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Report to Congressional Requesters

August 2003

CLEAN AIR ACT

EPA Should Use Available Data to Monitor the Effects of Its Revisions to the New Source Review Program

GAO-03-947

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Highlights

Highlights of GAO-03-947, a report to the Ranking Minority Member of the Committee on Environment and Public Works, U.S. Senate, and another requester

Why GAO Did This Study

A recent Environmental Protection Agency (EPA) final rule changing the Clean Air Act's New Source Review (NSR) program—a key means to protect public health and enhance air quality—has been under scrutiny by the Congress, industry, environmental groups, state and local air quality agencies, and the courts. GAO was asked to determine the basis of EPA's conclusions that (1) the rule's economic impacts would not be significant enough to merit a detailed analysis and (2) the NSR program, prior to the rule, discouraged some energy efficiency projects. GAO, among other things, reviewed EPA's analysis of the rule and its impacts, as well as guidance from EPA and the Office of Management and Budget (OMB) on analyzing such impacts. GAO also met with industry and environmental stakeholders.

What GAO Recommends

Because of the lack of data and uncertainties about the rule's impacts, we recommend that EPA determine what data are available to monitor the rule's effects, identify additional data needs and ways to fill them, and use the monitoring results to determine whether the rule has created adverse effects that the agency needs to address. EPA agreed with GAO's conclusions and recommendations.

www.gao.gov/cgi-bin/getrpt?GAO-03-947.

To view the full report, including the scope and methodology, click on the link above. For more information, contact John Stephenson at stephensonj@gao.gov.

What GAO Found

Consistent with agency guidance, EPA used a limited screening analysis that relied on staff's professional judgment and public comments from earlier reform proposals to conclude that the final rule would decrease emissions and health risks and not impose significant costs. EPA determined that neither the rule's benefits nor its costs would exceed a $100 million threshold that triggers requirements to conduct a more comprehensive assessment. EPA issued the rule to streamline the NSR permitting process and provide flexibility to industry. For example, the rule provides a mechanism for companies to develop plantwide emissions limits, which would allow them to make changes in one part of a facility's operations as long as they offset emissions increases with decreases elsewhere within the facility. While OMB agreed with EPA's conclusion that the rule would not have significant economic effects, it determined that the rule was significant for policy reasons. Therefore, OMB asked EPA if it could better quantify the rule's potential impacts, but the agency lacked the necessary data to do so. EPA lacked comprehensive data on the program's economic impacts, and could not predict how many facilities would use the rule's optional provisions. Several states and environmental groups disagree with EPA's conclusions, claiming that it will enable facilities to increase their emissions. These parties have filed suit against EPA challenging the rule and also have petitioned EPA to reconsider the rule. We did not identify any comprehensive assessments that contradicted or supported EPA's conclusions or the assertions of those who oppose the rule. Because of the data limitations, it was not possible to verify EPA's conclusions about the rule's effects.

Because it lacked comprehensive data, EPA relied on anecdotes from the four industries it believes are most affected by NSR to conclude that the NSR program (prior to the rule) discouraged some energy efficiency projects, such as upgrades to industrial boilers, including some that would have decreased emissions. Because the information is anecdotal, EPA's findings do not necessarily represent the program's effects across the industries subject to the program. Several environmental groups disputed EPA's findings. One such group said that factors other than NSR, such as economic downturns, discouraged the projects. Furthermore, EPA's conclusion that some projects would have decreased emissions assumed that facilities would not increase production after performing the projects. However, according to EPA and the executive director of an industry group, companies often expand production after implementing energy efficiency projects because it is advantageous to maximize production at the most efficient facilities. Such expansions could increase emissions and related health risks, although EPA asserts that this would be offset by decreased production and emissions at less efficient facilities.

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Abbreviations

DOJ	Department of Justice
EPA	Environmental Protection Agency
NAPA	National Academy of Public Administration
NSR	New Source Review
OMB	Office of Management and Budget
WEPCO	Wisconsin Electric Power Company v. Reilly

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United States General Accounting Office
Washington, DC 20548

August 22, 2003

The Honorable James M. Jeffords
Ranking Minority Member
Committee on Environment and Public Works
United States Senate

The Honorable Joseph I. Lieberman
United States Senate

Recent changes to the Clean Air Act's New Source Review (NSR) program—one of the act's key mechanisms for maintaining air quality to protect public health—have been the subject of congressional debate and have drawn scrutiny from numerous stakeholders, including representatives of industry, environmental groups, and state and local air pollution control authorities. While some industry officials describe the existing program as costly and characterized by uncertainty, environmental groups and a coalition of state attorneys general assert that it is, and has been, an important component of the Clean Air Act. In recent years, the program has become increasingly controversial, as the Environmental Protection Agency (EPA) has taken enforcement action against companies in several industries, including some electricity producers, forest products manufacturers, and petroleum refineries, alleging noncompliance with the program. Some of the affected companies have agreed to settlements that will cost hundreds of millions of dollars and require emissions reductions, while others are in various stages of litigation.

The NSR program, which seeks to protect public health, maintain compliance with air quality standards, and preserve and enhance air quality in national parks and scenic areas, requires companies that are major sources of air pollution to install pollution controls in their facilities when constructed. The program also requires companies to install such controls in existing facilities when making physical or operational changes—such as the addition of new production equipment—that cause a significant increase in air emissions.[1] Such changes are called "major

[1]The thresholds for these so-called major modifications—physical or operational changes that cause a significant increase in emissions—vary by pollutant and the air quality status of the area in which a facility is located.

modifications." Congress believed that incorporating pollution controls into the design and construction of new and modified air pollution sources was generally an efficient way of controlling air pollution from large industrial sources. Congress also excluded existing facilities from NSR requirements until they made changes that increased their emissions. Companies that want to make major modifications in existing facilities must apply to state or local agencies for an NSR permit and then install the controls. The cost of installing controls varies but can reach hundreds of millions of dollars for some facilities, according to an EPA program manager. However, companies can qualify for exemptions from these requirements if, for example, (1) a modification is considered "routine maintenance and repair," (2) the company agrees not to significantly increase its emissions after making a physical or operational change to its facility, or (3) the company offsets any emissions increases resulting from a change in a facility with emissions reductions achieved elsewhere within that facility.

EPA has long recognized a need to revise the NSR program and began a reform process in 1992 that resulted in proposed changes to the program in 1996 and 1998. The agency received wide-ranging comments from the public on how the program should be revised and held meetings with the public and other stakeholders, but did not develop final rules by the time the new administration took office in 2001. In May 2001, as part of its proposed national energy policy, the Vice President's National Energy Policy Development Group recommended that EPA report to the President on the NSR program's impact on energy efficiency investments, among other things. In response to this recommendation, EPA concluded in its June 2002 *NSR Report to the President*, that NSR had discouraged some energy efficiency investments at existing industrial facilities.

