

TODAY'S HEALTHY AIR CHOICE: ADDRESSING KEY ELEMENTS OF THE APPROACH TO AIR QUALITY

Carol Browner and Gary S. Guzy

In 2003 the United States Environmental Protection Agency (EPA) issued an assessment of the state of the nation's environment, including assessing air quality. The upshot of this report was that air quality has improved markedly – even during a period when economic activity has grown dramatically. These results are attributable to a comprehensive legislative and regulatory framework that pervades almost all elements of the economy and represents an intensive coordinated state and federal effort.

EPA's report confirmed what we all know intuitively – that the nation's air is much cleaner today than it was thirty years ago. Total emissions of the six principal air pollutants, for instance, have decreased by nearly twenty-five percent during this period. Air toxics – linked to health effects such as cancer – and sulfate deposition – a major component of acid rain – have also declined. EPA's assessment noted that this progress has occurred even while – during the same thirty-year period – the U.S. Gross Domestic Product increased 161 percent, energy consumption increased forty two percent, and vehicle miles traveled increased 149 percent.

Notwithstanding this progress, EPA acknowledged in its recent report that significant challenges remain in attaining health-based standards for ozone and particulate matter, in improving visibility, and in understanding the nature and magnitude of issues posed by indoor air pollution. Just one fact in this regard is striking: more than 133 million people live in areas where monitored air quality in 2001 was unhealthy at times because of high levels of at least one criteria air pollutant.

These circumstances and statistics raise a central question. What are the implications of this experience for continuing air quality challenges? On one side are those who would use EPA's snapshot as proof that the air is getting cleaner and that current approaches can be relaxed and future challenges largely ignored. Others see the report as an indication that significant air quality challenges remain and that the current approaches provide an appropriate framework for continuing to address them.

This paper examines the sweeping change represented by modern clean air legislation that allowed us to arrive at this intersection, the great American success story that has been our Clean Air Act, some of the future policy challenges to be resolved, and what we can learn from the path our nation has taken in addressing these issues to date.

Toward Comprehensive Air Pollution Regulation

Modern environmental protection was propelled by a series of crises that galvanized public and political consciousness. In October of 1948, a climatic inversion in Donora, Pennsylvania, did not allow emissions from zinc and steel works to escape from the Monongohela River Valley, leading to a thick stew of air pollution that darkened the daytime skies. This inversion lasted five days, causing twenty deaths and sickening half of the town's population of 14,000. It was echoed by similar incidents in Los Angeles and London. These events led to a new public recognition that the health effects of air pollution episodes could be severe and immediate, and they propelled governmental investigations of the resulting deaths. Rachel Carson's *Silent Spring*, published as a series in *The New Yorker* in 1962, had a similar widespread impact in demonstrating the power and immediacy of environmental threats. By the time protestors took to the streets surrounding the first Earth Day in 1970, an aggressive federal governmental response was being formulated.

Governments at all levels responded to these concerns. By 1955, the Federal Government passed its first legislation addressing these issues, authorizing research. In 1963, Congress directed the Secretary of Health, Education, and Welfare to compile and publish air quality "criteria" based on scientific studies – essentially guidance to states on protective health levels of air pollutants. In 1967, Congress directed States to develop regionally based air quality standards. It also required them to regulate certain categories of existing stationary industrial sources of emissions.

Congress, however, grew increasingly dissatisfied with the absence of progress in these state-based approaches. The 1970 Clean Air Act represented a significant shift in approach, with Congress providing for federally-established national ambient air quality standards for the most significant pollutants and requiring that states prepare, and submit for federal approval, implementation plans setting forth how they would meet these standards. Congress required states to meet these standards within three years of plan approval. While the Clean Air Act establishes national air quality standards, it still leaves the selection among appropriate and necessary emissions reductions to the states, so long as they meet these standards.

In addition, the 1970 Act imposed a series of new and innovative federal standards that states could employ in meeting these tasks. For example, the Act required that automobiles achieve 90 percent reductions in major pollutants within a short period and imposed modest controls on sulfur dioxide from coal fired power plants. EPA aggressively implemented these new requirements, moving forward with actions such as its first state plan approvals in 1971 and the addition of a lead national ambient air quality standard in 1976.

Congress again tightened these approaches in 1977, by requiring that the national standards be reviewed every five years, to ensure that they reflected the most current science. Congress also added new attainment dates and developed the concept that already clean areas not backslide out of attainment, with resulting sanctions for States. In addition, Congress effectively required that scrubbers be installed on new coal-fired power plants. This provision was endorsed by Eastern coal producers and miners in an unusual alliance designed to prevent a preference that had developed for lower-sulfur Western coal as the means for compliance.

