet OIRA did not require EPA to look at more alternatives, nor did it even require EPA to prepare a formal regulatory impact analysis (RIA) of the kind usually required for such a major rule. EPA, in fact, appears to have continued to work on the economic analysis for the mercury rule for weeks after issuing the actual regulatory proposal on December 15, 2003.[52]

We will shortly discuss the role OIRA did play in EPA's proposal. For now, we note that OIRA did see fit to make sure the docket included a memorandum stating that at least one other major proposed rule in recent history had not been accompanied by an RIA.[53]

With OIRA apparently asleep at the cost-benefit switch, one might expect that the economic analysis EPA did eventually produce would show that EPA's proposal failed the cost-benefit test. But here, too, plot twists await.

42. *Id*.

43. Hamburger & Miller, *supra* note 12; *see also* Letter from John A. Paul, Co-chair of Utility MACT Working Group, to Jeffrey Holmstead (Nov. 3, 2003), on file with the authors (letter states that the scheduled April 15, 2003, meeting of the working group was cancelled on April 1, and no further communications with the working group occurred after that date, and disputes newspaper quote by Wehrum stating that the working group had completed its work before April 2003).

44. *Id*.

45. *Id*.

46. *Id*.

47. Hawkins Testimony, *supra* note 41 (citing U.S. EPA, Discussion of Multipollutant Strategy, Meeting With Edison Electric Institute (Sept. 18, 2001), *available at* http://cta.policy.net/currentstatus.pdf [hereinafter EEI Meeting]).

48. Hamburger & Miller, *supra* note 12.

49. Proposed Power Plant Rule, *supra* note 1, at 4698.

50. *Id*. at 4670-75.

51. Hamburger & Miller, *supra* note 12. *Compare* Proposed Power Plant Rule, *supra* note 1, at 4670-75, *with* WEST Associates, Multivariable Method to Estimate the Mercury Emissions of the Best-Performing Coal-Fired Utility Units Under the Most Adverse Circumstances Which Can Reasonably Be Expected to Recur (ENSR Corp. 2003), *available at* http://www.epa.gov/ttn/atw/combust/utiltox/final_ensr_multivar.pdf.

52. EPA's benefits analysis was not publicly available until early February 2004. Perusal of the items in EPA's docket for the mercury rule reveals much analytical work continued on EPA's proposal following its announcement of the proposal on December 15, 2003. The rulemaking docket is available on the Internet at http://cascade.epa.gov/RightSite/dk_public_collection_detail.htm?ObjectType=dk_docket_collection&cid=OAR-2002-0056&ShowList=items&Action=view (U.S. EPA docket document no. OAR-2002-0056-0068) [hereinafter Docket].

53. E-mail from Ron Evans, U.S. EPA, to Arthur G. Fraas, OIRA (Jan. 28, 2004), *available at* Docket, *supra* note 52 (Evans to Fraas: "You asked me if I could think of a rule where we had not done a formal RIA. The answer is yes. The NO_x SIP Call proposal was published without a[n] RIA. The benefits analysis did not come until later.").

The Punchline: $13 Billion in Net Benefits

About a month and a half after issuing its mercury proposal, EPA finally coughed up an economic analysis of the rule. The analysis exists in bits and pieces throughout the docket. EPA's analysis drew together remnants from various documents, including the Agency's analysis of President George W. Bush's Clear Skies legislative initiative, its analysis of the simultaneously developed IAQR, and some analysis performed specifically regarding the mercury rule itself. Perhaps the most striking document in this pile is EPA's "Benefits Analysis for the Section 112 Utility Rule."[54] Two amazing facts are clear from this document.

First, in analyzing the mercury rule, EPA did not quantify or monetize—nor, it appears, did it even attempt to quantify or monetize—the benefits of reducing mercury itself.[55] After a lengthy discussion of the risks posed by mercury and the attendant gains from reducing it, EPA simply states that it is unable to quantify or monetize these risks and gains. What is more, EPA did not quantify or monetize many other, nonmercury-related benefits of reducing mercury. EPA expects that other harmful, even deadly, air pollutants will be reduced when mercury is controlled—pollutants such as NO_x (which contributes to ozone formation), SO_2, and particulate matter (PM). In estimating the benefits of the mercury rule, EPA pulled out only one variety of these other pollutants—the PM formed when NO_x and SO_2 are emitted into the atmosphere—and took that as the sole basis for its estimates of the benefits of the mercury rule. Even for that category of pollutant, EPA analyzed only some of the benefits of reducing it.[56]

Thus, in estimating the benefits of the mercury rule, EPA analyzed only a tiny subset of the universe of beneficial consequences of the rule—excluding even the benefits of reducing mercury itself. Again, therefore, one might expect that EPA's analysis would show a striking disparity between costs and benefits, given EPA's limited analysis of the benefits of the rule.

Here, one would be correct, but in the wrong direction. This is the second amazing fact about EPA's benefits analysis: EPA's analysis does indeed show a striking disparity between the costs and benefits of the mercury MACT rule—but the benefits outweigh the costs, and by $13 billion at that.[57] For EPA's trading proposal, the net benefits are even higher.[58] Even with EPA's stingy calculation of benefits, the rule produces a fantastically positive cost-benefit ratio.