After completing this report, EPA modified certain of the proposed 1996 NSR revisions and finalized them as a rule in December 2002 (hereafter referred to as the NSR final rule). According to EPA, the rule will, among other things, provide greater certainty for facilities regulated under the program and streamline the NSR permitting process while ensuring the current level of environmental protection. As part of this process, EPA analyzed the rule's anticipated economic effects, such as its impacts on emissions, health risks, the costs of installing and maintaining pollution control equipment, and administrative costs incurred by government agencies. Under Executive Order 12866 and the Unfunded Mandates Reform Act of 1995, agencies must perform detailed assessments of economically significant rules—those rules that may have an annual effect on the economy of $100 million or more. If a rule's impacts are not

expected to exceed this threshold, a more detailed economic analysis is generally not required. According to the Office of Management and Budget (OMB), the agency responsible for overseeing agency compliance with Executive Order 12866, agencies may use their discretion when conducting a screening analysis to determine whether a rule's economic impacts may reach the $100 million threshold and require a more detailed assessment. EPA's Office of Air Quality Planning and Standards has developed a guidance document that the agency uses to analyze the impacts of air quality rules, which discusses how to conduct a screening analysis.[2]

You asked us to determine the basis of (1) EPA's analysis of the economic impacts of the final rule and its conclusion that the rule would not create significant enough benefits or costs to require a more detailed analysis and (2) EPA's conclusions that the NSR program (prior to the final rule) discouraged some energy efficiency projects. You also asked us to provide information on several other aspects of the final rule and proposed revisions to the definition of routine maintenance and repair under NSR, which we will address in subsequent reports.

To respond to these objectives, among other things, we used OMB and EPA guidance to review EPA's screening analysis of the final rule's economic impacts. We also met with the NSR program manager within EPA, other senior EPA officials within the agency's Office of Air Quality Planning and Standards, and senior OMB staff within the Office of Information and Regulatory Affairs who were responsible for reviewing EPA's analysis. In addition, we reviewed the information that EPA relied on in preparing its findings on the NSR program's effects on energy efficiency projects. We also met with representatives of industry and an environmental group. Appendix I provides a more detailed description of our scope and methodology.

Results in Brief

EPA relied primarily on the professional judgment of agency staff and comments it received on earlier NSR revision proposals to conclude in its screening analysis that the final rule would not generate benefits or costs of more than $100 million and, therefore, that it could proceed with the

[2]*OAQPS Economic Analysis Resource Document*, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards Innovative Strategies and Economics Group, April 1999.

rule without a detailed economic analysis. In taking this approach, the agency complied with its guidance for conducting economic analyses, which states that, to focus resources on those rules that will have a large impact, a screening analysis of benefits and costs may be qualitative or rely on limited data. From this screening analysis, EPA concluded that the rule would encourage energy efficiency projects while reducing emissions and related health risks without imposing significant economic impacts. Senior OMB staff responsible for reviewing the analysis said that while OMB concurred with EPA's conclusion that the rule was not economically significant, it considered the rule significant for policy reasons. As a result, OMB sought to determine whether EPA could quantify the final rule's potential effects, but concluded that the agency lacked the necessary data to do so. For example, EPA does not maintain comprehensive information on the economic impacts of the NSR program, and the agency could not model how often or when companies would decide to use any of the voluntary provisions of the rule. EPA later conducted two additional analyses of some of the rule's impacts to provide the public with more information and to satisfy requirements of the Paperwork Reduction Act, but these were not comprehensive assessments of the final rule. Attorneys general from 10 Northeastern states and several environmental organizations have filed suit against EPA in a challenge to the final rule, asserting, among other things, that the rule will allow companies to increase their emissions. If these claims prove correct, EPA's screening analysis would have underestimated the rule's impacts because it did not account for costs associated with increased emissions, such as adverse public health effects. Because of the data limitations, it was not possible to verify these parties' or EPA's conclusions. As a result, the rule's effects are uncertain. Therefore, we are recommending that EPA identify the data it has available, as well as additional data it needs and could obtain, to monitor the effects of the final rule and use the monitoring results to determine whether the rule has created adverse effects that the agency needs to address.

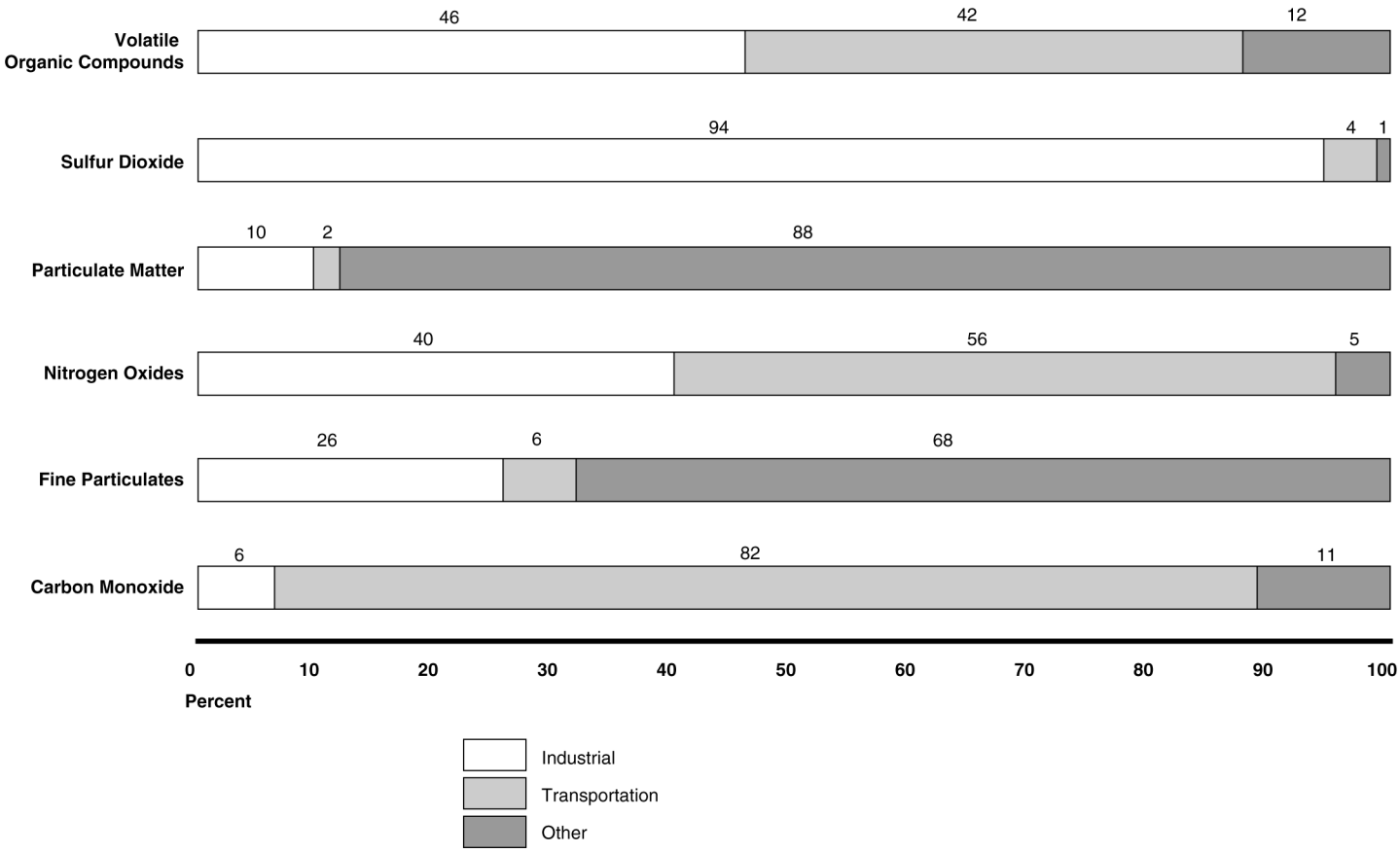
EPA relied primarily on anecdotal information from the industries most affected by NSR in concluding that (prior to the final rule) the program discouraged some energy efficiency projects, including some that would have reduced air emissions. EPA staff responsible for this analysis said they relied on anecdotal information from industry sources such as electricity producers, chemical and forest products manufacturers, and petroleum refiners because they lacked comprehensive data on the number of projects that did not go forward as a result of NSR, such as upgrades to industrial boilers. These anecdotes suggested that the NSR program posed several barriers that discouraged some energy efficiency

