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*Fundamental Issues Hidden in  
the Air Quality Dust Cloud*

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## **Fundamental Issues Hidden in the Air Quality Dust Cloud**

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In July 1997, the Environmental Protection Agency (EPA) finalized air quality standards for ozone and fine particulate matter and hoped that it had closed the book on one of the most contentious chapters in its nearly three decades of rule-making. But the recent remand of these standards by the U.S. Court of Appeals for the D.C. Circuit reveals that the issues involved are more fundamental than just a controversy over whether scientific evidence adequately justified new standards, and how costly the standards might be.

The most obvious issue raised by the appeals court decision involves how much authority Congress should delegate to federal regulatory agencies like the EPA. But another related question is whether economic costs as well as health benefits should be considered when setting air quality standards. A third issue, which may not be a part of this debate but should be, is whether the EPA should dictate air pollution remedies from afar or whether state and local officials should have more say.

To better understand how these fundamental issues relate to the standard-setting process and to the appeals court decision, a brief review is called for. The EPA announced its plans to review the National Ambient Air Quality Standards (NAAQS) for ozone and particulates on June 12, 1996, and proposed new standards on November 27. By court order, the agency was required to complete its review of the particulate matter standard by July 19, 1997. Although the ozone standard was not on a similar schedule, EPA chose to review it simultaneously with the particulate standard.

At first, the debate was simple. Support for EPA's standards was led by "The Big E" environmentalists, the American Lung Association, and a handful of other interest groups. These organizations sought to portray any opposition to the high costs of tighter air quality standards as the usual

blustering of big business. In fact, initial opposition did come primarily from the industries likely to bear the largest part of the burden of air pollution reductions, such as the petroleum, steel, automotive, and utility industries.

Soon governors, mayors, county officials, state legislators, and local air quality officers and commissioners also entered the fray. Some supported EPA, but many objected to the costs and disruption to current air quality planning and implementation processes likely to result from the proposals. Members of Congress from both sides of the aisle also took an interest in the issue.

After a significant number of Democratic representatives called for restraint, the White House began to take notice and requested that other executive agencies—National Economic Council, Office of Management and Budget, and the Council on Environmental Quality— participate in an internal review of the standards. On June 25, 1997, after much deliberation, President Clinton announced his support for the standards. He did, however, modify the ozone and fine particle proposals to marginally reduce compliance costs and to allow more time before states would be required to submit fine particle implementation plans.

### **The Clean Air Act's Fundamental Flaw**

Under the Clean Air Act, EPA must set air quality standards to protect public health “with an adequate margin of safety” against adverse effects. Taken literally, this means that air pollution must be reduced to a level where no one suffers any physical reaction. But because ozone causes *some* health effects in *some* individuals even at naturally-occurring levels, this goal is not possible to achieve.

The Clean Air Scientific Advisory Committee, a group of scientists that advises EPA, tried to explain this to Administrator Browner in its closure letter on the ozone review: “Based on information now available, it appears that ozone may elicit a continuum of biological responses down to background concentrations. This means that the paradigm of selecting a standard at the lowest-observable-effects-level and then providing an ‘adequate margin of safety’ is no longer possible.”<sup>1</sup>

The Clean Air Act also does not allow the EPA to consider economic costs when it sets standards for the six “criteria” pollutants—ozone, particulates, carbon monoxide, lead, sulfur diox-

ide, and nitrogen dioxide. Instead, the standards are to be strictly health based. Although this goal sounds laudable, it virtually ensures that for air pollutants like ozone that have no “threshold” level below which no physical responses can be detected, standards will be set too high, i.e., at a level where costs far exceed benefits.

Most economists would question the wisdom of ignoring the relationship between costs and benefits of public policy actions. Applying private and public sector resources to reducing air pollution when the added costs of doing so exceeds the additional benefits robs these funds from other potentially more valuable uses. “Compassionate” public policy calls for policymakers not to require expenditure of taxpayer or consumer dollars on problems whose benefits aren’t commensurate with those expenditures.

