



Testimony

Before the Subcommittee on Clean Air, Wetlands, Private Property, and Nuclear Safety, Committee on Environment and Public Works, United State Senate

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AIR POLLUTION

Implementation of the Clean Air Act Amendments of 1990

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G A O

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Mr. Chairman and Members of the Subcommittee:

I am pleased to be here today to discuss issues concerning the implementation of the Clean Air Act, a comprehensive federal law that regulates air emissions from stationary and mobile sources. The act was last reauthorized and amended by the Congress in 1990. Those amendments—particularly the first six titles of the law—require the Environmental Protection Agency (EPA) to take a number of actions such as issuing new regulations and guidance documents, undertaking research studies, and preparing reports for the Congress. The amendments established statutory deadlines for many of these actions.

As you requested, my testimony today will focus on EPA's implementation of the Clean Air Act Amendments and on sources regulated by multiple provisions of the act. Specifically, I will discuss (1) the status of EPA's implementation of requirements established by the 1990 amendments; (2) the views from stakeholders--state governments, local programs, industries that are regulated under the act, and environmental advocacy groups--on the issues that have either helped or hindered the implementation of the 1990 amendments; (3) examples of emission sources subject to regulation under more than one Clean Air Act program; and (4) the status of EPA's efforts to facilitate compliance for such sources. This testimony is based on our April report¹ and ongoing work for this Subcommittee that relates to emission sources affected by multiple provisions of the act. We will issue a report on the latter work this month.

In summary, we found the following:

- As of February 2000, EPA had completed the majority of the 538 required actions it identified under the 1990 amendments' first six titles. However, not all the requirements were met within the statutory deadlines: EPA missed the statutory deadlines for 198 of the 247 requirements with deadlines by February 2000, and will likely miss 62 of the 108 future statutory requirements with deadlines (primarily requirements to establish new standards for certain hazardous air pollutants). EPA officials attributed the agency's inability to meet its statutory deadlines to (1) its

¹*Air Pollution: Status of Implementation and Issues of the Clean Air Act Amendments of 1990* (GAO/RCED-00-72, Apr. 17, 2000).

increased emphasis on obtaining stakeholders' review and involvement during the development of regulations, which added to the time needed to issue regulations, and (2) technical, policy, or legal issues that were not fully anticipated in 1990.

- Stakeholders provided a variety of views on the issues that have helped or hindered the implementation of the six titles. A number of stakeholders expressed the view that flexibility in the amendments has helped their implementation; for example, the trading system for sulfur dioxide emissions, under which utilities that reduce their emissions below required levels may sell their allowances to other utilities to help them meet their requirements. This allows electric utilities to achieve required sulfur dioxide emissions reductions at a lower cost. Also, stakeholders cited the specificity of goals and requirements as helpful; for example, the title dealing with stratospheric ozone depletion listed the affected chemicals and the dates for their eventual phase-out. Stakeholders cited inadequate resources at the state and local levels to effectively implement and enforce the amendments as a factor that has hindered implementation.
- The large industrial complexes operated by the petrochemical and refinery, chemical manufacturing, and electric power industries are prime examples of sources regulated under multiple Clean Air Act programs. For example, the emissions of nitrogen oxides from electric power plants are controlled under six programs, including those for controlling acid rain, ground-level ozone, and fine particles and programs for improving visibility. In addition, petrochemical refineries are regulated under five different titles of the 1990 amendments, and individual chemical plants may be regulated by as many as seven different statutorily authorized programs. Additional state and local requirements may also apply to the same industrial emissions sources.
- EPA has embarked on a number of initiatives to reduce the regulatory workload and facilitate compliance for such facilities. These include two industry-specific efforts and other generic approaches, such as establishing total plant-wide emissions limits, to introduce more flexibility in the overall regulatory rule making and permitting processes. EPA's two industry-specific efforts are the Consolidated Air Regulation and the Clean Air Power Initiative. The Consolidated Air Regulation is intended to

incorporate all federal air regulations that affect the synthetic organic chemical manufacturing industry into a single set of regulations. This proposed regulation, currently pending approval by the Office of Management and Budget, would reduce the regulatory burden and enhance enforceability by having one set of emissions controls and monitoring, record keeping, and reporting requirements. The Clean Air Power Initiative is an effort to develop new regulatory approaches for controlling nitrogen oxide and sulfur dioxide from electric power plants. According to EPA and industry officials, efforts on this initiative have been suspended because of disagreement within the industry as well as within EPA over the appropriate level for proposed sulfur dioxide and nitrogen oxide reductions.