projects, such as the high costs of installing pollution controls and delays in obtaining permits that in turn delayed project construction. Several environmental groups, however, disagreed with industry's claims. Because EPA based its conclusion that NSR discouraged some energy efficiency projects on anecdotal information rather than a comprehensive survey or representative sample of industries subject to the program, its findings are not necessarily representative of the program's effect on energy efficiency projects throughout the industries subject to the program. In addition, EPA's finding that some forgone energy efficiency projects would have reduced air emissions was based on the assumption that facilities would not increase their production levels after performing the projects. However, facilities' future levels of production and emissions are uncertain because they may fluctuate in response to economic conditions, and other factors. For example, according to EPA and the executive director of an industry group, companies often expand production after implementing energy efficiency projects because it is advantageous to maximize production at the most efficient facilities. Such expansions could increase emissions and related health risks, although EPA asserts that this would be offset by decreased production and emissions at less efficient facilities.

Background

Under the Clean Air Act, EPA establishes health-based air quality standards that the states must meet and regulates air pollutant emissions from various sources, including industrial facilities and mobile sources such as automobiles and other transportation. Figure 1 compares the emissions of key pollutants from industrial facilities to those from transportation and other sources.

Figure 1: Percentage of Total U.S. Emissions Released by Industrial, Transportation, and Other Sources in 2001



Source: GAO analysis of EPA data.

Note: Percentages for carbon monoxide, nitrogen oxides, and sulfur dioxide do not total 100 due to rounding.

EPA has issued health-based air quality standards for six primary pollutants—carbon monoxide, lead, nitrogen oxides, ozone,[3] particulate matter, and sulfur dioxide—that have been linked to a variety of health problems. For example, ozone can inflame lung tissue and increase susceptibility to bronchitis and pneumonia. In addition, nitrogen oxides and sulfur dioxide contribute to the formation of fine particles that have been linked to aggravated asthma, chronic bronchitis, and premature

[3]Ozone forms when nitrogen oxides react with volatile organic compounds in the presence of heat and sunlight.

death. In 2001 (the most recent year for which data were available), 133 million Americans lived in areas with air pollution levels above at least one of the health-based air quality standards, according to EPA.

The New Source Review program was established in 1977 and is intended to protect public health, as well as national parks and wilderness areas, from additional air pollution when new industrial facilities are built and existing ones expand. The fundamental logic of the program, according to EPA, is that industrial facilities should install modern pollution controls at the time of construction or when making physical or operational changes, such as adding new production equipment, that cause a significant increase in air emissions. Subject to EPA's oversight, state and local air quality agencies generally administer air quality programs, including the NSR program. In recent years, EPA has taken enforcement action against companies in several industries, including some electricity producers, forest products manufacturers, and petroleum refineries, alleging noncompliance with the program. Some of these parties settled these cases soon after the enforcement actions were filed, although electricity producers assert that the actions are inconsistent with the Clean Air Act, according to the U.S. Department of Justice (DOJ). In January 2002, however, DOJ concluded that the enforcement actions are consistent with the act.

Recognizing the need for revisions to the NSR program, EPA began a reform effort in 1992 and 1993 when it held workshops with stakeholders and established a federal advisory committee in 1993. Largely on the basis of this committee's recommendations, EPA issued proposed NSR revisions in 1996 that were intended to reduce costs imposed on companies that undergo NSR permitting without interfering with efforts to attain air quality goals. EPA solicited public comment on the proposals at that time and again in 1998, when it sought additional information on an alternative method for determining whether a facility modification should be subject to NSR. The agency received numerous comments that provided wide-ranging views on how the program should be revised. Despite additional public meetings and discussions with stakeholders on NSR reforms, EPA had not developed final rules by the time the new administration took office in 2001.

In May 2001, when the Vice President's National Energy Policy Development Group issued its proposed national energy policy, it recommended that EPA report to the President on the NSR program's impact on investments in new utility and refinery generation capacity, energy efficiency, and environmental protection. In response to this

recommendation, and given that EPA does not maintain such information, the agency solicited public input on how the NSR program had affected the ability of companies to undertake energy efficiency projects in their existing facilities. EPA defined energy efficiency projects as those that would have produced greater output per unit of fuel input (e.g., more electricity per ton of coal burned), regardless of the effect on emissions. In its June 2002 *NSR Report to the President*, EPA concluded, among other things, that NSR had not affected investments in new power plants and refineries but had discouraged some energy efficiency projects at existing facilities, including some that would have reduced air emissions.

After completing this report, EPA modified the 1996 proposed NSR revisions to provide regulatory flexibility to industrial facilities so that they could pursue energy efficiency projects, among other things. EPA assessed the economic impacts of implementing these revisions, and finalized them as a rulemaking—hereafter referred to as the "final rule"—in December 2002. Table 1 provides a chronology of the NSR program.

Table 1: Chronology of the New Source Review Program

Date	Description
1970	Clean Air Act became law.
1972	EPA created the Prevention of Significant Deterioration Program by rulemaking. This program implemented NSR in areas that meet air quality standards.
1977	Clean Air Act Amendments of 1977 became law.
1990	Clean Air Act Amendments of 1990 became law.
1992-1994	EPA issued notices of violation to companies in the plywood and wood products industry.
1993	EPA convened a federal advisory committee to address policy and technical issues associated with revising NSR.
1996	EPA issued a NSR Simplification Proposal to streamline permitting, relieve regulatory burden, and provide states with flexibility. EPA also began investigating coal-fired electricity producers, petroleum refiners, and the pulp and paper industry for violations of NSR rules.
1998	EPA solicited further public comment on NSR revisions.
1999	DOJ filed lawsuits against seven electricity producers charging that 17 power plants made major modifications without installing required pollution control equipment.
2000-2003	EPA settled several NSR cases with electricity producers and refiners.
May 2001	The administration's proposed energy policy called for EPA and the Department of Energy to review the implementation of NSR regulations, and for DOJ to review existing NSR legal actions. DOJ later reported that the actions were consistent with the Clean Air Act.

Date	Description
June 2001	EPA issued a NSR background paper as a partial response to recommendations in the energy plan.
June 2002	EPA issued *New Source Review: Report to the President* and recommendations for improving the NSR program.
December 2002	EPA issued the NSR final rule and nine northeast states filed suit challenging the final rule.
January 2003	A tenth northeast state filed suit challenging the rule, and these states, California, and four California air quality agencies petitioned EPA to reconsider the final rule.
July 2003	EPA announced that it would reconsider parts of the NSR final rule.

Source: EPA and National Academy of Public Administration.

