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Air Quality and Electricity: Initiatives to Increase Pollution Controls

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Summary

Since the mid-1990s, EPA has initiated actions resulting in regulatory mandates and enforcement actions directed primarily at coal-fired electric generating utilities. These actions would, if implemented, substantially reduce air pollutants, particularly nitrogen oxides (NO_x). These initiatives include the Ozone Transport Rule (also called the NO_x SIP Call); a set of "Section 126 petitions" in which 12 states allege under Section 126 of the Clean Air Act (CAA) that pollutants originating in upwind states prevent their attainment of clean air standards; and a set of enforcement actions based on New Source Review (NSR) requirements of the CAA that have resulted in lawsuits against seven utilities in the Midwest and South and an administrative order against the Tennessee Valley Authority. While these are separate initiatives, they are related in that each ultimately focuses on emissions from utilities in the Midwest and South. As of January 22, 2001, the EPA has declared 11 states and the District of Columbia as failing to submit revised SIPs required under the Ozone Transport Rule; the EPA has approved four section 126 petitions; and two of the NSR lawsuits have resulted in consent decrees (Tampa Electric Co. and PSEG), and two others have been settled in principle (Virginia Power and Cinergy). Legislative activity focuses on developing a multi-pollutant strategy as an alternative to these piecemeal initiatives. This report will be updated as events warrant.

Background

Since the mid-1990s, EPA has initiated actions that have resulted in regulatory mandates and enforcement actions that would, if implemented, substantially reduce air pollutants (particularly nitrogen oxides – NO_x) emitted by some electric generating facilities. An Ozone Transport Assessment Group (OTAG), formed by EPA in May 1995, laid the groundwork for the regulatory initiatives; it directly led to the Ozone Transport Rule (also called the NO_x SIP Call). In a supplementary action, 12 states petitioned EPA under Section 126 of the CAA, concerning interstate pollution, alleging that NO_x originating in upwind states prevented their attainment of ozone standards. An EPA Office of Enforcement & Compliance Assurance audit of New Source Review (NSR)

applications required under provisions of the Clean Air Act (CAA) that began in late 1996 was the precursor to the enforcement initiative; it led in Nov. 1999 to lawsuits against seven utilities in the Midwest and South and an administrative order against the Tennessee Valley Authority alleging violations of NSR requirements of the CAA.¹

The first two initiatives, the Ozone Transport Rule and the Section 126 petitions, are related to each other substantively.² These initiatives would further control NO_x to assist states in the Northeast in meeting the existing, statutory 1-hour ozone National Ambient Air Quality Standard (NAAQS). The Ozone Transport Rule includes all or part of 19 eastern states and the District of Columbia. Based on the eight petitions EPA has ruled on, EPA's Section 126 determinations would involve a subset of the NO_x SIP Call's 19 states – 12 states and the District of Columbia.

The enforcement initiative is not legally or procedurally related to the above initiatives; however, the NSR enforcement action by EPA has substantive associations with them in that NO_x is a primary (but not sole) focus, and many of the utilities named as defendants in these cases would also have to reduce emissions under the NO_x SIP Call and Section 126 determinations. Unlike the other actions, the NSR action does not involve new regulatory action, but enforcement of existing law and regulations. As such, it is handled by the EPA's Office of Enforcement & Compliance Assurance, not a regulatory office, and involves other pollutants electric generators emit besides NO_x (specifically sulfur dioxide (SO₂) and particulates).

What is the Focus?

The primary focus of the regulatory initiatives and a primary effect of EPA's enforcement action is to reduce NO_x emissions in the eastern part of the United States. The environmental purpose for doing so is to reduce the interstate transportation of this ozone precursor, thus assisting localities along the eastern seaboard in attaining the ozone NAAQS. The actions would also mitigate acid rain. The initiatives and enforcement action by EPA focus on coal-fired electric generating facilities both because they are major sources of emissions – in 1997 they emitted 24% of the country's NO_x (and also 62% of its SO₂, 31% of its carbon dioxide (CO₂), and approximately one-third of the country's mercury (Hg)) – and because they represent the most cost-effective sources of large emission reductions for NO_x and SO₂.