Imagine buying a new car if your decision making were restricted similar to the bounds placed on setting standards under the Clean Air Act. You are to choose between a Chevrolet Corsica and a top-of-the-line Mercedes based on the single criterion of safety; you must not consider cost (after all, your children will ride in the car).

You would surely select the Mercedes. Only after your decision is made are you allowed to know the costs of the two cars. You might be able to find a low-interest loan or spread the payments over a longer period, but your safety-based decision would likely require deep cuts in other areas of your budget.

Given that you love your family members and care about their overall well-being, you may question the wisdom of basing your automobile purchase solely on safety concerns. Why not consider cost and safety at the same time? Indeed, why not consider other ways to provide better health for your loved ones than just automobile safety? If the Mercedes payments cause you to cut back on medical care or a healthful diet, your family’s health has been harmed, not protected.

The costs of the proposed standards were hotly disputed, but all projections placed them in the range of billions of dollars. The EPA conservatively estimated yearly costs of between \$600 million and \$2.5 billion to *partially* attain the ozone standard and \$6.5 billion to *partially* attain the particulate standard. These costs are in addition to costs to attain the existing standards.<sup>2</sup>

Cost estimates for full compliance with the standards (which EPA did not provide) are much

higher. The President's Council of Economic Advisers estimated that full attainment of the ozone standard would cost between \$11.6 billion and \$60 billion a year. Professor Thomas Hopkins, an adjunct fellow of the Center for the Study of American Business, estimated that the fine particulate proposal would cost about \$55 billion a year to reach full attainment. See Table 1 for a round-up of cost-benefit estimates for the new ozone and fine particulate standard.<sup>3</sup>

The reason the costs are so high is that ozone and particulate levels in the United States are relatively low. From 1970 to 1997, emissions of volatile organic compounds (which contribute to ozone formation) declined 37 percent. Between 1978 and 1997, one-hour ozone concentrations fell 30 percent.<sup>4</sup> Concentrations of particles with a diameter of 10 microns or less (PM<sub>10</sub>) decreased 26 percent between 1988 and 1997.<sup>5</sup> As the air becomes cleaner, it becomes more difficult and costly to remove additional pollution. At some point, the cost of removing an additional unit of pollution becomes greater than the benefit derived from doing so.

The higher standards *could* represent a wise use of resources, depending on the size of the public health improvements that result. The EPA projects that a number of health benefits will result from lower ozone and particulate concentrations. These include fewer hospital admissions for respiratory ailments, and fewer cases of aggravated asthma, decreased lung function, respiratory symptoms such as cough and chest pain and lung inflammation.<sup>6</sup>

The agency also estimates that the fine particulate standard would prevent 15,000 "premature" deaths each year.<sup>7</sup> However, the health benefits are questionable.<sup>8</sup> In an April 10, 1997 joint subcommittee hearing of the House Commerce Committee, Dr. Joe Mauderly, chairman of the Clean Air Scientific Advisory Committee, testified:

I do not believe, however, that our present understanding of the relationship between PM and health provides a confident basis for implementing a standard that necessitates crippling expenditures or extreme changes in lifestyle or technology. . . . We do not yet have a very good understanding of the biological plausibility of mortality from PM at the concentrations to which decedents were likely exposed. Our information from laboratory studies and our knowledge of the consequences of occupational exposures to particles do not suggest that people should die when exposed to PM at the levels indicated by epidemiology.<sup>9</sup>

**Table 1**  
**Cost-Benefit Estimates for O<sub>3</sub> and PM<sub>2.5</sub> Standards**  
 (billions of dollars a year)

