

Wizards of Ozone

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In May, the U.S. Circuit Court of Appeals for the District of Columbia blocked the Clinton administration's air-quality standards for ozone and particulate matter. The decision, *American Trucking Associations v. U.S. Environmental Protection Agency*, is a victory for democracy over bureaucracy. The court found that EPA's standards amounted to sheer unexplained policy judgements--an expression of bureaucratic willfulness, rather than an application of the Clean Air Act. EPA thereby ran afoul of the "non-delegation doctrine," which courts use to enforce the constitutional clause giving "all legislative powers" to Congress.

The court held that in setting its air-quality standards, EPA had not been guided by any "intelligible principles" derived from the act. The executive branch's power is too great, said the court, if the regulators are "free to pick any point between zero and a hair below the concentrations yielding London's Killer Fog" (which resulted in 4,000 deaths in one week in 1952). When de facto legislative power resides in the executive branch, accountability and the separation of powers are undermined.

But EPA's clean-air rules are not simply a case of executive-branch usurpation (or legislative-branch abdication). They reflect a deeper problem involving rigid legislation and fluid science.

In 1970, when Congress directed EPA to set air-quality standards "requisite to protect the public health" with an "adequate margin of safety," it assumed that epidemiologists and biologists could determine "threshold" levels of pollution dividing serious health risks from negligible risks. That assumption, we now know, was wrong. For ozone, EPA's Scientific Advisory Board reported in 1996 that there is no threshold below which health risks disappear. Instead, as ozone declines to natural background levels, ozone-related respiratory problems decline more or less continuously. For particulate matter, EPA could not determine whether a threshold exists.

Indeed, the effects of the air pollution in question on health are highly uncertain or exceedingly small. For ozone, EPA estimated that moving from the current standard to a standard of 80 parts per billion would very slightly reduce hospital admissions of asthmatics and the incidence of

temporary "lung function impairments" (detectable only by monitors applied to subjects exercising continuously for several hours).

But given that air pollutants at low concentrations present some health risks, what "intelligible principle" should a conscientious EPA apply "to protect the public health" with an "adequate margin of safety"?

A zero-pollution standard is no answer, since achieving it is impossible and the attempt would impose economic costs that would eventually degrade environmental conditions and so harm the public health. A better solution is for Congress to amend the Clean Air Act. Congress could write air-quality standards into the law (a prospect that horrifies everyone from the Sierra Club to the American Coal Foundation). Or it could charge EPA with setting standards under some new principle--such as balancing the costs and benefits of cleaning the air.

A sensible principle would be to tighten air-quality standards until the benefits of further incremental improvements balance the costs. We favor this approach on policy grounds. Pollution control, no less than national defense or any other activity of government, should operate within a budget. In addition, this approach has the advantage of resolving the constitutional problem. An air-quality standard based on both costs and benefits would not be arbitrary. Setting such a standard would require lots of technical information and a sound cost-benefit analysis, but that is what regulatory agencies are supposed to be good at.

In the case of ozone, the court required EPA to pursue a special application of this approach. Research cited in EPA's rulemaking record shows that reducing atmospheric ozone has significant health costs as well as benefits. But EPA refused to consider those costs, essentially on grounds that the Clean Air Act is not concerned with harm to health caused by pollution reduction. All three judges disagreed; they directed EPA to consider all the identifiable health effects of ozone, positive and negative, and adopt a standard intended to produce net benefits to public health. This takes some explaining.

As is well known, ozone far above the earth plays an important role in protecting people from exposure to the sun's ultraviolet radiation (UV), which causes skin cancers, cataracts, and other ills. That is why the United States and other nations have, at substantial cost, banned substances that contribute to ozone depletion. But recent research--including an article by one of us, Randall Lutter, and Christopher Wolz published in

Environmental Science & Technology--demonstrates that ozone near the ground, where EPA's air-quality standards have their effect, provides additional, independent protection against solar UV radiation. Lutter and Wolz, whose work the court cited, showed that the health benefits of that protection are as well understood as the respiratory problems caused by ozone. Moreover, EPA's ozone standard could increase UV-related health problems by more than it reduced respiratory health problems.

Prompted by this and other research, EPA conducted its own study, which went beyond the earlier work and took a stab at quantifying the UV-related harm likely to result from the new ozone standard. The study noted that the methods for estimating changes in UV exposure and the resulting incidence of skin cancer associated with various ozone levels are "well established." Using these methods, the study projected that lowering the ozone standard would cause an additional 700 nonmelanoma skin cancers each year. Regrettably, EPA did not pursue the matter, on grounds that it could not adequately quantify the health effects; its study is absent from the record submitted to the circuit court.

How do those ill effects compare with the respiratory benefits of a lower ozone standard? EPA and other regulatory agencies have well-developed procedures for placing a monetary value on deaths and various forms of disease and incapacity. Applying those procedures, EPA estimated the respiratory-health improvements from the new standard to be worth \$21 million to \$34 million per year. The agency did not, of course, value the UV-related health costs, but its own valuation methods yield an estimate of \$70 million to \$96 million per year, more than twice the benefits.

These estimates are highly uncertain. Nevertheless, we think it likely that the damage to health from UV exposure resulting from EPA's new ozone standard would be greater than the respiratory-health benefits. Thus, the new standard, which EPA estimates would cost about \$10 billion per year, would produce a small net deterioration in public health. Obviously, it would be better to leave the standard alone.

It is extremely unlikely, however, that EPA will consider the costs of more stringent standards in any form. EPA administrator Carol Browner has said repeatedly that the standards are based on the "best available science." But she has also called the appeals court's unanimous finding on UV health effects "one of the most bizarre sections of the decision . . . [seeming] to conclude that more pollution could even be good for public health--that skies dark with pollution will help prevent skin cancer." This is,

to put it politely, disinformation. Ozone at the levels in question is invisible and, indeed, requires sensitive monitoring equipment to detect, while its health benefits are documented in EPA's own research.

Some EPA watchers have long suspected that the agency's unspoken agenda is gradually to ratchet down all pollution standards to zero. The impulse driving this agenda may be mere bureaucratic power seeking or misguided environmental idealism. Other observers have seen the agency as a well-intentioned, competent, but beleaguered technocratic protector of our environment. EPA's handling of the UV issue in this critically important case shows which view is correct: The agency flatly dismisses the UV-related health benefits of ozone because environmental theology forbids their existence.