Specific revisions in the final rule include the following:

- a revised method for determining a facility's baseline emissions level that a company would use as the starting point for determining whether any changes in emissions resulting from a planned physical change or change in the method of operation subjected the company to NSR;
- a revised test that a company would use after establishing a facility's baseline emissions level to determine if a physical or operational change would increase emissions beyond the NSR threshold;
- exemptions from the program if companies demonstrate that (1) equipment qualifies as a "clean unit" because they already use state-of-the-art pollution control equipment or (2) a proposed modification specifically controls air pollution and achieves an environmental benefit; and
- a mechanism for companies to work with state or local permitting authorities to develop plantwide emissions limits, which would allow companies to make changes in one part of a facility's operations as long as they offset any emissions increases with decreases elsewhere within the facility.

In addition to the final rule, EPA has proposed further NSR revisions that the agency believes will provide greater certainty about activities that are considered routine maintenance, repair, and replacement. According to a NSR program manager, the agency is reviewing public comments on this proposal and expects to finalize the rule by December 2003.

EPA's Economic Analysis of the Final Rule Complied with EPA and OMB Cost-Benefit Analysis Requirements, but Some Stakeholders Have Sought to Have EPA Reconsider the Rule

EPA relied primarily on the professional judgment of its staff, as well as public comments on the agency's prior proposal to revise the NSR program, in concluding from its screening analysis that the final rule would not create benefits or costs beyond the $100 million threshold that triggers requirements for a more detailed economic analysis. EPA's approach, while limited, is consistent with agency guidance for assessing the economic impacts of proposed rules. In addition, EPA would have had difficulty conducting a more quantitative analysis because of data limitations. OMB agreed that the rule would not have a significant economic impact but was significant for policy reasons. OMB asked EPA if it could better quantify impacts and was convinced that the agency lacked the necessary data to do so. EPA did later conduct two additional analyses of some of the rule's costs and benefits, but they also were not comprehensive economic assessments. Some stakeholders have formally asked EPA to reconsider the rule, arguing, among other things, that it will enable facilities to increase their emissions. Because of the limited data on the NSR program, it was not possible to verify agency or stakeholder conclusions about the rule's anticipated economic impacts.

EPA's Reliance on Professional Judgment Was Consistent with Agency Guidance for Screening the Economic Impacts of Rules

EPA's screening analysis of the final rule's anticipated effects was consistent with the agency's guidance for conducting economic analyses. According to senior OMB staff, the office does not have guidance for agencies to use when conducting a screening analysis to determine whether a rule will impose significant economic impacts and, thus, merit further analysis. Therefore, agencies have latitude in determining how best to conduct a screening analysis. EPA's Office of Air Quality Planning and Standards has developed a guidance document that describes the process agency economists should use when analyzing air quality rules. Recognizing the need to focus agency resources on rules that have a large impact, the guidance states that a screening analysis of benefits and costs may be qualitative in nature or rely on limited data.

According to a NSR program manager in EPA, agency staff relied primarily on their professional judgment in estimating the rule's economic impacts, such as its effect on air pollutant emissions and the costs companies incur when they install pollution controls, as well as public comments the agency received on its 1996 and 1998 NSR revision proposals. For example, several industry trade associations submitted information asserting that the ability to use plantwide emissions limits would reduce

costs for industry and provide other benefits without compromising air quality.[4] On the basis of this information, EPA staff determined that the rule would lead to overall economic and environmental benefits by encouraging energy efficiency projects, reducing emissions and related health risks, and providing economic benefits to companies affected by the NSR program, according to the NSR program manager. For example, EPA forecasted that the rule would encourage companies to implement energy efficiency projects that would reduce emissions, such as upgrades to boilers used to generate power.

In its screening analysis, EPA assumed that the final rule would not impose significant economic costs on companies because the rule created voluntary options and companies would most likely only elect to use them if they thought the provisions would achieve an overall economic benefit. Therefore, the agency assumed that any time a company opted to use one of the provisions, the benefits to the company would outweigh any costs incurred. In addition, because EPA concluded that the rule would decrease emissions, it did not forecast any increases in public health costs resulting from the final rule, such as increased incidence of asthma or other respiratory problems. Consistent with its guidance, EPA then concluded that, because the rule was not expected to create $100 million in benefits or costs, the agency could proceed in finalizing the rule without a more quantitative and comprehensive analysis.

EPA Lacked Data to Conduct a More Comprehensive Analysis of the Economic Impacts of the NSR Final Rule

Even if EPA had been required to conduct a more detailed economic analysis, it would have had difficulty doing so because the agency is not required to systematically collect comprehensive data on the economic effects of the NSR program.[5] Regarding the benefits of the program, EPA does not maintain comprehensive data on the number and type of facilities that obtain NSR permits, or the reduced air emissions achieved after facilities install pollution controls, according to a senior agency economist. In 2001, EPA attempted to estimate the emissions reductions at facilities that obtained NSR permits; however, senior agency officials

[4]EPA also relied on an analysis of flexible permitting programs as part of the basis for the agency's findings regarding the benefits of plantwide emissions limits.

[5]Under section 312 of the Clean Air Act, EPA periodically reports on the overall costs incurred and benefits achieved under the act. However, in fulfilling this requirement, the agency generally provides a comprehensive assessment of such impacts and does not provide a breakout of the costs and benefits of individual programs under the act.

responsible for the analysis acknowledged that it had several limitations.[6] For example, these officials said the analysis included only facilities that were located in areas that met federal air quality standards, thereby excluding a large portion of the universe of affected facilities. In addition, EPA had incomplete data on facilities located in EPA region 6, which includes Arkansas, Louisiana, New Mexico, Oklahoma, and Texas. Furthermore, the analysis did not distinguish between benefits that resulted from the installation of pollution controls at new facilities and those at existing facilities, which are the focus of the final rule. With respect to costs, EPA is not required to maintain comprehensive information on the costs of the NSR program, and would therefore have had difficulty quantifying all of the costs of the rule, according to a NSR program manager.

In addition to EPA's lack of data on the NSR program's benefits and costs, a senior agency economist said that uncertainty about the extent to which companies might elect to use the NSR alternatives provided in the final rule also limited EPA's ability to estimate the rule's impacts. For example, the economist said that the final rule allows companies to develop a plantwide emissions limit as an alternative to NSR, but only those companies that find this provision advantageous are likely to use it and EPA could not accurately determine how many companies this might include. According to EPA, companies' decisions about whether to pursue voluntary options are case-specific and dependent on a number of factors. Therefore, the agency was unable to model how often and when the final rule's options would be used. In contrast, most of the other rules EPA develops generally impose new requirements on a known universe of companies, according to a NSR program manager. In these cases, it is much easier to determine the costs and benefits of a rule because the agency can gather information from the affected companies. For example, if EPA required all companies within a particular industry to install certain pollution controls, it could gather information on the average costs of such equipment and the anticipated reductions in air emissions. Because of these data limitations we identified, it was not possible to conduct our own assessment of the final rule's possible effects and verify EPA's analyses and conclusions.

[6]This analysis was summarized in an October 2001 EPA memorandum, *Benefits of the Prevention of Significant Deterioration Program*.