EPA Regulatory Impact Analysis

	<b>Partial Attainment</b>			<b>Full Attainment</b>		
	Benefits	Costs	B/C	Benefits	Costs	B/C
Ozone (lives “saved”)	\$0.4–\$2.1 b (0 to 330)	\$1.1b	0.4–1.9	\$1.5–8.5b (0 to 1,300)	\$9.6 b	0.2–0.9
PM <sub>2.5</sub> (lives “saved”)	\$19–104 b (3,300 to 15,600)	\$.6 b	2.2–12	\$20–110 b (3,700 to 16,600)	\$37 b	0.5–3.0
<b>Other Cost-Benefit Estimates</b>						
			Benefits	Costs	B/C	
<i>Ozone</i>						
			\$0.2–1.0 b	\$11.6–60 b	0–0.1	
			<\$1 b	\$20–60 b	0–0.1	
			\$1.5–8.5 b	\$76–381 b (EPA)	0–0.1	
<i>PM<sub>2.5</sub></i>						
			\$20–110 b	\$55 b (EPA)	0.4–2.0	
			\$2–40 b	\$70–150 b	0–0.6	

Assuming EPA’s mortality benefits materialize, however, the lives saved would be mostly among elderly individuals with preexisting chronic conditions. The American Lung Association estimates that, on average, particulate air pollution reduces life expectancy by two years.<sup>10</sup> At a cost of \$55 billion to extend 15,000 lives, this represents a cost of \$3.7 million for each premature death avoided, or \$1.8 million per life-year saved. (Of course, the \$55 billion also would provide additional health benefits such as fewer hospitalizations and incidences of cough and other respiratory symptoms.)

Without addressing the question of whether it is appropriate to prolong lives at a cost of \$1.8 million per life-year saved, we can ask whether other public policy options could achieve the same

health benefit at equal or lower cost. Research at the Harvard School of Public Health's Center for Risk Analysis found that 185 lifesaving interventions (regulations or expenditures) in the United States consume \$21.4 billion in resources annually. These interventions prevent 56,700 premature deaths each year, saving 592,000 life-years at a cost of \$36,000 per life-year saved—just 1/50 of the cost per life-year saved from EPA's proposed fine-particle standard.<sup>11</sup>

The point of this comparison is that even if the optimistic health claims of proponents of the fine particulate standard are accepted at face value, the cost per year of extended life is far higher than other health-related government interventions. The opportunities for improving public health through the economy, rather than government action, likely are even more cost effective.

The White House Office of Information and Regulatory Affairs (OIRA) offers one estimate of the adverse health effects of well-meaning government intervention. OIRA estimates that each additional \$7.5 million increase in regulatory costs results in one premature death.<sup>12</sup> When individual incomes are lowered because of misplaced allocation of economic resources, the result is often lower living standards (i.e. nutrition, consumption of health care, and so forth) and, thus, lower life expectancies.

Current compliance with the Clean Air Act's mandate for setting health standards without regard to economic considerations is a "polite fiction." Standards are being set by the EPA administrator based on her implicit "feel"—judgment call—for "how clean is clean enough?" This is the act's fundamental flaw. And, in essence, it is this subjective carrying out of the Act's "mission impossible" that has run afoul of the nondelegation doctrine.

### **Federal Versus State and Local Authority**

The process of setting new national ambient air quality standards for ozone and particulates also raised the issue of federal versus state and local authority. Not all areas of the country face the same type of air pollution chemistry or meteorology, so uniform national solutions are not likely to be the best way to deal with these problems.

As a result, state and local governments may be better-equipped than EPA to address their own air pollution challenges. It is a basic tenet of federalism that most problems are best solved by

the people nearest to them, because they have direct knowledge of the circumstances.

Even if air pollution standards continue to be set at the national level, state and local governments could be given a greater role in helping the EPA arrive at its decisions. The Clean Air Act leaves the development of implementation plans up to the states *after* the EPA sets national standards. Because it is *their* economies that will bear the burden, and *their* citizens who will enjoy the benefits, shouldn't states and localities have a greater voice in determining the level of the standards?

If states were given greater participation in the process, it is very possible that they would opt for standards less stringent than EPA's or for no change at all. Governors from 27 states and more than 1,000 mayors, state, county, and local officials expressed concern about the NAAQS proposals in letters to the EPA or to President Clinton.<sup>13</sup> On June 24, 1997 at the U.S. Conference of Mayors meeting in San Francisco, nearly 300 mayors approved a resolution opposing the new standards. There was only one dissenting vote.<sup>14</sup>

Clearly, state and local governments are interested in participating in the air quality standard-setting process. Placing all authority for setting standards with the EPA creates tension among the various levels of government.