OIRA's Troubling Role

As with the cost-saving non-road engine rule, one would have expected the efficiency hawks at OIRA to love the mercury rule. But as with the non-road rule, they did not. To be sure, OIRA did not, as it had with the non-road rule, return the power plant proposal to EPA for further work. Here, however, one wonders why not: if one could achieve $13 billion in net benefits with a weak mercury rule, without counting the mercury-related benefits and many other good consequences of the rule, one would suppose that OIRA's economists would have asked EPA to consider whether a stricter rule could have achieved even larger net benefits. In the hundreds of pages available in the public record documenting the correspondence between EPA and OIRA on this rule, however, not a single question is raised by OIRA economists about whether stricter regulation would be justified by taking a more careful look at costs and benefits.

In fact, one of the few amplifications to the economic analysis that was produced by the many exchanges between EPA and OIRA was a paragraph that seems intended to dampen the reader's enthusiasm for mercury regulation upon seeing the large net benefits it provides. In a paragraph following EPA's report of the $13 billion in net benefits from the rule, a draft of the Preamble (as of December 12, 2003) stated:

> The estimate of $15 billion in benefits for mercury control, compared to less than $2 billion in costs, appears impressive at first glance. However, the large benefit estimate is not attributable to reducing human and environmental exposure to mercury. It arises from ancillary reductions in [SO_2] and [NO_x] that result from controls aimed at complying with mercury requirements. Although consideration of ancillary benefits is reasonable, it is unlikely that these benefits are uniquely attributable to mercury regulation. In the years ahead, as the Agency and the states develop rules, guidance and policies to implement the new air-quality standards for ozone and [PM], coal-fired power plants will be forced and encouraged to implement controls to reduce [SO_2] and [NO_x] (e.g., year-round NO_x controls, SCR [selective catalytic reduction] units, scrubbers, conversion to low-sulphur coals, and so forth). Thus, the ancillary benefits of mercury control will be achieved anyway, regardless of whether a mercury rule is promulgated . . . . In light of these considerations, the Agency believes that the key rationale for controlling mercury is to reduce public and environmental exposure to mercury, thereby reducing risk to public health and wildlife. Although the available science does not support quantification of these benefits at this time, the Agency believes the qualitative benefits are compelling enough to justify substantial investment in mercury emission reductions.[59]

This paragraph appears to have been added by Wehrum, counsel to Holmstead, and passed the inspection of Arthur Fraas at OIRA.[60] The paragraph shows that EPA and OIRA, far from trying to find more bargains in this basement, tried to make the bargain they had already found look as minimal as possible.

Instead of asking tough questions about EPA's failure to consider alternatives, or insisting on more complete analysis of the benefits of mercury regulation, OIRA economists limited themselves largely to flyspecking EPA's discussion of the risks of mercury. From the documents available in the public record, it appears, for example, that

54. U.S. EPA, Benefits Analysis for the Section 112 Utility Rule (Jan. 2004) (EPA 452-R-03-021), *available at* Docket, *supra* note 52, document no. 105.

55. *Id*. at 1-3.

56. *Id*. at 2-22 to 2-23.

57. *Id*. at 2-49.

58. *Id*.

59. Fax dated December 12, 2003, *available at id*., document no. 107, at 491. A slightly modified version of this paragraph appears in EPA's final benefits analysis, *id*., document no. 105, at 2-48 to 2-49.

60. A fax dated December 14, 2003, from Fraas instructs that then-current draft "Insert & from Bill W." (the paragraph in question is the one quoted in text). The fax is available at *id*., document no. 107, at 630, 656.

OIRA economist Fraas made certain that all references to the health risks of mercury omitted the adjective "confirmed," which had preceded such references in preliminary drafts of EPA's proposal.[61]

OIRA also softened EPA's language regarding a link between mercury and cardiovascular effects. OIRA suggested inserting the word "possible" before a reference to cardiovascular effects in a diagram in EPA's benefits analysis,[62] and also recommended greatly softening EPA's language describing studies finding a link between mercury and cardiovascular effects.[63] Yet even the study OIRA cited in making these changes itself recognizes that in the general population (rather than in the population of dentists mostly involved in the study), a weak link between mercury exposure and the risk of coronary heart disease could not be ruled out.[64] Other studies have come to much more assertive conclusions about this link.[65] The issue highlighted (and the risk soft-pedaled) by OIRA is significant for any assessment of the full threats posed by mercury, as any change in the overall risk of adverse cardiovascular effects would implicate many thousands of people and their health, given the high rate of cardiovascular disease in our population. When EPA studied the costs and benefits of phasing down lead in gasoline in the 1980s, for example, benefits estimates that credited studies showing a link between lead and blood pressure put the benefits of the phase down through the roof.[66]

Sometimes the unfortunate consequences of having OIRA (with its predominant expertise in economics) overseeing the statements of EPA (with its superior scientific expertise) are painfully clear. In the discussion of the health effects of mercury, for example, OIRA inserted several sentences casting some doubt on EPA's ability, through the power plant rule, to make a difference in the blood mercury levels in women. Women in the study showing high mercury levels, OIRA added, reportedly ate mostly tuna and shrimp, and thus OIRA inserted language suggesting that the link between mercury regulation and women's mercury levels was unclear.[67] Yet at the very same time, EPA and the FDA were preparing a fish advisory on mercury—released in March—that stated that shrimp and canned light tuna were among the seafoods low in mercury that women could safely eat![68] It is hard to escape the conclusion that OIRA, no matter how misguidedly, was grasping at any straw that might undermine the case for swift and stringent regulation of mercury.