OMB Concurred with EPA's Analysis and Conclusions and Determined That Data Limitations Precluded More Quantitative Analysis

According to senior EPA and OMB staff, OMB agreed with EPA's finding that the final rule was not economically significant because it was not expected to impose costs or provide benefits beyond the $100 million threshold that triggers requirements to conduct a more thorough analysis. Nevertheless, according to senior OMB staff responsible for reviewing the analysis, while the office found EPA's analysis—which was presented in an oral briefing but not documented—persuasive, OMB determined that the final rule was significant for policy reasons. Under Executive Order 12866, rules that "raise novel legal or policy issues arising out of legal mandates, the President's priorities" or other criteria can be categorized as significant. According to the Executive Order, when rules fall into this category, the agency issuing the rule must provide OMB with an assessment of the potential costs and benefits of the regulatory action, but the order does not elaborate on the form of the assessment. The senior OMB staff said that EPA's screening analysis satisfied this requirement. Nevertheless, OMB staff asked EPA if it would be possible to conduct an analysis that quantified the rule's effects. However, as we previously discussed, EPA identified numerous data limitations that it claimed prevented its staff from conducting such an analysis, and OMB acknowledged these limitations and concurred with EPA.

EPA Conducted Two Additional Analyses of the Rule's Effects, but They Did Not Comprehensively Assess Economic Impacts

In November 2002, EPA issued a supplemental analysis intended to provide the public with additional information on the rule's potential environmental effects. According to EPA, this analysis was not intended as a comprehensive economic analysis of the rule's benefits and costs and was not used to make decisions about the rule. Like the screening analysis, it relied primarily on qualitative information and arrived at similar conclusions. For example, EPA asserted that the exemption for companies that use state-of-the-art pollution controls would save companies NSR permitting costs. EPA also asserted that this provision would induce facilities to voluntarily install controls to avoid NSR, thereby reducing emissions.

While the supplemental analysis was qualitative, it used some data from a limited number of facilities to estimate the effects of some of the rule's provisions on a wider universe of facilities. Specifically, the analysis considered the experiences of six companies that had used regulatory options similar to those provided for in the final rule to determine that such limits would lead to emissions reductions. For example, on the basis of these six case studies, EPA stated that if 75 percent of facilities in three industry sectors opted to use plantwide emissions limits, emissions of volatile organic compounds could be cut by up to 17,000 tons annually

(less than 1 percent of the total volatile organic compounds emitted in 2001, the most recent year for which data were available). EPA also said that the emissions reductions would be greater if the analysis was extended to other industry sectors and pollutants.

However, EPA did not use statistically valid methods to identify the six companies on which it based this portion of its analysis. Therefore, the experiences of these companies may not be representative of how plantwide limits will affect emissions at other industrial companies that may opt to use this provision. In addition, the Secretary of the Delaware Department of Natural Resources and Environmental Control—the state in which one of the six companies was located—wrote the EPA Administrator cautioning against using the experience of the Delaware company to support the final rule. The Secretary noted that the regulatory option used by that company provided for emissions reductions as a prerequisite for participation, while EPA's plantwide emission limit does not.

As noted above, EPA could not determine with any certainty the number of facilities that would opt to use the final rule's voluntary provisions, or the changes in the number of NSR permits, amount of emissions, or other effects that would result. However, EPA was required under the Paperwork Reduction Act to assess some of the costs and benefits that would accrue to companies and government agencies under the final rule. Specifically, the act requires agencies to estimate the record keeping burden associated with a rule and report this information to OMB. Therefore, EPA relied on limited available data and its professional judgment to make estimates necessary to satisfy this requirement. In February 2003, after issuing the final rule, EPA estimated that it would impose about $6.5 million in annual burden on state and local air quality agencies, which include legal and other costs associated with incorporating the final rule into the state's air pollution control plan, collecting public comment on the changes, and obtaining state legislatures' approval of the changes.[7] This analysis also estimated that 14 facilities would use the final rule's provisions during each of the first 3

[7]During the first 3 years of implementation, the final rule will only affect regulatory agencies and companies in jurisdictions that meet the federal air quality standards. According to EPA, about 10 to 12 percent of all affected companies are located in such areas. Other jurisdictions are not required to revise their NSR programs to accommodate the final rule until 2006. Therefore, the final rule is not expected to impose costs on regulatory agencies and companies in these areas until 2006.

years of implementation, reducing the previous annual burden by $650,000. This analysis, like the screening analysis, found that the rule would impose less than $100 million in annual costs on companies and government agencies. However, a senior EPA economist said this was a limited analysis intended to identify information collection and record keeping requirements that the final rule would impose. In addition, this analysis does not comprehensively address all of the costs that are likely to result from implementation of the rule.

Some State Attorneys General and Environmental Organizations Question EPA's Conclusions and Assert That the Final Rule Will Increase Emissions, Harming Public Health

Nine northeast states filed a petition in the U.S. Court of Appeals for the District of Columbia Circuit on December 31, 2002—the day the rule was finalized—disagreeing with EPA's conclusions about the rule's effects.[8] They asserted, among other things, that the final rule violated the Clean Air Act and would enable companies to increase their emissions because, by using the provisions to opt out of NSR, they will no longer be required to install pollution control equipment.[9] According to New York's Attorney General, the final rule will lead to more smog, asthma, and respiratory disease. In addition, Earthjustice—acting on behalf of a coalition of environmental and public health advocacy groups—filed similar petitions for review, also in the U.S. Court of Appeals for the District of Columbia Circuit. According to the American Lung Association, one of the groups represented by Earthjustice, the final rule creates loopholes that allow companies to increase their emissions without installing pollution controls. Similarly, Environmental Defense, another group represented by Earthjustice, claims that the final rule will enable thousands of factories, power plants, and other industrial companies to pollute more.[10] On February 6, 2002, the nine Northeast states, along with Pennsylvania, filed a motion, which the court denied, seeking to halt implementation of the final rule pending a ruling on the earlier petitions.

[8]According to DOJ, EPA has also received eight formal petitions seeking to have EPA reconsider the NSR final rule. In addition to the parties identified above, four air quality agencies within the state of California, and the state itself have formally requested that EPA reconsider the final rule.

[9]Connecticut, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont were the original petitioners. A tenth state, Pennsylvania, filed a petition for review on January 28, 2003.

[10]This report does not address the merits of the claims made by the litigants in these cases.

While these parties do not support the final rule, several states, including Indiana, Kansas, Nebraska, North Dakota, South Carolina, South Dakota, and Utah, as well as the American Petroleum Institute and other industry groups, have filed petitions with the court in support of the final rule. In July 2003, EPA responded in part to the petitions for reconsideration by requesting public comment on six limited issues in the final rule. The agency said that the decision to reconsider these issues did not mean that EPA had decided to change any aspect of the rule and that the agency would make that decision after the comment period closed.

Our review did not identify any comprehensive assessments of the final rule's effects that contradicted or supported the results of EPA's analysis or the assertions of those who oppose the final rule. As a result, the economic impacts of the final rule are uncertain. Two studies commissioned by the Environmental Integrity Project of the Rockefeller Family Fund and performed by Abt Associates, an EPA contractor, focused on facilities that obtained NSR permits and installed emissions controls prior to the final rule. The studies found that the facilities would not have been required to install pollution controls if they had made their modifications after implementation of the final rule, and could have increased their emissions. However, because these analyses focus on just two facilities and only one of the four provisions of the final rule, their results may not be representative of the rule's overall environmental effects. In addition, EPA asserts that these studies were based on an incorrect interpretation and application of the final rule's provisions.