### **How Much Authority Does Congress Wish to Delegate to the EPA?**

Key members of oversight committees in the House and Senate voiced concern about the new ozone and particulate standards. In the House, the Commerce Subcommittee on Health and Environment and the Subcommittee on Oversight and Investigations held hearings on the proposed rules. Likewise, the Environment and Public Works Committee in the Senate displayed much interest in the issue. Many members of Congress were concerned that EPA had taken the Clean Air Act's goal of protecting public health with an adequate margin of safety too literally.

Representative John Dingell (D-Mich.), the ranking minority member and former chair of the Commerce Committee, warned, "I have harbored grave doubts about the wisdom of EPA's proposals to change the ozone and particulate matter standards and the way this matter has been handled."<sup>15</sup> Dingell also expressed concern that the EPA, in essence, was rewriting the Clean Air Act. In his

view, the whole system of ozone non-attainment categories would be obliterated by the shift to an eight-hour standard.

EPA did establish its own plan for linking implementation of the standards to its new definition of attainment, without requesting Congress to provide enabling legislation. At the time, my associate Stephen Huebner and I wrote, “Unless Congress rewrites the Clean Air Act, a new level of authority will be established for the EPA by fiat.”<sup>16</sup> Interestingly, the D.C. Circuit Court of Appeals declared that EPA does not have the authority to enforce a new ozone standard, even if it can provide a suitable criterion for establishing the standard.

House Commerce Committee Chairman Thomas Bliley (R-Va.) was a staunch opponent of the standards. Congressman Bliley and Senator Orrin Hatch (R-Ut.) were *amicus curiae* (friends of the court) in the case that resulted in the remand of the ozone and fine particulate NAAQS. In all, over 200 members of Congress signed letters to Administrator Browner or President Clinton expressing concern about the proposed ozone and particulate standards.

### **Conclusion**

On the surface, Americans appear to expect that air quality standards will be set so that there is zero risk from air pollution. That is not surprising in view of the fact that we are repeatedly told by the EPA, environmentalists, the American Lung Association, and other public interest groups that this is our fundamental right.

But zero risk is neither a sensible nor a feasible goal. When air quality standards are set without regard to costs, the resulting policy does not serve the best interests of Americans.

What *should* we expect in the way of protection from air pollution? Rather than protection from any adverse health effect with an adequate margin of safety, the Clean Air Act should set standards “to protect the public against *unreasonable* risk of *important* adverse health effects.” Furthermore, as a matter of good public policy, the Act should *require*, rather than *proscribe*, consideration of the tradeoffs associated with pursuing more restrictive ozone and particulate standards. Risk-risk comparisons and cost-benefit analysis are useful tools for this purpose. A virtual “zero-risk” approach allocates too many resources to small risks to the detriment of other, more

pressing, needs.

In addition, a centralized decision-making structure allows for too little consideration of local or regional differences in air pollution problems. It also provides little or no voice for elected officials closest to the problems. These “in-the-trenches” representatives better understand the need to protect the environment using the most cost-efficient means.

Lastly, too much delegation of authority to a federal agency like the EPA further isolates decisions on environmental problems from economic and other important considerations. A delicate balance must be struck between delegated powers and retained authority. Too much congressional micromanagement of EPA can place the agency in “legislative handcuffs,” denying the very flexibility needed to arrive at cost-effective solutions to these problems. Too much delegation can subject the nation to abuses of zealots who have little faith in private enterprise and too much faith in government decision making.

The most fundamental issue hidden in the air quality dust cloud is how to formulate public policy that is truly “compassionate.” Because we care about promoting public health, we need environmental policies that do not consider risks from environmental contaminants in isolation. Rather than sitting on the sidelines watching the appeals process play out, Congress should amend the Clean Air Act to truly benefit all Americans.