Other examples of OIRA's efforts to have EPA downplay mercury's risks abound. We do not catalogue all of them here, though we do encourage our readers to peruse documents numbered 107 and 108 in EPA's docket for this rule, which contain voluminous fax and e-mail correspondence between OIRA and EPA concerning the rule and which make (for the regulatory buff) highly interesting reading. For present purposes, suffice it to say that OIRA's role in this particular rulemaking had essentially nothing to do with promoting economic efficiency, but everything to do with softening the case for regulation.

Lost Opportunities

In offering a policy that would not require power plants to do anything more (until at least 2018) to control mercury than they are already being required to do under other legal provisions, EPA is missing a large opportunity to force promising mercury control technologies into commercial viability. As noted at the outset of this Article, §112 is deliberately technology-forcing, requiring EPA seriously to consider setting standards for hazardous air pollutants reflecting *achievable* rather than merely already achieved levels of control.

As industry geared up for what everyone expected would be a stringent MACT rule for mercury, one could see the proliferation and improvement of control technologies that accompanies regulatory progress. Moreover, because §112 allows EPA to set performance standards rather than design standards (thus permitting firms to meet the MACT standard in whatever way works best for them), firms producing pollution control technologies had a large incentive to begin to convince energy firms that their technologies for controlling mercury were better than their competitors' technologies.

The kind of regulatory flexibility provided by performance standards has served us exceedingly well in the past. For example, although the trading aspects of the CAA's acid rain program have been much discussed, less well known is the fact that in the early years of the program very little trading actually occurred—and yet, nevertheless, new mechanisms for controlling SO_2 grew and flourished. The performance-based standards set by the acid rain trading program were sufficient, even without significant trading, to encourage competition in pollution control.

One would have expected the same kind of competition to occur if EPA issued a performance-based mercury MACT rule. Indeed, air pollution experts predicted precisely this result, describing the many control technologies waiting in the wings for EPA's rule.[69] The image is of being on the verge of technological breakthroughs just waiting for regulation to nudge them into reality. What is the message EPA's mercury proposal sends to the companies that have been developing control technologies? Don't waste your time and money.

Although EPA justifies its preference for trading by pointing to the incentives for innovation it believes trading will create, in fact the trading regime proposed by EPA is so weak, and so full of loopholes, that the only incentives it will create will be those favoring delay and business as usual. We turn next to a more detailed examination of EPA's proposal for allowing commercial trading in mercury.

61. *See id*. at 81 (handwritten note apparently documenting comments from "Art"; the only "Art" involved in the EPA/OIRA exchanges is Fraas).

62. *See id.* at 329.

63. *See id*. at 43.

64. Yoshizawa et al., *Mercury and the Risk of Coronary Heart Disease in Men*, 347 New Eng. J. Med. 1755, 1760 (2002).

65. *See, e.g.*, Guallar et al., *Mercury, Fish Oils, and the Risk of Myocardial Infarction*, 347 New Eng. J. Med. 1747 (2002).

66. Albert L. Nichols, *Lead in Gasoline*, *in* Economic Analyses at EPA: Assessing Regulatory Impact 73-76 (Richard D. Morgenstern ed., 1997).

67. *See* Docket, *supra* note 52, document no. 107, at 555.

68. *See* Joint Federal Advisory for Mercury in Fish, *supra* note 9.

69. NESCAUM 2000 Report, *supra* note 40.

Toil, Much Trouble for EPA's Bubbles

Conservative regulatory reformers have touted the benefits of emissions trading as an alternative to traditional regulation for two decades. But Congress has only authorized the approach once—in the acid rain title to the 1990 CAA Amendments.[70] That trading system, and another sponsored by the South Coast Air Quality Management District (SCAQMD) in the Los Angeles airshed,[71] remain the only fully-developed trading systems in the United States.[72] The two are diametrically opposed in outcome: acid rain is widely regarded as a success, while the SCAQMD experiment is universally acknowledged to have been a disaster. Nevertheless, the sheer persistence of trading advocates has elevated this alternative to the crown jewel of market-based mechanisms, and it is hailed as the key to an overhaul of environmental regulation in the 21st century.

Like most other participants in the trading debate, we do not oppose trading across-the-board. In fact, we support it in carefully selected circumstances—where the targeted pollution is not toxic, such as in the context of nutrient contamination of surface water or global CO_2 emissions in air—and with carefully constructed design features, such as appropriately rigorous and steadily declining caps. In those circumstances, trading may well prove the silver bullet that overcomes political resistance to desperately needed pollution reductions.[73] Whenever we return to an era where environmental issues are not so polarized, we hope and expect we could find promising common ground with conservatives to expand trading in a variety of contexts.