In 1990, Congress greatly expanded the Clean Air Act and adopted a similarly aggressive tone. Among the changes were: establishing a program and timeframes for areas to reach attainment with air quality standards, by classifying the severity of the non-attainment; strengthening the federal automobile emissions and clean fuel requirements to reduce the pollution contribution of this significant sector; creating a new program to require significant emissions controls for major air toxics; requiring power plants to slash their emissions of acid rain-causing gases by nearly half; providing tools for addressing the interstate transport of air

pollutants; establishing a consolidated operating permit program for sources of air pollution; addressing the phase out of ozone-depleting chemicals; and reducing visibility impacts on parks and other areas.

The acid rain provisions are particularly interesting, because opposition to their adoption was tempered by the injection of market-based trading principles for compliance. Thus, rather than simply requiring companies to install particular technologies, the Amendments set up a “cap and trade program” – allowing for the trading of emissions reductions. This approach permits those who could most efficiently reduce their pollution to market these reductions to those for whom reducing emissions would be more costly, thus helping to minimize the costs of compliance for all companies. It also highlights increasing experience with setting “performance-based” – as opposed to “process-based” – standards.

Fundamental Public Health Approaches to Air Quality Protection

Our nation’s approach to confronting its air pollution challenges has been well served by three bedrock principles inherent in these regulatory developments. These are:

- A focus on “public health” as the primary animator of this policy, expressed in moral terms of the absence of a right to pollute, even where significant economic consequences may result;
- An appreciation for the need to carry on with these public health protections, even in the face of inevitable scientific uncertainty; and
- A recognition of the importance of “technology-forcing” as the way to focus American industrial creativity on addressing pollution problems.

The Clean Air Act, beginning in 1970, was designed to effect nothing short of a radical change in American society. The Supreme Court has said the Act was intended to be a “drastic remedy to . . . a serious and otherwise uncheckable problem” by “sharply increasing federal authority.” Federal primary national ambient air quality standards are – in the words of the 1977 Clean Air Act Amendments – to be set at “the level that ‘protects the public health’ with an ‘adequate margin of safety,’ without regard to the economic or technical feasibility of attainment” (emphasis added). Secondary national ambient air quality standards are to protect human welfare.

Beginning with EPA's first Administrator, William Ruckelshaus, those carrying out the law have understood that its focus needed to be on protecting the most sensitive members of our society – such as the elderly and the sick – erring “on the side of public health.” EPA Press Release (April 30, 1971). Congress' early rhetoric focusing on public health as the driver for protections – without regard to cost or technological feasibility – was striking and might surprise most listeners today:

The [Senate] Committee [on Public Works] determined that 1) the health of people is more important than the question of whether the early achievement of ambient air quality standards protective of health is technically feasible Therefore, the Committee determined that existing sources of pollutants either should meet the standard of the law or be closed down (emphasis added).

This understanding of the transformative nature of the Clean Air Act's aspirations was confirmed by a unanimous Supreme Court in its 2001 American Trucking Association decision, after reviewing this thirty year history. In challenges brought by industry to the tougher soot and smog standards adopted by the Clinton Administration, the Court definitively laid to rest these arguments and agreed with EPA that ambient air quality standards must be set at a level “requisite to protect public health,” without the consideration of cost and technological practicality. While States may consider costs in the mix of control measures they select for achieving air quality standards, costs cannot dilute the public health goals themselves. As Senator Muskie originally stated, “the concept is of public health, and the standards are uncompromisable in that connection” (emphasis added).

Congress also understood that EPA may not have every scientific answer in making these decisions. In the 1977 Amendments to the Clean Air Act, it required EPA to set national ambient air quality standards (“NAAQS”) and to review their scientific adequacy every five years. EPA Administrators have understood as well that public health-based decisions must be made even in the face of this expected uncertainty. Administrator Ruckelshaus, in announcing the very first NAAQS set by EPA during the Nixon Administration, did not flinch due to such circumstances:

These are tough standards. They are based on investigations conducted at the outer limits of our capability to measure a connection between levels of pollution

and effects on man. In the case of carbon monoxide, one of the most important pollutants, we have set a standard to protect against effects reported by investigations which prompt arguments even among our own scientists. In the case of photochemical oxidants, also largely contributed by automobiles, our standards approach levels that occur fairly commonly in nature. EPA Press Release (April 30, 1971)(emphasis added).

Former EPA Administrator Christine Todd Whitman likewise has noted, in a speech to the National Academy of Sciences, that, "the absence of certainty is not an excuse to do nothing. . . . Environmental policy should always be based on the soundest information available at the time."