## Notes

1. Clean Air Scientific Advisory Committee closure letter to EPA Administrator Carol Browner on the primary standard portion of the OAQPS Staff Paper for Ozone, EPA-SAB-CASAC-LTR-96-002, November 31, 1995, p. 2.
2. U.S. EPA, *Regulatory Impact Analysis for Proposed Ozone National Ambient Air Quality Standard* (Research Triangle Park, N.C.: EPA Innovative Strategies and Economics Group, Office of Air Quality Planning and Standards, December 1996), p. ES-22; and U.S. EPA, *Draft Document Regulatory Impact Analysis for Proposed Particulate Matter National Ambient Air Quality Standard* (Research Triangle Park, N.C.: EPA Innovative Strategies and Economics Group, Office of Air Quality Planning and Standards, December 1996), p. ES-24.
3. Thomas D. Hopkins, *Can New Air Standards for Fine Particles Live Up to EPA Hopes?* (St. Louis: Center for the Study of American Business, Policy Brief 180, April 1997), p. 16.
4. U.S. EPA, *National Air Quality and Emissions Trends Report, 1997* (Research Triangle Park, N.C.: EPA Office of Air Quality Planning and Standards, October 1996), p. 9.
5. *Ibid.*, p. 1.
6. U.S. EPA, *Health and Environmental Effects of Particulate Matter*, Fact Sheet, April 3, 1997, and U.S. EPA, *Health and Environmental Effects of Ground-Level Ozone*, Fact Sheet, November 29, 1996.
7. U.S. EPA, *Health and Environmental Effects of Particulate Matter*, Fact Sheet, April 3, 1997.
8. For a discussion of ozone and fine particulate health effects, see Stephen Huebner and Kenneth Chilton, *EPA's Case for New Ozone and Particulate Standards: Would Americans Get Their Money's Worth?* (St. Louis: Center for the Study of American Business, Policy Study 139, June 1997). See also Stephen B. Huebner and Kenneth W. Chilton, *More than a Particle of Doubt: The Science Behind EPA's Particulate Proposal* (St. Louis: Center for the Study of American Business, Policy Brief 178, April 1997).
9. Written statement of Dr. Joe L. Mauderly, Chair, EPA Clean Air Scientific Advisory Committee, to the Subcommittee on Health and Environment and the Subcommittee on Oversight and Investigations, U.S. House of Representatives Committee on Commerce, April 10, 1997.
10. Bob Herbert, "Bad Air Day," *New York Times*, February 10, 1995, p. A15.
11. Tammy O. Tengs and John D. Graham, "The Opportunity Cost of Haphazard Societal Investments in Life-Saving," in R. Hahn (Ed.), *Risks, Costs, and Lives Saved: Getting Better Results from Regulation* (New York: Oxford University Press, 1996), pp. 167-182.
12. John C. Shanahan and Adam D. Thierer, "How to Talk About Risk: How Well-Intentioned Regulations Can Kill," *The Heritage Foundation, Talking Points*, No. 13, April 23, 1996. This article cites Ralph Keeney, "Mortality Risk Induced by Economic Expenditure," *Risk Analysis*, Vol. 10, No. 1 (1990); letter from James MacRae, Acting Administrator and Deputy Administrator, Office of Information and Regulatory Affairs, Office of Management and Budget, to Nancy Risque-Rorbach, Assistant Secretary for Policy, Department of Labor, March 10, 1992.
13. "Coalition Terms EPA Clean Air Decision 'Harmful and Unjustifiable' and Calls on Congress to Reverse It," Air Quality Standards Coalition News Release, National Association of Manufacturers, Washington, D.C., June 25, 1997, p. 1.
14. Maria L. La Ganga and Marla Cone, "Mayors Oppose EPA's New Smog Limits," *Los Angeles Times* (June 25, 1997), p. A3.

15. *BNA Environment Reporter*, Vol. 28, No. 4 (May 23, 1997), p. 150.
16. Kenneth Chilton and Stephen Huebner, *Beyond the Air Quality Dust Cloud*, (St. Louis: Center for the Study of American Business, Policy Brief 183, July 1997, p. 11).