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CLEAN AIR ACT: PROGRESS AND CHALLENGES AHEAD*

ROBERT D. BRENNER**

I. INTRODUCTION

There are very few instances, in recent domestic public policy, of legislation that has been as sweeping as the Clean Air Act Amendments of 1990. I can think of perhaps a handful of legislative proposals—the Americans with Disabilities Act, or the Telecommunications Act of 1996, or the recent welfare reform legislation—that match it in terms of scale.

Considering the broad scope of the Amendments, I think in general it's fair to say the Act is working well—perhaps not perfectly, but well. The success we've had since 1990 in cleaning our nation's air and protecting the public health has been unprecedented. And this has happened during the largest peacetime expansion of our economy in history.

In this article I survey some of the remarkable progress we've made—and look at the challenges that remain ahead in the next decade.

II. CAA ACCOMPLISHMENTS: BENEFITS AND COSTS

In 1990, the Clean Air Act Amendments passed Congress with overwhelming and bipartisan support. Since then, we have achieved unprecedented success in cleaning our nation's air and protecting the American public health. The magnitude of this success can be glimpsed in a few statistics from a recent Congressionally-mandated EPA study of Clean Air Act benefits and costs. This study, entitled “The Benefits and Costs of the Clean Air Act, 1990 to 2010” (November 1999) was the most exhaustive and thoroughly peer-reviewed study of Clean Air benefits ever conducted. As reported in the study, in the year 2010 alone, as these programs are fully phased in, pollution reductions from the 1990 Amendments will prevent:

* Speech delivered at a symposium entitled “Ten Years After the Clean Air Act Amendments of 1990: Have We Cleared the Air?” held at the campus of Saint Louis University School of Law on November 17, 2000.

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- 23,000 premature mortalities
- close to 50,000 cases of acute bronchitis
- 4 million lost work days.

And we are achieving these big gains in public health cost-effectively; according to the study, the health and environmental benefits from the 1990 Amendments outweigh the costs by a ratio of 4 to 1. And keep in mind, this does not take into account the many health and environmental benefits that could not be translated into dollar terms, or the substantial benefits we expect from new standards on cars, our proposed rule for diesel engines and fuels, or the new air quality standards for ozone and fine particles.

A. *Costs vs. Predictions*

Thinking back to some of the debates surrounding the Amendments in 1990, I can't resist pointing out that the costs have often been less than what was originally projected. The Act is creating market opportunities for technological innovation that are enabling us achieve pollution reductions some had predicted to be simply infeasible.

For example, in 1989, a major American auto company representative testified that "we just do not have the technology to comply" with the initial Tier I tightening of tailpipe standards. Yet we have finalized Tier II standards that will reduce pollution by up to ninety-five percent from that baseline. Other examples include the following:

- Industry estimated in 1990 that certain stationary source VOC controls would cost \$14.8 billion per year. Today, the aforementioned study estimates the cost at approximately \$960 million in 2010.
- A utility industry study in 1989 predicted the cost of fully implementing an acid rain SO₂ program at \$4.1 billion to \$7.4 billion annually. Estimates now range from \$1-2 billion.
- A chemical company spokesman testified that accelerating the phase-out of ozone-depleting CFCs would cause severe economic and social disruption. Yet chemical companies rapidly developed alternatives to CFCs and the phaseout happened faster than expected.

The moral of the story is this: when we work together with industry to set flexible standards, with market-based approaches and incentives that allow American ingenuity and innovation to go to work, we see how fast technology can advance, and how cost-effective the results can be.

III. TITLE BY TITLE: WHAT WE'VE DONE—AND WHAT'S LEFT TO DO

Let's take a closer look at how the Act is working to provide these benefits—and also at what issues might need to be addressed in the future to ensure that environmental protection continues.

A. *Healthier Air In More Cities*

The air in our nation's cities is substantially cleaner than in 1990. Smog and other common pollutants are all down.

Over the last decade, we have seen dramatic cuts in the number of nonattainment areas for the following:

- Carbon monoxide (CO): 36 of 42 areas have air quality meeting the standard;
- Ozone: 62 of 98 areas have air quality meeting the standard;
- Particulates: 68 of 85 areas have air quality meeting the standard; and
- Lead has been virtually phased out (98% reduction).

Looking ahead, nitrogen oxide (NO_x) remains a particular problem, one that we are focusing our efforts on. It's the only pollutant where emissions have increased since the Clean Air Act passed in 1970.

And throughout the 1990s, research has increasingly made clear the negative effects of particulate matter, and how both NO_x and sulfur dioxide (SO₂) play a role in contributing to particle formation, especially the finer particles that can go deep into the lungs and cause the most damage.

In 1997, we set a more stringent 8-hour national standard for ozone, and new standards for particulate matter. Because these standards were challenged in court, we have been delayed in implementing them. On February 27, 2001, the Supreme Court decided the case largely in our favor, and we are now working to begin implementing the Court's decision. Importantly, the underlying science and public health need has not been disputed, and in fact, is supported even more by recent studies. These standards will prevent thousands of premature deaths and tens of thousands of respiratory diseases each year, and we are confident that we will move forward with these important health protections.