Was a scheme that focuses only on public health consequences and that pushes the frontiers of science rooted in irrationality and destined for failure? The key bridge to ensure its success has been the concept of technology-forcing. Senator Edmund Muskie, the primary sponsor of the 1970 amendments to the Act, introduced them by saying that Congress' central responsibility in drafting the Act was not "to be limited by what is or appears to be technologically or economically feasible," even if that means that "industries will be asked to do what seems to be impossible at the present time ." Our clean air legislation has recognized that, at critical junctures, many in industry have needed to have their attention, energy, and resources focused on achieving pollution reductions, for otherwise there would be little or no incentive for public health and environmental improvements where environmental effects are purely external costs. Congress recognized that setting public health standards would provide an incentive for affected businesses to develop innovative and cost-effective control strategies during implementation of those standards.

Even the Supreme Court in its 2001 American Trucking considerations recognized the essential role played by technology forcing. Justice Stephen Breyer explained:

To read this legislative history as meaning what it says does not impute to Congress an irrational intent. Technology-forcing hopes can prove realistic. Those persons, for example, who opposed the 1970 Act's insistence on a 90% reduction in auto emission pollutants, on the ground of excessive cost, saw the development of catalytic converter technology that helped achieve substantial reductions without the economic catastrophe that some had feared (referring to

statements that automobile emissions standards could "force [the automobile] industry out of existence" because costs "would not be taken into account").

A recent study conducted by the Office of Management and Budget's Office of Information and Regulatory Affairs (OIRA) – an institution perhaps best known for its anti-regulatory sentiments – found that Clean Air Act requirements have yielded enormous economic benefits. OIRA found that major federal regulations resulted in between 135 billion dollars and 218 billion dollars in annual benefits while they imposed from thirty eight to forty four billion dollars in annual costs. OIRA acknowledged that the Clean Air program "accounts for the majority of the national benefits." These findings are consistent with studies that show that initial estimates of regulatory costs routinely exceed actual costs by between thirty and 100 percent.

Continuing Public Health and Environmental Challenges

Today our nation faces significant continuing public health and environmental challenges from air pollution. Some of the key problems we continue to confront are:

- Large areas of the country meet neither the old ozone standard nor the tougher new Clinton-era eight hour ozone and fine particulate matter standards, exposing Americans to unhealthy levels of air pollution;
- Many eastern and mid-Atlantic states will be unable to meet these standards without addressing the interstate transport of pollutants from upwind power plants and other sources;
- More than forty states have health advisories restricting the consumption of fish contaminated with mercury, which stems in significant measure from air deposition from coal-fired power plants;
- Many coal-fired power plants – a significant source of the worst pollutants – remain "grandfathered" under the current Administration's revisions to the New Source Review modification requirements;
- Many urban areas exhibit very high levels of multiple and cumulative air toxics that may raise significant cancer concerns, and emissions from diesel fleets will remain a significant contributor for several decades as older heavily-polluting diesel trucks and buses are very durable;
- Asthma plagues six million children and is the leading cause of childhood

hospitalizations and missed school days and – while its causes are not fully understood – it is, at a minimum, exacerbated by air pollution;

- Acid rain continues to plague lakes, rivers, and forests and will require significant additional reductions of sulfur dioxide emissions; and
- Emissions of greenhouse gases and human-induced increases in the concentration of carbon dioxide in the global atmosphere continue to increase.

In approaching these challenges, the critical question should be whether there is any reason to divert from the proven approaches of the past thirty years. The reason to adhere to these approaches is not a general antipathy to any change from the familiar; rather, it is that our nation's legislative and regulatory approach to providing clean and healthy air has been a resounding American success story. This approach has provided substantial health and economic benefits. Yet its future application will depend upon: a willingness to continue to address challenges based upon cutting-edge science that may not always be beyond any question; an unwavering focus on the protection of public health; and the creation of sufficient incentives for American businesses to focus their innovation on providing solutions to pollution challenges.

The current debate over global climate change provides a microcosm of these choices. Does the Administration's current approach depart from this successful history by: insisting on an unprecedented level of scientific certainty; placing public health and environmental outcomes subservient to potential economic scenarios; and elevating voluntary programs over mandates that force businesses to develop new technologies? In so doing, does the Administration create a self-fulfilling prophecy for those who argue that addressing climate will devastate our economy, because the incentive for the development of workable solutions has remained absent? Is this approach rooted in an unduly short-term view of the economic impacts, and one that ignores the success demonstrated by American industry – when compelled to do so – in being fully capable of devising cost-effective environmental solutions? Has the Administration so down-played this issue – even omitting it from EPA's recent comprehensive assessment of the state of the nation's environment, which was discussed at the beginning of this paper – that informed public debate and public policy are shortchanged? Such questions are equally imperative for the range of air quality challenges that remain to be tackled.