Background

The Clean Air Act, enacted in 1963 and substantially overhauled in 1970, is a comprehensive federal law that regulates air emissions from stationary and mobile sources. This law authorizes EPA to, among other things, establish National Ambient Air Quality Standards to protect public health and welfare. In large part, the 1990 amendments to the Clean Air Act were intended to meet unaddressed or insufficiently addressed problems. The major provisions of the amendments are contained in the first six titles.

- Title I of the 1990 amendments establishes a more comprehensive approach for states to implement, maintain, and enforce the National Ambient Air Quality Standards.
- Title II contains provisions for controlling air pollution from motor vehicles, engines, and their fuel.
- Title III establishes new requirements to reduce the emissions of hazardous air pollutants (often called “air toxics”) that are known or suspected of causing cancer or other serious health effects.
- Title IV establishes the acid deposition control program to reduce the adverse effects of acid rain by reducing annual emissions of pollutants, which are precursors of acid rain.²

²Acid deposition is caused mainly by coal that is burned in large electrical utility plants in the Midwest. When the coal is burned, large amounts of sulfur dioxide are released. It is then carried by winds toward the East Coast of the United States and Canada, where the acids become part of rain, snow, or fog in the area or remain in gas or particle form and settle onto land as dry deposition. Falling to earth, acid rain can damage plant and animal life as well as lakes and streams.

- Title V establishes a national permit program to ensure compliance with all applicable requirements of the act and to enhance EPA's and the states' ability to enforce the act. Title V requires the states to establish permit programs.
- Title VI establishes provisions to protect the stratospheric ozone layer.

Each of these titles requires EPA to, among other things, promulgate regulations, publish final guidance for state air pollution control programs, and issue various research reports to the Congress. Most of the requirements involve promulgating regulations to implement the act. Once the regulations are promulgated, it is generally up to state and local air pollution control agencies to enforce their provisions, with oversight from EPA.

Status of EPA's Implementation of the Clean Air Act Amendments of 1990

While EPA has completed the majority of the actions required by the 1990 amendments, it has not done so in accordance with all statutory deadlines.³ EPA missed the statutory deadlines for 198 of the 247 requirements with deadlines by February 2000. Furthermore, according to EPA officials, it is unlikely that the agency will meet the deadline for 62 of the 108 remaining statutory requirements (primarily requirements to establish new standards for certain hazardous air pollutants). Specifically, the officials do not believe they will meet the November 15, 2000, deadline for establishing standards for hazardous air pollutants.

EPA officials cited several factors explaining why the agency has missed deadlines including: (1) its increased emphasis on obtaining stakeholders' review and involvement during regulatory development, which added to the time needed to issue regulations; (2) the setting of priorities to manage the work load resulting from the 1990 amendments, which created a tremendous number of new responsibilities for EPA; (3) complications associated with the startup and effective implementation of new programs (e.g., operating permits and air toxics), which posed technical, policy, or legal issues that were not fully anticipated in 1990; (4) competing demands caused by the work load associated with EPA's response to lawsuits challenging some of its rules; and (5) the emergence of new scientific information and other factors that led to major Clean Air Act activities that

³EPA has historically been tardy in meeting statutory deadlines. We previously recommended that EPA implement a rulemaking tracking system to aid the agency in meeting statutory deadlines, but EPA has not taken action on this recommendation. See *Clean Air Rulemaking: Tracking System Would Help Measure Progress of Streamlining Initiatives* (GAO/RCED-95-70, Mar. 2, 1995).

did not arise from the 1990 amendments, such as the effort to reduce the regional transport of ozone pollution throughout the East.

It is important to recognize that in terms of their ultimate impact on the environment, all requirements are not equal. For example, a requirement that EPA issue a rule on monitoring a limited number of stationary sources in a single industry has neither the complexity nor the impact of a provision that requires dozens of states to submit implementation plans to attain a major national ambient air quality standard. The latter is inherently more difficult to accomplish and often requires states and local agencies to pass legislation and issue, adopt, and implement rules. Certain programs are implemented largely by states and require extensive, continuing interaction between EPA and the nation's governors, state legislators, county officials, state and local regulators, and others on numerous complex requirements while others are implemented solely by EPA.

Views of Key Stakeholders on Major Issues Affecting Implementation of the Clean Air Act Amendments of 1990

The stakeholders we interviewed from environmental groups, industrial groups, and state and local governments stated that the Clean Air Act Amendments of 1990 have had positive effects on the environment by reducing pollutant emissions. However, the stakeholders had differing views on the issues that either helped or hindered the effective implementation of specific provisions.