Consequently, it is no small irony that one of the notable travesties of the Bush Administration's mercury policy is that it cannot but undermine the search for agreement on extending trading. The use of this relatively new regulatory remedy to address one of the world's most toxic pollutants, and the intrinsic design weaknesses of the system EPA put forward in December 2003, are so far outside the mainstream of the debate that they confound rather than assist such developments. Rather than build support for trading through the execution of carefully considered, statutorily authorized programs that have a reasonable chance of working, the Bush Administration has likely ensured that trading is, at least in the short run, perceived by the media and the public as a vehicle for delivering toxic windfalls to powerful industries that have won White House favor through major campaign contributions.[74]

Do we exaggerate? The Administration claims that the cap-and-trade plan it advocates will reduce mercury emissions by 70%—to 15 tons per year (TPY)—in 2018. Leaving aside for the moment whether these numbers in and of themselves are acceptable, the plan is designed to allow sources to "bank" mercury credits indefinitely. It affords industry a "safety valve" that allows the purchase of credits at $2,187 per ounce from future allocations, also indefinitely. EPA's own models show that these features could mean that utilities achieve no more than 52% reductions, to approximately 24 TPY, as late as 2026.[75]

Confronted by such calculations, Administrator Leavitt is back-peddling rapidly. As we mentioned earlier, he told the *Los Angeles Times* on March 16, 2004, that although EPA has expressed a "clear preference" for trading, it will also look at more "traditional," technology-based, regulatory approaches.[76] Leavitt claimed he was under "no pressure to do anything other than the right thing from the White House."[77]

We leave to others the daily monitoring of the blood pressure of key EPA and White House officials as their proposals for mercury controls on power plants continue to come under attack not just by environmentalists, but by a broad range of state officials.[78] Rather, the analysis that follows delves into the details of President Bush's trading plan in order to establish some benchmarks for evaluating what will inevitably be a moving target as the Administration and its industry allies attempt to address the most egregious aspects of the trading scheme.

Before stepping into that morass, we reiterate a threshold point that can get lost too easily in this debate: it is absolutely inappropriate from a public health and ecological perspective, much less from a legal or economic viewpoint, to experiment with trading toxics at this stage in the development of emissions trading as an alternative tool for pollution reduction. No amount of tweaking, readjusting, moderating, or tightening can save this proposal from that perspective. Trading should be abandoned in the context of mercury forthwith—not only for the legal reasons we discussed in the first part in this series, but for reasons of public health and justice as well.

70. 42 U.S.C. §7651.

71. For a description and analysis of these programs, see Richard Toshiyuki Drury et al., *Pollution Trading and Environmental Injustice: Los Angeles' Failed Experiment in Air Quality Policy*, 9 Duke Envtl. L. & Pol'y F. 231 (1999); Rena I. Steinzor, *Toward Better Bubbles and Future Lives: A Progressive Response to the Conservative Agenda for Reforming Environmental Law*, 32 ELR 11421 (Dec. 2002).

72. Two other major trading program were launched by northeastern states in 1999 (ozone) and 2003 (NO_x), but it is too early to evaluate the performance of those programs which, in any event, do not involve toxic emissions. Proposed Power Plant Rule, *supra* note 1, at 4702.

73. We note in this regard that the most credible voices in the national environmental community have also supported trading in such contexts, despite periodic allegations we have heard from conservatives that everyone who does not endorse it immediately, in every context, is a reactionary wedded to discredited command-and-control strategies. *See, e.g.*, Hawkins Testimony, *supra* note 41 (supporting trading but disagreeing with the design of the Bush Administration's Clear Skies proposal).

74. A recent article in the *Los Angeles Times* noted that "coal and electricity companies and executives have donated $40 million to Republican candidates and committees, including $1.3 million directly to Bush campaigns, according to figures compiled by the Center for Responsive Politics." Hamburger & Miller, *supra* note 12.

75. The initial document exposing these problems was a letter written by Eric Schaeffer, former EPA enforcement official and now director of the Environmental Integrity Project, to EPA Administrator Leavitt. The letter asked Leavitt to "clarify the record" on these issues. Letter from Eric V. Schaeffer, to the Hon. Michael O. Leavitt, Administrator, U.S. EPA (Jan. 21, 2004), *available at* http://www.environmentalintegrity.org/pubs/leavitt_mercury_letter.pdf. Schaeffer wrote a second letter to Leavitt reiterating this request on February 18, 2004. Letter from Eric V. Schaeffer, to the Hon. Michael O. Leavitt, Administrator, U.S. EPA (Feb. 18, 2004), *available at* http://www.environmentalintegrity.org/pubs/Letter_-_Leavitt_mercury_-_2-18-04.pdf [hereinafter collectively Schaeffer Letters].

76. Hamburger & Miller, *supra* note 12.

77. *Id.*

78. *See, e.g.*, *Testimony of Cory Chadwick on behalf of the State and Territorial Air Pollution Program Administrators and the Ass'n of Local Air Pollution Control Officials on U.S. EPA's Proposed Rule to Control Emissions of Hazardous Air Pollutants From Utilities* (Feb. 25, 2004), *available at* http://www.4cleanair.org/mercuryandtransporttestimony-Chadwick.pdf.

The overarching reason why it is unacceptable to trade toxics is the probability that trades will result in localized "hot spots" of pollution, posing extreme threats to specific people and ecosystems. Precisely because trading leaves it up to the marketplace to determine which power plant emits more and which less, it is impossible to predict, much less control after-the-fact such concentrations. In the case of acute toxics like mercury, which are also very persistent, the potential for such localized—and irreversible—catastrophes is intolerable from any objective perspective.