EPA Relied Primarily on Anecdotes from Industries Most Affected by NSR to Conclude That It Discouraged Some Energy Efficiency Projects

EPA relied primarily on anecdotal information from industry in concluding that the NSR program, prior to the final rule, discouraged some energy efficiency projects—such as upgrades to industrial boilers—including some projects that would have reduced air emissions. The anecdotes, which were provided primarily by four of the industries most affected by the NSR program, suggested that the program imposed several barriers that deterred energy efficiency projects, including delays in obtaining permits and the high costs of installing pollution controls. Several environmental groups disputed EPA's findings, and a representative of one group cited other factors, such as poor economic conditions and a lack of willingness to control air pollution, as the barriers to energy efficiency projects, although EPA program managers said that the agency found industry's claims to be more persuasive. Nonetheless, because EPA relied on anecdotal information rather than a statistically valid sample or industrywide survey, the agency's findings do not necessarily represent

NSR's effect on energy efficiency projects throughout the industries subject to the program.

EPA's Conclusion That NSR Discouraged Energy Efficiency Projects Was Based Primarily on Anecdotes from Four of the Industries It Believes Are Most Affected by the Program

According to EPA officials responsible for the *NSR Report to the President*, during development of the proposed NSR revisions, the agency received information regarding the program's effect on energy efficiency projects from numerous stakeholders. This input included written responses to EPA's request for information, as well as case-specific anecdotes and supplemental documents. In assessing this information, the agency defined any project that included a facility modification that would directly result in greater output per fuel input (such as more electricity generated from each ton of coal burned) as an energy efficiency project. Although EPA based its conclusion about NSR's impact on such projects on the total available information, it relied heavily on anecdotes describing cases in which chemical manufacturers, electric utilities, forest products manufacturers, and petroleum refineries—four of the industries EPA identified as most affected by the program—had decided not to pursue energy efficiency projects because of NSR. While EPA also received comments from several environmental organizations and state and local air quality agencies that disputed industry's claims, an EPA program manager said that the specific examples provided by industry were convincing.

After obtaining the anecdotes submitted to EPA by the parties the agency identified as its primary data sources—including trade associations, individual firms, and other business interests—and removing those that did not address energy efficiency or contain complete information, we reviewed 69 anecdotes that described how NSR deterred companies from making energy efficiency investments. We determined that these anecdotes generally went through two rounds of review. First, trade associations said that their members reviewed and discussed the anecdotes before submitting them to EPA. After receiving the submissions, EPA program managers said they used their expertise and judgment to evaluate the credibility and reliability of the anecdotes. According to these managers, they paid specific attention to whether (1) the project described in an anecdote was technically feasible; (2) an anecdote's conclusions about how NSR discouraged a project were consistent with EPA's understanding of how the NSR provisions would apply to that project; and (3) the conclusions were based on "real-life," rather than hypothetical, situations. EPA program managers found the anecdotes to be generally credible. While some may have been more relevant than others (e.g., "real life" examples were more relevant than

hypothetical ones), none was dismissed for failing to meet these criteria, according to an EPA program manager. Agency staff familiar with the NSR program then compiled, reviewed, and synthesized this information and concluded that complying with NSR may have deterred some investments in energy efficiency projects, including some that may have reduced air emissions. It is important to note that the energy efficiency findings in the *Report to the President* were not the basis of the analysis of the economic impacts of the final rule, which found that the final rule would encourage energy efficiency projects, according to an EPA manager of the NSR program.

The anecdotes generally cited three ways in which these industries believe complying with NSR discouraged energy efficiency projects, including concerns that (1) EPA would subsequently determine that projects companies initiated as routine maintenance, repair, and replacement without an NSR permit were actually major modifications subject to NSR and enforcement action; (2) the test used to measure the emissions impacts of company modifications was not fair; and (3) the NSR permitting process caused unanticipated project delays and increased costs.

The first barrier, concerns about possible enforcement actions, stemmed from recent EPA enforcement litigation against certain electricity producers in which EPA contested industry's claims that certain projects were exempt from NSR because they qualified as routine maintenance. EPA maintained that these projects were in fact major modifications that should have triggered NSR. According to senior industry representatives, this meant that EPA could consider potentially thousands of projects that industry had previously completed without an NSR permit under this exemption as NSR violations, including some that state and local air quality agencies had approved and confirmed did not trigger NSR. This prompted some industry officials to allege that EPA was reinterpreting what could be considered routine maintenance exempt from NSR. EPA's Office of Enforcement, however, maintains that the agency is correctly interpreting and enforcing the program.

According to senior representatives of the electric utility and refining industries, this litigation has produced substantial uncertainty for companies pursuing facility modifications. Part of this uncertainty may stem from what industry officials describe as a lack of clear policy guidance on what qualifies as routine maintenance. EPA has never explicitly defined routine maintenance since the exclusion was established, although some clarification has grown out of EPA

enforcement, most notably in the case of Wisconsin Electric Power Co. v. Reilly (WEPCO). This court decision upheld EPA's consideration of the nature, extent, purpose, frequency, and cost of facility modifications, as well as other relevant factors, when determining whether a project qualifies for the routine maintenance and repair exemption. EPA maintains that it takes a case-by-case approach to determining whether a modification constitutes routine maintenance, and has cited WEPCO as support for its recent enforcement actions.

However, industry comments submitted to EPA claim that the agency's enforcement actions, combined with what they regard as a lack of clear guidance, make it difficult for them to reliably predict when their projects will trigger NSR, especially when EPA may later disagree with state and local NSR determinations. Companies are therefore reluctant to perform projects that could trigger NSR or possible enforcement litigation, including, they assert, energy efficiency projects. According to EPA, the agency's proposed rule on the routine maintenance exemption would address some of these concerns by changing its definition. EPA expects to issue the rule by the end of 2003.

Several environmental groups disputed EPA's findings. For example, an environmental advocacy group involved in NSR issues claimed that the proposed rule would simply broaden the exemption in violation of the Clean Air Act. One alternative in the proposed rule would allow companies to claim as routine maintenance any modifications as long as they cost less than a certain percentage—depending on the industry—of the total cost of the polluting unit, such as a boiler, or the entire facility. Another alternative would allow companies to invoke the routine maintenance exemption if they are replacing equipment that performs the same function as its predecessor and does not alter the basic design of a facility. Environmentalists assert that these exemptions will allow companies to falsely treat major plant modifications as routine maintenance, avoid NSR requirements, and increase emissions.

The second barrier cited in the anecdotes was the test used to determine whether a modification would increase emissions beyond the NSR threshold. Under the program prior to the final rule, companies making physical or operational changes that did not qualify for exemptions, such as the routine maintenance exemption, had to undergo this test to gauge the changes' effects on emissions. Before the final rule, a company was to compare a facility's emissions during the previous 24 months to its future potential emissions if its facility was run at maximum capacity or the highest capacity allowed by the existing NSR permit after making the

change, even if the facility had not run at this level before, or did not plan to in the future. If the expected future emissions resulting from the change were more than 40 tons per year higher after making the change, the project qualified as a significant emission increase and triggered NSR.[11] Companies (except electric utilities) could request that the permitting agency allow the use of any different two-year period based on a demonstration that it is more representative of normal operation. Electric utilities may use any 2-year period in the previous 5 years as their actual emissions baseline.