Extent of Flexibility in Meeting Requirements

One of the overarching issues affecting implementation cited by stakeholders is the tension between allowing states and sources of pollution the flexibility to develop their own approaches for achieving air quality improvements and using a more prescriptive “command and control” approach. For example, the title IV acid rain program, as designed by the Congress and implemented by EPA, attempted to strike a balance between traditional command and control principles—which specify where and how emissions reductions must be achieved—and the flexibility of market-based measures for reducing air pollution. Specifically, this program uses a market-based approach to allow electric utilities to trade sulfur dioxide allowances with other utilities. Utilities that reduce their emissions below the required level can sell their extra allowances to other utilities to help them meet their requirements. Stakeholders from environmental and

industrial groups and state and local governments told us that the flexibility provided by the acid rain program's sulfur dioxide emissions allowance-trading system enabled the required emissions reductions to be achieved at a lower cost than that estimated at the time the amendments were passed. Other stakeholders pointed out that because the legislation specified the reduction goals and identified the power plants that were required to achieve these reductions, the program was administratively more efficient to implement.

According to some stakeholders, adopting more market-based approaches like the acid rain program is a particularly effective way of achieving greater flexibility. In their view, this program has shown that an aggregate "cap" on emissions, which permits individual sources to trade allowances, can lead to lower-cost emissions reductions than those under the traditional command and control approach used in other programs. EPA officials agreed that the "cap and trade" approach can reduce emissions at a lower cost (and, in some cases, reduced pollution levels as well) than those under a traditional command and control approach. However, they pointed out that to work effectively, cap and trade programs traditionally require a well-known population of sources with extremely well-characterized emissions and control costs. According to EPA, in some circumstances, other forms of economic incentive programs and approaches (e.g., open market trading and emission fee programs) can be added to the existing regulatory structure and can provide incentives for reductions from other source categories when accountability is adequate. For this reason, EPA has issued rules and guidance that allow states and other stakeholders to consider a variety of economic incentive approaches to both reduce costs and gain improved environmental quality.

Specificity of Requirements

Several stakeholders identified the specificity in the amendments or in implementing regulations as an important factor affecting implementation. For example, according to a state and local government organization, specifying the amount of sulfur dioxide emissions reductions to be achieved and the specific power plants where the reductions were to come from made it easier to achieve the required reductions in sulfur dioxide emissions. The stratospheric ozone provisions of title VI—which specify the affected chemicals and the time frames for their eventual phase out—were also cited by stakeholders as an example of successful implementation.

Adequacy of Funding

The states, state organizations, and environmental groups that we interviewed all commented that state and local governments need additional funding to more effectively implement the requirements of the amendments. According to a director of an organization that represents all state and local governments, there is currently a \$140 million annual shortfall in funds for implementation of the Clean Air Act at the state and local government levels.

EPA awards grants to the states and local government agencies to help them implement the amendments. However, the agency has reduced this funding over the last several years by 25 percent, to \$120 million annually. According to a state and local government organization, EPA justified the decrease by considering the funding available to states and local air pollution control agencies through permit fees (which are assessed on regulated sources for permits required by the Clean Air Act). However, according to a stakeholder representing an environmental group, there is a scarcity of funds from permits because states have been under pressure to keep the fees low. EPA officials stated that they work jointly with states and local agencies to establish priorities on the basis of available funding and, through work plan negotiations for grants, have been successful in directing grant funds toward agreed-upon priorities.

Examples of Sources Subject to Multiple Clean Air Act Regulatory Programs

Because the act is structured to address different aspects of the nation's air pollution problems, some sources are regulated by more than one statutory program. For example, industrial emissions sources such as petroleum refineries, chemical manufacturing facilities, and electric power plants are sometimes regulated under multiple provisions of the act and numerous associated federal air regulations.

Petrochemical and Refinery Industry

Petrochemical and refinery facilities are regulated under all of the first five titles of the 1990 amendments and a multitude of EPA regulations designed to implement the legislative provisions. In addition to the large number of existing air regulations, the industry is faced with planning and implementing measures to comply with a host of new requirements beginning in 2000.

According to industry officials, efforts to comply with one program by controlling emissions of a pollutant from a single facility may have the unintended effect of increasing emissions of other pollutants from elsewhere in the same facility. For example, title II requires the petroleum industry to reduce sulfur levels in gasoline to help produce cleaner fuels for motor vehicles. Producing these cleaner fuels, however, requires changes in the refining process that may increase the emissions of other pollutants including such hazardous air pollutants as benzene, formaldehyde, and mercury from emission points within the refineries.