There are preliminary indications that those effects may burden communities of color more than white communities. The Centers for Disease Control (CDC) reported in 2001, that approximately 10% of women of child-bearing age have mercury levels within one-tenth of the reference dose that is associated with an increase in abnormal scores on cognitive function tests among children.[79] In 2003, a second CDC report reported that non-Hispanic white children ages 1-5 years old had lower blood mercury levels than either non-Hispanic blacks or Mexican Americans and that mercury levels in non-Hispanic black women between the ages of 16-49 were higher than levels in non-Hispanic whites and Mexican Americans.[80] EPA should make it a priority to pursue the implications of these preliminary findings, exploring the link between mercury exposure, race, and class. But toxic hot spots are unjust regardless.

Indeed, we are tempted to say that it will *never* be appropriate to trade toxics, although we demur because our academic discipline makes this unqualified word stick in our throats. Some day in the indefinite future, it may be possible to monitor each source so carefully, and predict the fate and transport of toxic pollution so precisely, that a system could be designed that would allow trading of toxics, with a hair trigger poised to cut off the trades at any instant that the toxics were accumulating in a local area. But that day is not today, and will not come for the foreseeable future. Of course, it is also true that such a system would be so uncertain from the perspective of regulated industry that it is hard to see why it would be preferable to a straightforward requirement that mercury emissions be controlled through the installation of control technologies, as Congress mandated back in 1990.

Again, as we explained earlier, trading, especially trading without congressional authorization, has been on the table in this context for a relatively short period. We suspect, in fact, that the Administration's decision to embrace trading in the administrative context came as almost as much of a surprise to the electric utility industry as it did to the environmental community and state officials. As a result, everything written about trading thus far, especially in the administrative context, has a quality of spontaneous improvisation. The danger is that as people become more and more engaged in refining the details of the trading proposal, they will lose sight of the overriding fact that trading is an inappropriate remedy that should not be pursued in any circumstance.

It is an age-old strategy for lawyers and legislators (often one-in-the-same) to put a large number of requests on the bargaining table in the hopes that the negotiated settlement has a large footprint in relationship to what the client wanted in the first place. The trading proposal has at least three such attributes for electric utilities. First, it distracts attention from the weakness of the MACT proposal that accompanied it, making that proposal look far more attractive that it deserves to look in comparison. Second, it provides ample opportunity to negotiate the details of the trading system by, for example, hardening and reducing the cap, limiting banking, or eliminating the safety valve, making participants feel as if they have achieved benefits for the environment and public health even though the entire arena of trading is illegal and inappropriate. Third, it guarantees delay, probably for many years, in any regulatory requirements.

The environmental effects of these delays will be compounded by what one major newspaper has called the "new coal rush."[81] About one month after EPA published its trading proposal, the *Christian Science Monitor* reported that "after 25 years on the blacklist of America's energy sources, coal is poised to make a comeback . . . . [A]t least 94 coal-fired electric power plants—with the capacity to power 62 million American homes—are now planned across 36 states."[82] Scheduled to start coming on-line as early as next year, the plants will expand the country's generating power substantially, help keep electricity prices low, and offer alternatives to foreign oil and gas, according to the article. "But they would also pump more airborne mercury and greenhouse gases such as [CO_2, NO_x, and SO_2] into the air . . . . [A]pparently economic concerns are trumping environmental ones in utilities' plans."[83]

Although it never acknowledges explicitly that it is aware of these trends, EPA mentions variations in coal use as a reason why mandating MACT will not work well to reduce mercury emissions and a "specific limit or cap" is far preferable: "[W]ith shifts in coal use and with growth in the economy, Hg [mercury] emissions would likely substantially exceed the overall emission level achieved when the MACT limits are initially met."[84] Given the porous and excessively generous nature of the two-stage cap EPA has proposed, this disingenuous statement would be laughable if the subject was not so serious.

Our analysis of the trading scheme per se begins with an assessment of the rigor of its overall goals, proceeds to an analysis of how the porosity of a 2018 cap will lead to even longer delays in emissions reductions, and considers its implications for the formation of hot spots.

An Excessively Generous Cap

The caps contained in the proposal will be implemented in two phases, the first to begin in 2010 and the second in 2018.[85] The amount of the 2010 limit has not yet been set because EPA says that it wants to set the number *at the same level*—and certainly *no higher than*—mercury reductions that will be achieved as a "co-benefit" of its IAQR, but says

79. CDC, First National Report on Human Exposure to Environmental Chemicals 18 (2001), *available at* http://www.cdc.gov/nceh/dls/ner.htm.

80. CDC, Second National Report on Human Exposure to Environmental Chemicals 19 (2003), *available at* http://www.cdc.gov/nceh/dls/ner.htm.

81. Mark Clayton, *America's New Coal Rush*, Christian Sci. Monitor, Feb. 26. 2004, §4, at 1, *available at* http://www.csmonitor.com/2004/0226/p01s04-sten.html.

82. *Id*.

83. *Id*.

84. Proposed Power Plant Rule, *supra* note 1, at 4687-88.

85. *Id*. at 4697-99.

it is unsure what that number might be.[86] It has invited the stakeholders to help it resolve this dilemma.

The Agency's reticence is no doubt due to the pounding it has taken in recent months from the electric utility industry and its allies on Capitol Hill. The Agency's initial Clear Skies proposal would have established a 26 TPY cap in 2010.[87] After the industry eviscerated the modeling that supported this figure, Sen. James Inhofe (R-Okla.), chair of the Senate Environment and Public Works Committee, proposed revisions to the Bush Clear Skies legislation lifting this interim target by 31%, to about 34 TPY.[88]

The Agency's confusion about what amount of mercury reductions will result from those technology-based controls stands in stark contrast to its self-confident assertions that trading will not result in hot spots because it can trace the "bad" and "good" kinds of mercury deposition with great precision. We will consider that opportunistic paradox more in a moment.