Industry submissions to EPA on the NSR program asserted that having to assume maximum capacity biased the test and significantly overstated the true emissions impact of a project. They cited cases where they expected a project to reduce emissions, but the test showed that it would increase them. For example, a refinery planned to implement a project that it expected would improve the energy efficiency of a furnace by 5 percent. While the furnace was permitted to emit 45 tons of air pollution per year, it was not operating at full capacity and was therefore only emitting 35 tons per year. According to the facility's submission, the project would decrease annual emissions to 32 tons per year through more efficient fuel combustion while running at the same capacity. However, the emissions test required the refinery to compare its historical emissions—35 tons per year—with its future potential emissions running at full capacity—45 tons per year. Because the facility was located in an area where a 10 ton per year increase triggers NSR requirements, the facility would have had to obtain an NSR permit for the modification.

Likewise, a pulp and paper mill planned to install an air flow system that would allow its boiler to more efficiently burn natural gas, creating annual savings of $1 million. By using less fuel, the project was also expected to reduce future emissions of carbon monoxide, nitrogen oxides, and volatile organic compounds. However, the facility had been operating below its maximum capacity during the 24 months preceding the planned installation. Therefore, when managers compared the facility's actual emissions during this period to its future potential emissions, assuming it would operate at maximum capacity after the modification, the projected emissions increase qualified as a major modification, even though the

[11]Forty tons per year is the threshold for emissions of nitrogen oxides, sulfur dioxide, and volatile organic compounds in areas with good air quality, but the level can be lower in areas with poorer air quality.

project was expected to reduce emissions. If the company proceeded with the project under NSR and installed the best available pollution controls, it would incur $17 million in total costs, making the project cost-prohibitive, according to the industry submission.

While these anecdotes assert that having to assume maximum capacity under this test was unfair, the NSR program required facilities to assume that the changed equipment would operate at the maximum level allowed in its operating permit unless the owners or operators of the facility made a legally binding commitment to operate at lower production levels, according to EPA. Otherwise, EPA and state and local air quality agencies would have no way of ensuring that companies would not have a significant increase in emissions under the NSR rules after making a physical change, according to EPA. In addition, EPA acknowledged in its *Report to the President* that performing an energy efficiency project can provide an economic incentive to increase production levels at more efficient facilities, potentially resulting in increased emissions. However, EPA's new final rule now gives a company the option to compare a facility's previous emissions to its projected actual emissions, instead of its maximum potential emissions. EPA believes that this new test will remove disincentives that discourage facilities from making the types of changes that improve operating efficiency, implement pollution prevention projects, and result in other environmentally beneficial changes. In addition, EPA asserts that the new record keeping and reporting measures required with this option will provide the information necessary for reviewing authorities to ensure that such changes are made consistent with the Clean Air Act.

The anecdotes also identified a third barrier. According to industry, unpredictable delays associated with the NSR process disrupt a project's planning and construction timetables, increasing project costs. Program managers and technical directors representing forest product companies, chemical manufacturers, refineries, and utilities commented on this issue, stating that the NSR permitting process can last anywhere from 6 to 24 months, thereby delaying or disrupting project planning and construction. Petroleum refinery representatives claimed to be uniquely affected by this, asserting that NSR permitting delays made it difficult for them to meet federal mandates and deadlines for producing cleaner-burning gasoline, potentially subjecting them to fines and enforcement actions. Industry officials also claimed that project delays they attributed to NSR permitting resulted in equipment wearing out, increasing replacement costs, and raising safety issues. They also stated that certain repair projects required quick decisions and turnaround, both of which are not compatible with the

amount of time it takes to obtain an NSR permit and install the appropriate pollution controls. An EPA NSR program manager confirmed that permitting delays could hinder energy efficiency upgrades in emergency situations where a company needs to quickly replace broken or worn out machinery and would like to install more efficient equipment. However, the program manager said such situations are rare and that the timelines for planned facility upgrades are generally compatible with the NSR permitting schedule. In addition to permitting delays, some of the anecdotes also asserted that, if a project triggered NSR requirements, the costs of installing pollution controls would have outweighed the anticipated benefits of the project.

The National Academy of Public Administration and Environmental Stakeholders Reached Different Conclusions about NSR's Effects on Energy Efficiency

In an April 2003 report to the Congress on the NSR program, the National Academy of Public Administration (NAPA) stated that while a lack of data prevented the organization from determining the extent to which NSR has impeded energy efficiency improvements, NSR might indeed have discouraged some industrial sources from undertaking economically and environmentally sound maintenance and energy efficiency projects. However, according to NAPA, some facilities continue to operate without modern pollution controls because of widespread noncompliance with NSR or flaws in its implementation. NAPA said that these facilities have an advantage over their competitors because they have not incurred the costs of controlling emissions, and that such facilities have little basis to complain that NSR has adversely affected the efficiency of their operations. An EPA manager for the NSR program took exception to NAPA's findings, stating that EPA and the states have enforced the program over the years. The official also said that facilities only trigger NSR when they make physical changes in, or changes in the method of operation of, their facilities that significantly increase emissions. Therefore, if the facilities NAPA refers to have not undertaken such modifications, they have complied with the program, according to the official.

Several environmental groups experienced in NSR issues disagreed with industry's claims about the NSR program's effects on energy efficiency. A representative of one such group, who has testified before the Congress on NSR, pointed out that if companies truly wanted to avoid NSR, they could accept an emissions limit in their operating permit and make a formal commitment to not emit above the NSR threshold. Companies that agree to such limits may make any modifications they want without triggering NSR, provided they do not exceed the limit. With this option available, the representative asserted that the NSR process could not deter

energy efficiency projects that were expected to reduce emissions because they would not trigger NSR, since they would not increase emissions above the program threshold. For example, a source with an operating permit limit could make a physical or operational change without an NSR permit and increase emissions by 39.9 tons per year (where the threshold is 40 tons per year) and not trigger NSR. The environmental representative cited other factors, such as poor economic conditions and a lack of willingness to control air emissions, as the primary factors hindering companies from pursuing these projects, rather than compliance with NSR.

Representatives of the chemical, forest products, and electric utility industries disagreed with this position and said that companies are reluctant to accept an operating permit limit because they would be giving up their flexibility to increase production in response to changing economic and market conditions, just for the sake of one energy efficiency project. A trade association representing the chemical industry also told us that the lengthy and protracted process for obtaining an operating permit makes it impractical to renegotiate a permit limit every time a company wants to undertake an energy efficiency project.

The Anecdotes Do Not Necessarily Represent NSR's Effect on Energy Efficiency Projects Industrywide or Their Overall Impact on Emissions

As EPA notes in its *Report to the President*, its conclusions about the effect of NSR on energy efficiency projects are based on anecdotal information because the agency lacked comprehensive data on the number of projects that did not go forward as a result of NSR, according to EPA program managers. Because EPA based its conclusions on anecdotes, the agency's findings do not necessarily represent NSR's effect on energy efficiency projects within the industries that provided the anecdotes or across all industries subject to the program. Reaching such conclusions about the program's broader effects on energy efficiency projects would have required gathering information from either a statistically valid sample of companies subject to the program or a comprehensive survey of affected industries. Conducting such an analysis, however, would have required substantial resources.

In addition, EPA's conclusion that the NSR program had discouraged some energy efficiency investments that would have reduced emissions was based on the assumption that the companies would not increase their production after completing the energy efficiency project, according to an EPA official responsible for the analysis. Under this assumption, 23 of the 69 anecdotes predicted that the proposed projects would decrease emissions, 11 predicted an increase, 2 predicted no change, and 33 (or 48

percent) did not include sufficient data to determine the emissions impact.[12] However, facilities' future production levels and air pollutant emissions may fluctuate in response to changing economic conditions and other factors. In addition, performing an energy efficiency project can provide an economic incentive to increase production levels at more efficient facilities, potentially increasing emissions and related health risks.