EPA officials told us that while they do not expect this to occur at all refineries, it could occur at some. According to the officials, this case illustrates how separate requirements can serve different, but equally important purposes. The low-sulfur gasoline requirements will work nationwide to help ensure that air quality improves significantly in areas where mobile sources are a primary source of pollution. On the other hand, permitting requirements for statutory sources ensure that an individual facility's emission increases do not contribute to a local air quality problem.

Chemical Manufacturing Industry

Within chemical manufacturing facilities, individual emission sources such as storage tanks may be subject to four or five different regulatory programs. At any given facility, all or part of the following—in addition to obtaining title V operating permits—may apply: (1) meeting standards for new source construction permitting, (2) reducing the emissions of hazardous air pollutants, (3) meeting new source performance standards, and (4) complying with visibility protection requirements.

According to industry officials, the act's regulatory process is an especially complex system and it is not always clear which emission reduction requirements are applicable to a specific source. For example, the emissions of pollutants known as volatile organic compounds (VOC's) are subject to regulation under title I of the 1990 amendments, but some are also considered to be hazardous air pollutants, which are regulated under title III.⁴ Thus, the same facility may be subject to meeting regulatory requirements associated with each title. According to industry officials, in some cases, EPA has recognized the title III requirement (under which the source must meet emissions levels

⁴ VOCs are precursors to the formation of ozone, a criteria pollutant.

associated with maximum achievable control technology standards⁵) as the most stringent, and so the VOC emissions control requirements are considered to be satisfied through demonstrated compliance with the technology standards. According to an industry official, however, EPA has, in some situations, required that facilities report or demonstrate compliance with both emissions reduction requirements.

Electric Power Industry

Electric-power-generating facilities may be subject to more than a dozen federal air regulations and initiatives that have different objectives, time frames, and compliance requirements. For example, the emissions of nitrogen oxides from power plants are subject to regulation under several title I programs, including (1) the national ambient air quality standards program, (2) the new source review program for minimizing air pollution from large new stationary sources; and (3) the visibility improvement program. Nitrogen oxides emissions are also controlled under the title IV acid deposition program, which is targeted at specific electric utility plants. According to industry officials, some of the regulations affecting the same air pollutants and emissions sources can make it difficult for the industry to accurately determine the applicability of each of the requirements and to develop effective emissions control strategies.

EPA Efforts to Address Sources Affected by Multiple Clean Air Act Requirements

Recognizing that individual facilities are regulated under multiple programs, EPA has undertaken initiatives to reduce the regulatory workload and facilitate compliance for such facilities. These include two industry-specific efforts--the Consolidated Air Regulations and the Clean Air Power Initiative--and several generic approaches to introduce more flexibility and stakeholder involvement in the rulemaking and permitting processes.

⁵ Maximum Achievable Control Technology standards are technology-based standards for hazardous air pollutants.

Consolidated Air Regulations

One of the administration's initiatives aimed at reinventing environmental regulations was to consolidate federal air regulations, so that all federal air requirements for an industry would be incorporated into a single set of regulations. EPA used the regulations applicable to the synthetic organic chemicals manufacturing industry for its pilot study of the feasibility of consolidating and streamlining existing federal air quality regulations. The synthetic organic chemical manufacturing industry was selected for the pilot because of the large number of air regulations that apply to the industry's facilities and the similarity in many of the requirements in the existing regulations. The resulting single set of regulations, which incorporates all of the applicable requirements for 16 different air regulations that affect the industry, is referred to as the Consolidated Air Regulations. Participation in the consolidated regulations by facilities will be voluntary; facilities may choose to continue being regulated under the 16 separate regulations or the consolidated regulations. EPA's objectives are to (1) reduce the regulatory burden, (2) facilitate implementation and compliance, and (3) ensure the continued environmental protection and enforceability of the regulations. Proposed by EPA in October 1998, the consolidated regulations are currently being reviewed by the Office of Management and Budget.

The Consolidated Air Regulations are intended to maintain the current levels of health and environmental protection benefits currently afforded by the 16 existing regulations and also to ensure the same degree of emission controls as the existing regulations do or a greater degree than they do. However, the level of human health and environmental protection may be greater in some instances because the regulations will require some facilities (that choose the consolidated regulations) to meet more stringent emissions reductions or requirements.

Because of the reduced burden afforded by the Consolidated Air Regulations, some sources are expected to elect to comply with the consolidated regulations despite the more stringent requirements. However, according to EPA officials, it is unclear at this time how many of the synthetic organic chemical manufacturing facilities will elect to participate because the consolidated regulations requirements may require some to achieve larger emissions reductions than they are currently required to meet under the older air regulations. EPA officials acknowledge that progress has been slower than expected because of difficulties in getting the chemical industry to agree on specific

environmental protection requirements in the consolidated regulations and their reluctance to accept the more stringent emission reductions.