In any event, whatever the 2010 number turns out to be, the Agency sets the second-phase cap, to go into effect in 2018, at 15 TPY, or a 70% reduction from emission levels today. This level would be "permanent" and could not be exceeded, "regardless of future growth in the energy sector."[89] However, as discussed in detail below, it is far from clear when the industry would actually cross the finish line and achieve 70% reductions, because the proposal would allow indefinite delays in meeting these limits.

In absolute terms, the 34 TPY (give or take) in 2010 and 15 TPY in 2018 are far less ambitious than the leading legislative alternative or, as significant, what EPA said up until recently it could accomplish through the legally mandated MACT approach. The Clean Power Act, introduced as S. 556 in the 107th Congress, would reduce mercury emissions to five TPY in 2007 using a MACT approach.[90] This number is comparable to MACT proposals under consideration when the Bush Administration abruptly halted the exploration of such alternatives. At a meeting held on September 18, 2001, EPA career staff told Edison Electric Institute representatives to expect the mercury MACT to be the equivalent of the 90% reductions required of municipal and medical waste incinerators, or somewhere in the vicinity of five TPY no later than 2007.[91]

Even the weakest MACT option considered by the Agency during that period was a level roughly equivalent to the trading proposals second-phase target of 15 TPY, but that MACT target would be reached by 2008, a full decade sooner than ostensibly required by the trading proposal, and two decades sooner than EPA modeling shows these reductions would actually be achieved.[92] Most recently, as we mentioned earlier, an analysis of mercury-control technology trials by EPA's ORD found that with the addition of fabric filters, activated carbon injection has the potential to achieve 90% reduction by 2010.[93]

Of course, once the Administration decided to abandon MACT and pursue trading, it must have seemed prudent to stack the deck against MACT even further by weakening those requirements to the point that they would achieve significantly less reductions than the new trading proposal.[94] Given that (weakened) baseline, EPA announced cheerfully, trading is likely to produce better results for the environment than MACT because banking will give utilities an incentive to make reductions earlier.[95]

All of these pronouncements seem designed to stir up a great cloud of dust in the wake of the Agency's startling departure from more rigorous, technology-forcing controls. For awhile, this sleight-of-hand shell game worked, confusing the press, which initially reported that the Administration was proposing for the first time to control mercury emissions without ever mentioning that it had rejected significantly more stringent alternatives.[96] The confusion was exacerbated by EPA's delay in publishing a supplemental notice refining its trading proposal until March 16, 2004, a full three months after its initial announcement describing the framework of its proposal.[97] But within weeks, as people picked through the reams of paper churned out by the Agency, the characteristics of not only a generous, but an exceedingly porous, cap were at last understood.

An Excessively Porous Cap

Rather than EPA's optimistic prediction that trading will help reduce pollution to acceptable limits on a permanent basis, the opposite outcome is far more likely to occur: existing plants will also receive allocations giving them allowances to emit mercury at levels that do not require the installation of mercury-specific control technologies until 2018.[98] Even then, utilities can escape the strictures of the cap by banking portions of their overly generous allocations in the early years.[99] Under this anticipated gaming of the system, meaningful reductions could be delayed for at least two decades.

However, the Agency hastens to assure the energy industry, because better technologies will become available by that point and the cap will "create an incentive for certain plants to install these newer technologies," the cap "should not have any significant impact on power availability, reliability, or pricing . . . . Nor should a 15-ton cap cause any significant shift in fuels currently utilized by power plants."[100]

These assurances are far more credible than EPA's promises that the caps will produce better environmental benefits than a MACT approach because two other features of its trading proposal mean that power plants will have significantly more time—under EPA's own modeling, until 2026—to actually bite the bullet and install pollution con-

86. *Id*. at 4698.

87. *Id*.

88. Steve Cook, *"Clear Skies" Rewrite by Inhofe Includes 31 Percent Higher Mercury Emissions Cap*, Env't Rep. (BNA), Nov. 14, 2003, at 2477.

89. Proposed Power Plant Rule, *supra* note 1, at 4698.

90. Hawkins Testimony, *supra* note 41.

91. EEI Meeting, *supra* note 47.

92. Hawkins Testimony, *supra* note 41.

93. Developing Technology, *supra* note 14.

94. Proposed Power Plant Rule, *supra* note 1, at 4706.

95. *Id*.

96. Jennifer 8. Lee, *EPA Plans to Expand Pollution Markets*, N.Y. Times, Dec. 15, 2003, at 24.

97. Proposed Power Plant Rule Supplemental Notice, *supra* note 1, at 12398.

98. The first phase cap is designed to mirror reductions achieved through other rules. Proposed Power Plant Rule, *supra* note 1, at 4687.