The executive director of one industry trade association stated that it would make economic sense to increase production at more efficient facilities. The representative "could not imagine a utility spending money on extra capacity, and then not utilizing it." In addition, according to EPA, production at more efficient facilities could supplant that at less efficient and higher-emitting facilities. Therefore, even in cases where an energy efficiency project was expected to reduce emissions, future increases in production after implementing a project could possibly increase emissions, as well as related health risks, past the NSR threshold.

On the other hand, according to an EPA official responsible for the agency's energy efficiency analysis, the agency expected that if a company increased production at its more efficient facilities, it could decrease production at its less efficient facilities. Therefore, any emissions increases due to higher production levels at more efficient facilities would be offset by decreased production elsewhere. In addition, a facility's emissions could decrease more than expected after implementing an energy efficiency project if the facility decreased production, for example, due to poor economic conditions. An EPA program manager said that the agency has not analyzed the air pollution impacts of shifts in production that facilities make after implementing energy efficiency projects.

Conclusions

While EPA determined that the final rule would lead to overall economic and environmental benefits, these effects are uncertain because of limited data and difficulty in determining how industrial companies will respond to the rule. Consistent with the relevant executive order and guidance, EPA conducted a limited analysis that determined that the rule was not economically significant, and OMB concurred. In addition, EPA identified data limitations that prevented the agency from conducting a more

[12]The anecdotes did not always include sufficient information to determine the magnitude of anticipated emissions changes after completing an energy efficiency project.

quantitative analysis. Some stakeholders disagree with EPA about the rule's effects, contending that the rule will allow companies to increase air pollutant emissions, resulting in adverse public health effects. If these stakeholders are correct, the final rule could exacerbate existing air pollution problems—133 million Americans already live in areas with air pollution levels above at least one of the health-based air quality standards—and impose negative economic impacts that EPA did not account for in its analysis of the rule.

Recommendations for Executive Action

Because of the lack of data and uncertainties about the NSR final rule's impacts, we recommend that the EPA Administrator:

- determine what data are available that the agency could use to monitor the emissions impacts of the rule,
- work with state and local air quality agencies to identify any additional data needs and possible ways to fill them, and
- use the monitoring results to determine whether the rule has created adverse effects that the agency needs to address.

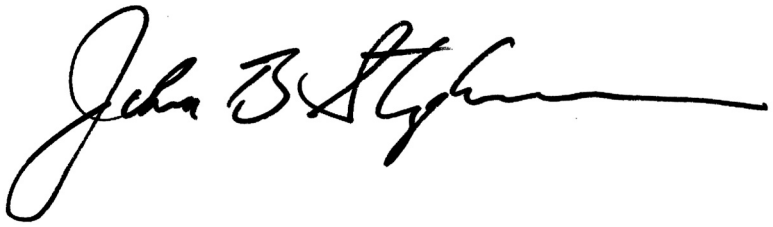
Agency Comments

We provided EPA and OMB with a draft of this report for review and comment. We subsequently received comments from both agencies. EPA said that the report was accurate and that the agency agreed with our conclusions and recommendation. OMB said that the report was accurate but raised several questions about EPA's potential implementation of the recommendation. Specifically, OMB said it would be difficult for EPA to gather data to monitor the rule's effects and that attributing emissions changes to the final rule would pose challenges. For example, OMB said that it would be difficult to determine the level of emissions facilities would have released in the absence of the final rule. EPA, however, said that the recommendation acknowledges these challenges and provides flexibility for the agency to work with state and local agencies to identify data collection strategies. EPA and OMB also recommended a number of technical changes to the report, which we have incorporated into this report as appropriate.

As agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution until 10 days from the report date. At that time, we will send copies to the EPA Administrator,

the Director, Office of Management and Budget, interested congressional committees, and other interested parties. We will also make copies available to others upon request. In addition, this report will be available at no charge on GAO's Web site at http://www.gao.gov.

If you or your staffs have any questions, please call me at (202) 512-3841. I can also be reached at StephensonJ@gao.gov. Key contributors to this report are listed in appendix II.



John B. Stephenson
Director, Natural Resources and Environment

Appendix I: Objectives, Scope, and Methodology

The Ranking Minority Member of the Senate Environment and Public Works Committee and Senator Lieberman asked us to determine the basis of (1) EPA's analysis of the economic impacts of the final rule and its conclusion that the rule would not create significant enough benefits or costs to merit a more detailed analysis and (2) EPA's conclusions that the NSR program (prior to the final rule) discouraged some energy efficiency projects.

To respond to the first objective, we used OMB and EPA guidance to review EPA's screening analysis of the final rule's economic impacts. EPA issued its guidance to ensure that its economic analyses comply with the Unfunded Mandates Reform Act of 1995 and Executive Order 12866. These directives require federal agencies to analyze the economic effects of rules that may impose annual costs on the government or private entities of more than $100 million. In addition to reviewing EPA, OMB, and other federal requirements and guidance on conducting economic analyses of proposed rules, we reviewed two additional EPA analyses of the final rule's effects, as well as documents from environmental groups, industry trade associations, and other interested parties related to the costs and benefits of the final rule. Furthermore, we met with the NSR program manager within EPA and other senior officials within the agency's Office of Air Quality Planning and Standards. We also met with senior OMB staff responsible for reviewing EPA's analysis within the Office of Information and Regulatory Affairs.

To respond to the second objective, we reviewed information provided to EPA by outside organizations that the agency relied on in preparing its findings on the NSR program's effects on energy efficiency projects at industrial companies. This information consisted of written comments, case-specific examples of foregone energy efficiency projects, and supplemental documentation submitted to EPA by individual firms, industry trade associations, and environmental advocacy groups during EPA's public comment period. We obtained documents through the EPA public docket A-2001-19, and directly from those companies and organizations who submitted information to EPA. We also obtained documents or conducted interviews with parties identified by EPA as the primary data sources underlying its energy efficiency findings, including representatives of the American Chemistry Council, the American Forest and Paper Association, the American Petroleum Institute, the American Public Power Association, British Petroleum, Detroit Edison, Duke Energy, the Edison Electric Institute, Excel Energy, Exxon Mobil, the National Coal Council, and the National Petrochemical & Refiners Association. Once we obtained anecdotes provided by the parties EPA

identified as its primary data sources, we removed those that did not pertain to the NSR program's effects on energy efficiency as well as those that did not provide sufficient information for analysis. We then reviewed the 69 remaining anecdotes to assess their anticipated effects on emissions. We did not independently verify the factual basis of the anecdotes. We also spoke with the Natural Resources Defense Council, a national environmental advocacy organization that disputed EPA findings. Finally, we spoke with the NSR program manager within EPA and another official within the agency's Office of Air Quality Planning and Standards who were responsible for the *Report to the President*.

We conducted our work between August 2002 and August 2003 in accordance with generally accepted government auditing standards.

Appendix II: GAO Contacts and Staff Acknowledgments

GAO Contacts

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In addition to the individuals named above Tim Guinane, David Hancock, and Michael Hix made key contributions to this report. Nancy Crothers, Karen Keegan, Jeffrey Larson, Judy Pagano, Lisa Turner, and Laura Yannayon also made important contributions.

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