B. *Cleaner Cars, Cleaner Fuels*

The continuing cleanup of cars and their fuels is a big reason we've been able to achieve healthier air in our nation's cities. Here are some figures showing how far we've come:

- The average new car sold today is 40% cleaner than in 1990.

- Even cleaner vehicles are now sold under the National Low Emitting Vehicles (NLEV) program.
- 30% of nation's gasoline is now cleaner reformulated gasoline.

The Tier II rules on automobile emissions, announced in 1999, were another bold step toward improving air quality. These rules will cut smog-causing vehicle pollution seventy-five to ninety-five percent. When fully implemented, they will prevent over 4,000 premature deaths, over 170,000 cases of respiratory illness, and over 250,000 asthma attacks among children each year. And just last year we issued comparable rules for heavy diesel trucks and buses, which will reduce diesel pollution from new vehicles ninety-five percent beyond current levels. And to enable pollution-control technology to be effective on trucks and buses, diesel fuel will be ninety-five percent cleaner as well.

And because these older, dirtier engines stay on the road for up to thirty years and are driven as much as a million miles, we have announced a voluntary retrofit program that aims to clean up diesel engines currently used in trucks, buses and construction equipment. Our goal is to secure, by the end of this year, commitments to retrofit 10,000 vehicles with commercially available emission control technologies.

We recognize the importance of diesel engines to the American economy, because of their durability and fuel-efficiency. We simply want to add "clean" to that definition.

1. Mobile Source Toxics

While all these programs address conventional pollution problems like smog and particulates, we also recognize the growing contribution that mobile sources make to toxic air pollution, especially in light of the increasing evidence about the toxic qualities of diesel particulate matter. Fortunately, our existing and planned rules also have toxic-control benefits: we estimate that our mobile source rules since 1990, including the aforementioned rules for heavy-duty trucks and buses and cleaner diesel fuel, will reduce mobile air toxics by over 75%.

2. Looking ahead—Nonroad

Having taken steps to address emissions from stationary sources and vehicles, the next largest contributor to NO_x is nonroad engines—a category that currently accounts for 22% of NO_x emissions nationwide. Many of these engines have gone unregulated up until this point. Reducing their emissions will make a substantial contribution to reducing NO_x .

But this will be a difficult sector to regulate. Nonroad engines are typically farm equipment and construction equipment, that are differently engineered and require different types of emissions controls. In some ways,

they present a more complex set of issues, both politically and technically. We have started examining a possible next set of nonroad regulations - we hope to have a proposal out in 2001.

From a legislative standpoint, we still need to address the oxygenate requirement for gasoline to account for our growing scientific knowledge of the effects of Methyl Tertiary Butyl Ether (MTBE). During the Clinton Administration, the Agency urged Congress to pass legislation that will:

- Significantly reduce or eliminate the use of MTBE in gasoline, in order to protect drinking water.
- Guarantee that clean air benefits are preserved.
- Remove the oxygenate requirement from the Act, while, at the same time, establishing a nationwide fuels standard that promotes the use of renewable fuels such as ethanol and other safe bio-fuels.

C. Reducing Industrial Air Toxics

We've overcome the contentious debates on risk that marked our toxics program before 1990, and the rules issued to date will cut toxics by 1.5 million tons a year—eight times the amount achieved in the previous twenty years.

We are now in the early stages of implementing the second phase of the air toxics program outlined by the 1990 Amendments, targeting particular problems such as elevated risks in urban areas, deposition of air toxics into the Great Lakes, mercury emissions, and residual risks from already controlled sources.

Looking forward, we recently determined that it is necessary to regulate mercury from coal-fired electric power plants. Coal-fired electric generating plants are the largest source category of mercury emissions in the United States. And it's well established that exposure to high levels of mercury has been associated with serious neurological and developmental effects in humans. Under the Clean Air Act, we are required to propose a rule by December 2003, and complete it by December 2004. There are approaches being discussed, though, that could combine this with the regulation of other powerplant pollutants. This idea is discussed further later in this article.

D. Title IV: Reducing Acid Rain

National sulfur dioxide emissions have been cut by more than fifty percent. As a result, rainfall in the eastern United States is up to twenty-five percent less acidic, and some ecosystems in New England are showing signs of recovery. And because of an innovative trading program, the costs of the SO₂ program are now estimated to be less than half of what EPA projected in 1990 (\$4 billion in 1990, \$1 to \$2 billion now). Phase II of the Acid Rain program became effective in 2000 and we expect significant reductions to continue.

From a legislative standpoint, both the President and the Congress have expressed interest in an integrated, multi-pollutant approach for utilities, so that the timing of future controls is coordinated and the industry knows well in advance what controls it will face well into the future. Such legislation would potentially cover SO₂, NO_x, and mercury emissions.

E. Title V: Permits

States and local governments are making steady progress toward getting all Title V permits issued within the two year goal we set early last year. Over 10,000 sources (over 50% of our goal) are now subject to a permit.