Clean Air Power Initiative

The concerns about the electric power generating industry's costs to control multiple pollutants under several provisions of the Act added by the 1990 amendments prompted EPA to initiate the Clean Air Power Initiative (CAPI). In consultation with electric power industry representatives, EPA developed an integrated regulatory strategy for sulfur dioxide and nitrogen oxides emitted from power plants. The purpose of this collaborative effort was to seek new approaches to pollution control that would improve public health and the environment but simultaneously cost less and reduce the number and complexity of current and expected requirements. EPA began the CAPI in 1995 by meeting with interested stakeholders to discuss more cost-effective alternatives to pollution control and developing a model that could analyze the costs and emissions implications of different reduction scenarios for sulfur dioxide and nitrogen oxides.

However, the lack of complete support within the electric power industry ended the initial effort in late 1996 without agreement, according to EPA officials. Some stakeholders believed that the controls suggested under the CAPI were not desirable or cost-effective, according to an EPA official, because they had not yet been required through rule making. According to officials at Edison Electric Institute,⁶ the initiative ended because (1) there was substantial disagreement over the science underlying EPA's proposed new controls for sulfur dioxide and nitrogen oxides; (2) EPA could not provide any regulatory certainty should a program be mutually agreed to; and (3) certainty could result only from amending the act, which neither stakeholder wanted to pursue.

In late 1998 and throughout 1999, EPA staff participated in the Edison Electric Institute Air Quality Integration Dialogue at which EPA and industry staff explored an integrated approach for controlling pollution from the electric power industry. The dialogue had broad industry participation as well as EPA staff participation. The White House Climate Change Task Force also attended these meetings. The Dialogue was intended to promote

⁶Edison Electric Institute is the association of U. S. shareholder-owned electric companies, international affiliates, and industry associates worldwide.

a free exchange of ideas and analysis at a staff level concerning new or potentially upcoming regulatory actions to address air emissions of sulfur dioxide, nitrogen oxides, carbon dioxide, and mercury.

EPA continues to believe that over the next several years, it will probably be necessary for the power industry to achieve large reductions of sulfur dioxide and nitrogen oxides. According to agency officials, there continues to be considerable interest in developing an integrated approach to address cost-effective strategies for implementing multiple air regulations. EPA has had a number of follow-up discussions and expects to continue interactions with industry representatives on this topic.

Other Initiatives to Address Multiple Regulation Issues

In addition to the Consolidated Air Regulations and the Clean Air Power Initiative, EPA has developed other regulatory approaches to provide industry with more flexibility to achieve the necessary reductions in air pollution, while still providing accountability for the results. For example, EPA allows facilities to average the emissions from all emissions points and to use trading programs in order to provide more flexibility in how and where an industrial facility chooses to reduce its air emissions. In some cases, EPA has set plant wide limits that control total emissions that are allowed to be released from an individual plant. These efforts provide latitude to industries in choosing how and where to reduce emissions.

EPA has also worked with individual industries to eliminate duplicating or overlapping regulatory requirements. For example, EPA worked with industry organizations, such as aerospace and shipbuilding and coating operations, to set limits for VOCs and toxic air pollutants and with the pharmaceutical industry to give it more flexibility in complying with new source performance standards for storage tanks.

Furthermore, EPA and various stakeholders began, in 1993, to identify opportunities for developing “cleaner, cheaper, smarter” environmental protection strategies that were tailored toward environmental protection and would consider the unique circumstances of different industries. EPA, along with states, environmental and public interest groups, and the environmental justice community worked with six industries--petroleum refining,

printing, iron and steel, computer and electronics, metal finishing, and auto manufacturing--to find better ways to manage environmental responsibilities. With the completion of the Common Sense Initiative—one of EPA’s efforts to “reinvent” environmental regulation—EPA is applying the lessons learned to other sections of the act.⁷

Mr. Chairman, this concludes my prepared statement. I would be pleased to respond to any questions you may have.

Contact and Acknowledgements

For further information regarding this testimony, please contact David G. Wood at (202) 512-6111. Individuals making key contributions to this testimony included William McGee, Harry Everett, Odell Pace, and Karen Keegan.

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⁷ We have reported on EPA’s efforts to provide more flexibility and “reinvent” environmental regulation; for example, *Environmental Protection: Challenges Facing EPA’s Efforts to Reinvent Environmental Regulation* (GAO/RCED-97-155, July 2, 1997) and *Environmental Protection: EPA’s and States’ Efforts to Focus State Enforcement Programs on Results* (GAO/RCED-98-113, May 27, 1998).

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