99. Proposed Power Plant Rule Supplemental Notice, *supra* note 1, at 12411.

100. Proposed Power Plant Rule, *supra* note 1, at 4699.

trols.[101] First, the proposal establishes a "safety valve" capping allowance costs at $2,187.50 per ounce, a price that will be annually adjusted for inflation.[102] If free market trading results in allowance prices above that level, EPA will allow utilities to buy them from the "bank" of future allowances at the safety valve price, in effect giving utilities a perpetual credit card against which to charge today's consumption against tomorrow's wages.[103]

Second, the proposal anticipates banking "without restriction" as an incentive for early reductions.[104] In a situation where a cap is set sufficiently low to generate a strong need for allowances almost immediately, banking does serve as an incentive for early reductions because utilities have some confidence that there will be a lucrative market for the allowances they manage to "put away" in the bank. But in a situation where a cap is set high and is porous, the market for future allowances becomes highly speculative, and banking can have the opposite effect. Not required to do much for the first several years of the mercury trading program, for example, utilities in the Southwest will have little incentive to clean up mercury in order to generate allowances for their midwestern and eastern counterparts for at least one and one-half decades.

At that point, it is entirely possible that utilities will protest any requirements that force them to retrofit their existing plants, creating enormous pressure on EPA to relieve them of this burden, especially if we once more find ourselves in an energy crisis related to instability in the Middle East. And we do not even need to rely on imagination to predict this outcome, because this scenario is precisely what happened in California: the SCAQMD set the initial cap on volatile organic compounds so high that utilities were giving away allowances for free. When the level of the cap began to drop and California found itself in the throes of an energy crisis, utilities were unable to generate allowances by belatedly installing pollution controls and the price of allowances sky-rocketed out of reach. The SCAQMD was forced to suspend trading indefinitely.[105]

Prospects for Hot Spots

In the first installment of this two-part series, we noted on several occasions that consistency was not the strong suit of arguments made in defense of EPA's new approach to power plant mercury emissions by either the Agency itself or utility industry spokespeople. With regard to the probability that trading will produce uncontrolled, localized hot spots, the inconsistencies in the analyses offered by trading advocates are embarrassingly stark. Thus, we have an EPA so muddled in one context that it cannot set the 2010 cap because it is unsure what reductions will be accomplished by controls on SO_2 and NO_x,[106] promising in another context that it "does not expect any local or regional hot spots" to develop as a result of unrestricted trading and banking of mercury emissions.[107]

How can it be so confident? First of all, it has "experience" with the acid rain trading program and no hot spots developed in that context.[108] But SO_2, although clearly harmful to public health and the environment, is significantly less toxic than mercury at relatively low concentrations.

Yet EPA has other arguments up its sleeve:

> [M]odeling runs suggest that large coal-fired Utility Units—those that tend to have relatively high Hg [mercury] emissions—are likely to have larger local deposition footprints than medium-sized and smaller coal-fired Utility Units. . . . [T]he trading of allowances is likely to involve large Utility Units controlling their emissions more than required and selling allowances to smaller Utility Units rather than the reverse scenario. This prediction arises from the basic economics of capital investment in the utility industry.[109]

In other words, small sources are more benign because they produce smaller emissions, and large sources are more problematic because they produce larger emissions, but large will control more because of economies of scale, leading to greater reductions in mercury emissions. Again, this elliptical thinking might coincidentally reflect what will happen with respect to plants in the East and Midwest, where SO_2 and NO_x controls will push mercury emissions down somewhat by 2010. But those same locations are also the most threatened by a build-up of mercury contamination. Large portions of the Great Lakes, for example, are so heavily polluted that even if we start now to eliminate mercury deposition, it would take decades to restore them.[110] So even if eastern and midwestern utilities begin to cut mercury emissions, the question remains whether they are doing enough to improve the hot spots that are already there.

Not to worry, EPA tells us, because it has miraculously managed to assess the precise species of mercury emissions that will be reduced under its trading proposal. Those species of mercury are much more likely to be deposited locally than uncontrolled species of mercury emissions that will be transported to areas far away.[111] Therefore, no localized hot spots will develop as a result of its trading scheme. In other words, EPA is confident that it has a firm grip on the relationship between sulfur in coal and mercury in coal, and also understands precisely which species of mercury exist in different types of coal, to the point that it can promise the communities located near such plants that they have nothing to fear from localized deposition.

Imagine these communities' dismay, then, were they to flip back a mere 30 pages or so in EPA's *Federal Register* notice to discover the following remarkable statement: "Data gathered by EPA indicate that within specific coal ranks, the Hg [mercury] content can vary significantly and that lower sulfur content does not necessarily mean lower Hg [mercury] content."[112] EPA's confidence that it has a

101. *See* Schaeffer Letters, *supra* note 75.

102. Proposed Power Plant Rule, *supra* note 1, at 4703-04.

103. Proposed Power Plant Rule Supplemental Notice, *supra* note 1, at 12410.

104. Proposed Power Plant Rule, *supra* note 1, at 4704.

105. For a description of these events, see Steinzor, *supra* note 71, at 11427.

106. Proposed Power Plant Rule, *supra* note 1, at 4698.

107. *Id*. at 4701

108. *Id*. at 4702.

109. *Id*.

110. U.S. EPA, Deposition of Air Pollutants to the Great Waters, Third Report to Congress ii-iii (2000) (EPA 453-R-00-005), *available at* http://www.epa.gov/ttn/oarpg/t3/reports/head_2kf.pdf.