Though we have come a long way, there is a considerable amount of effort remaining to meet our goal. A number of permitting authorities have committed to us to complete their permits in 2001. We are continuing to seek ideas on how we can continue to issue these permits expeditiously.

As for New Source Review, we continue to recognize that in a quick-to-market world, we need to work towards a system in which sources can better coordinate the timing of their pollution control investment with the demands of the business cycle. We have been working hard to develop a reform proposal. However, there will be those who feel that we need to go further and pursue legislative action. Although these proposals might add additional flexibility, it's doubtful that they would pass unless they are balanced by equal or greater environmental protection—for example applying the concept of total emissions caps to individual facilities.

F. Title VI: Protecting The Stratospheric Ozone Layer

Lastly, the stratospheric ozone protection program is perhaps the least well-known of our programs, but perhaps the most successful. We've successfully phased out production of the chemicals most harmful to the earth's stratospheric ozone layer. In so doing, we are helping to maintain the earth's natural protection against the sun's ultraviolet radiation, and thereby preventing 295 million skin cancers in the U.S. over the next century.

And this phase-out was much less expensive than was predicted in 1990. In 1988, EPA estimated that a 50% reduction of CFCs by 1998 would cost \$3.55 per kilogram. In 1993 the cost for a 100% phase-out by 1996 was down to \$2.45 per kilogram.

IV. CAA REAUTHORIZATION WILL SPARK A BROAD DEBATE

History shows that reauthorization of the Clean Air Act is a long and difficult task. In 1990, the political sun, moon, and stars were in alignment—the President, Senate Majority Leader, and House Speaker were all supportive of legislation, and EPA had been developing approaches to support those efforts. Even so, the debate surrounding reauthorization efforts was

contentious and barely came to fruition. It shows how difficult it is for legislation of this scale to be passed. (And of course, the political climate is even more fractured today.)

I think there may be at some point a narrow window of opportunity for a package of more focused and targeted amendments. But it's hard to imagine even a more targeted package passing without being balanced between addressing regulatory concerns and strengthening environmental protection. Many parts of our society have a strong stake in the Act, and stand ready to insert themselves into the debate. Undoubtedly, some would push for increased flexibility on issues such as conformity, or New Source Review. But others would push to strengthen the Act and broaden its authorities—tightening controls on utilities, pursuing industry-based pollution control approaches, or even looking at alternative-fuels or zero-emissions vehicles mandates.

A. *The Future— We Will Need Increasingly Coordinated Approaches*

As we debate what a new Clean Air Act might look like, I would note that emerging science means that we can better identify the risks and challenges ahead of us, and the technology advances we are making means that we can better address them. But in order to continue moving forward in a way that protects the environment and grows the economy at the same time, we'll need to continue to find more sophisticated ways to cut back on air pollution. We'll need more sophisticated coordination of programs at the state, federal, and regional level.

Our expanding knowledge shows that many pollutants, such as regional haze, will require regional solutions. Some groups may want to provide EPA with direct authority to establish regional programs for large stationary sources, such as multi-state cap-and-trade programs and other incentive-based programs. This would avoid the need for each state to separately enact compatible trading programs.

We'll need more sophisticated coordination of programs between different pollutants—I mentioned power plants as one possible example—especially as we begin to implement the new fine particle standards.

Most likely, we'll need even more sophisticated coordination of programs between different media. For example, it's a well-established fact now that NO_x emissions lead to nitrogen deposition into water and onto soils. As we learn more about these effects—acidification, eutrophication, and decreased ecosystem vitality—we're increasing our coordination at EPA to ensure that the full impacts of pollution are comprehensively addressed in the future.

B. Beyond The Clean Air Act—We Will Need Innovative Partnerships

Furthermore, although the current Clean Air Act gives us ample authority to address the effects of pollution, we will need to find innovative ways to address the causes of pollution as well. Advancing technology since 1990 has allowed us to reduce pollution from power plants with increasing sophistication. And we're about to provide for the cleanest-running gasoline-powered vehicles in our nation's history. Nonetheless, as our economy expands, because of the miles we are driving, and the demand for energy, we project that emissions will still increase. We will need to seek more creative, more collaborative solutions that go beyond the traditional role that EPA has played, and that develop partnerships with industry and with states and local governments.

Our voluntary programs that reduce energy demand – and the multiple air pollutants it creates—are already off to a good start. Our Energy Star program has helped spur over \$4 billion of investment in energy-efficient technologies, and saved consumers and businesses more than \$18 billion. These programs are a win-win for industry, consumers, and the environment. In the transportation sector, we're working to reduce vehicle miles traveled by encouraging smart land use and development patterns in our clean air regulations. We're also partnering with the Department of Transportation, state and local governments, and leading companies nationwide in the innovative Commuter Choice Leadership Initiative, offering a broad range of commuting options to employees as part of company benefits packages.

These are truly innovative solutions—solutions involving our citizens in ways to reduce pollution beyond what the law mandates while continuing to grow the economy. Such solutions may well mark a new era of partnership between EPA and our stakeholders.