111. Proposed Power Plant Rule, *supra* note 1, at 4702.

112. *Id*. at 4669.

firm grasp of how sulfur in coal and mercury in coal relate or what effect control technologies may have on either pollutant evaporates in its multipage discussion of how confounded it feels by the task of setting MACT limits on mercury emissions. Because the Agency is having such difficulty figuring out which are the best performing facilities in any given group of boilers given the variability in the composition of the coal they burn, it goes so far as to solicit comments on whether its elaborate calculations or the U.S. Department of Energy's alternative calculations are more correct.[113]

Just in case any skeptic still doubts the reliability of EPA's predictions that no hot spots will develop, the Agency hedges its bets, revealing its own lack of confidence in its previous analysis. Thus, it offers to consider a modification that would require "eastern Utility Units in areas of heavy deposition" to obtain "greater than 1:1 allowances from Utility Units outside the region to cover an ounce of Hg [mercury] emissions," although it reminds utilities to be sure and explain whether "such adjustments will complicate and reduce the efficiency of the cap-and-trade program."[114] Neatly flipping the burden onto the public to demonstrate the inadequacy of its decision to leave people unprotected in this manner, it also invites commenters to come forward with any evidence they may have that hot spots *will* develop.[115] Last but not least, it promises to "continue monitoring Hg [mercury] emissions and the operation of the trading system to make sure that localized hot spots do not materialize."[116] However, far from providing any assurance that it will react promptly to discoveries that hot spots have occurred, EPA announces that it will not reevaluate "emission levels [and] attendant health risks" until at least 2018.[117]

"Sound Science" and Trading

Among the most maddening aspects of EPA's remarkable bobbing and weaving in this arena are its paradoxical reactions to scientific uncertainty. In the context of whether to require additional, mercury-specific controls, the Agency portrays itself as stymied by scientific uncertainty. But in the context of predicting that no hot spots will develop, EPA pronounces itself confident that such uncertainty does not exist. The truth regarding the state of the science is somewhere in between.

Multidisciplinary scientific teams have undertaken ambitious, ground-breaking field work in two locations: the Florida Everglades and a pristine lake in Ontario, Canada.[118] Their preliminary results support the following propositions:

> It is indeed difficult, and will require significantly more study, to determine how the different species of mercury travel through the environment.[119]
>
> However, one strongly encouraging development is that newly deposed mercury is generally more bio-available than residual mercury, making controls on new deposition more productive than previously thought.[120]
>
> At least with respect to controls on municipal and medical waste incinerators, which were required to accomplish 90% reductions in mercury emissions, the local benefits were far more immediate than previously imagined. Levels of contamination in large-mouth bass in the Florida Everglades declined in direct proportion to reductions of those emissions within a two-year period.[121]

In sum, while the science is undoubtedly uncertain, an honest evaluation of these emerging findings leads to the exact opposite of the Administration's claimed results. The science fails to provide support for the Agency's assertion that trading will not lead to hot spots. Yet the science supports the proposition that stringent controls on local sources translate into short-term environmental benefits in the same location.

The details of the scientific debate will develop at a fairly brisk pace as results of the work in Canada and Florida continue to come in. However adamant the Bush Administration is in its determination to wait for "sound" science before it controls industrial pollution, in this as in so many areas of environmental policy, we are unlikely ever to reach a point where the science is definitive and all outstanding questions are resolved. Ultimately, science cannot answer the question that the Bush Administration is at such pains to avoid. Do electric utilities deserve a regulatory exemption for the next 20 years as women and children are left with the sole alternative of eliminating fish from their diets?

Conclusion

For those who have watched the development of environmental policy since the early 1970s, the mercury debate cannot help but instill a strong sense of déjà vu. Twenty years ago, EPA banned lead in gasoline, rescuing millions of children from irreversible neurological problems. The decision, which was controversial at the time, is widely regarded as one of the most important successes EPA has ever achieved. Not only were the doomsayers proved wrong and the costs of the ban dwarfed by the value of its benefits, the science on lead now provides definitive justification for its elimination from the marketplace.

Mercury is lead's evil twin, and there are startling similarities between the arguments made against the momentous decision to ban lead and the arguments now being made in defense of mercury. At the moment, the debate is stalemated, with the government holding back action but facing a crescendo of public criticism. We can only hope that the forward momentum of the law, and the enormous and obvious flaws in the arguments of those who flout it, will overcome that stalemate, setting the stage for another victory on behalf of our generation and those that follow.

113. *Id*. at 4674.

114. *Id*. at 4701.

115. *Id*. at 4703.

116. *Id*. at 4702-03.

117. *Id*. at 4686.

118. Florida Dep't of Envtl. Protection, Integrating Atmospheric Mercury Deposition With Aquatic Cycling in South Florida (Oct. 2002, rev. Nov. 2003), *available at* http://www.floridadep.org/labs/mercury/docs/flmercury.htm [hereinafter 2003 Florida Mercury Study]; *Testimony of Dr. David P. Krabbenhoft, U.S. House of Representatives Subcomm. on Env't, Technology & Standards of the Comm. on Science, Mercury Emissions: State of the Science and Technology* (Nov. 5, 2003) [hereinafter *Krabbenhoft Testimony*]. Dr. Krabbenhoft is a lead researcher with the Mercury Experiment to Assess Atmospheric Loading in Canada and the United States, which is conducting the work in Canada. For a description of that project, see Rebecca Renner, *Follow the Mercury*, 35 Envtl. Sci. & Tech. 229 (2001).

119. *See Krabbenhoft Testimony*, *supra* note 118.

120. *Id*.

121. 2003 Florida Mercury Study, *supra* note 118.