In the case of the Section 126 determinations and the NSR enforcement action, coal-fired powerplants are explicitly targeted for emissions reductions. In the case of the NO_x

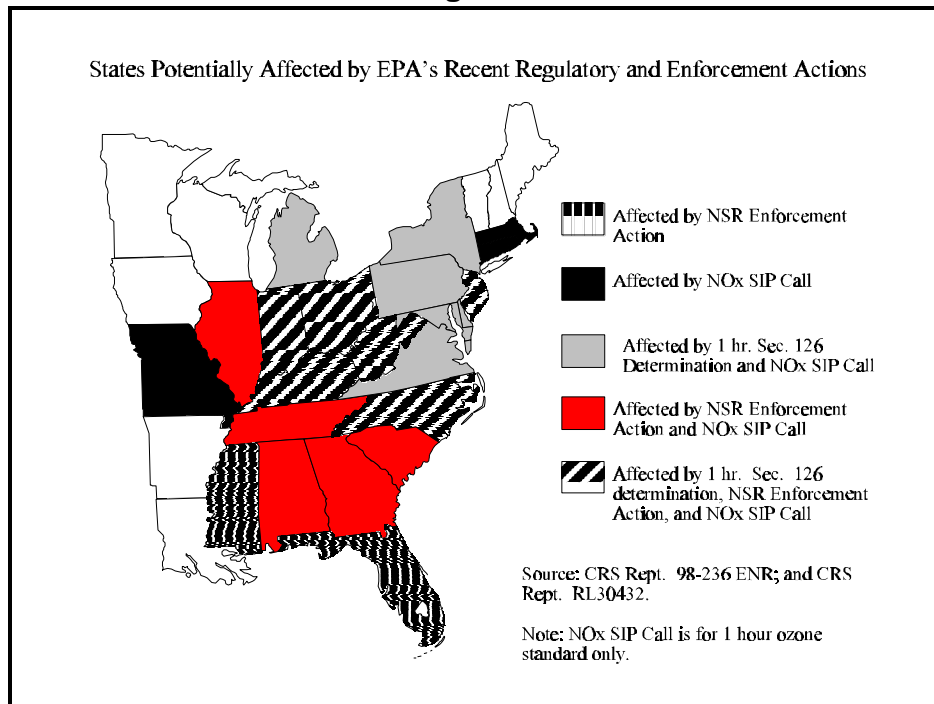
¹ For more details on the Ozone Transport Rule and Section 126 petitions, see CRS Report 98-236, *Air Quality: EPA's Ozone Transport Rule, OTAG, and Section 126 Petitions – A Hazy Situation?*, updated March 9, 2001. For more details on EPA's NSR action, see CRS Report RL30432, *Air Quality and Electricity: Enforcing New Source Review*.

² Until recently they were also linked administratively and procedurally through ties to another regulatory action by EPA – the 1997 promulgation of a new 8-hour National Ambient Air Quality Standard (NAAQS) for ozone. That linkage was broken by EPA when litigation temporarily halted implementation of the 8-hour standard. Some observers include the 8-hour standard as a related fourth initiative, but this report includes it only to the extent it is related to the NO_x SIP Call, the Section 126 petitions, and the enforcement action.

SIP call, EPA cannot explicitly target sources (that is the responsibility of each affected state), but the allocation scheme used by EPA to determine the allowable emissions budget for individual states is based primarily on substantial reductions from coal-fired powerplants. In general, the initiatives identified here would require affected powerplants to reduce their NO_x emissions by about 75%-85%. Although the Section 126 determinations and the NSR enforcement action target individual sources, EPA provides flexibility for utilities to achieve the mandated reduction by means other than simply installing NO_x control equipment on affected units. As indicated by EPA's NSR settlement with Tampa Electric discussed later, the consent decree involves several different NO_x control strategies to reduce NO_x emissions by over 85%, as well as controls to reduce SO₂ emissions by almost 80%, by the year 2010.

Figure 1 indicates the states affected by the initiatives identified here. In line with the initiatives' focus on coal-fired electric generating facilities, the Midwest is the primary location of affected powerplants. Five states – Indiana, Kentucky, North Carolina, Ohio, and West Virginia – would be affected by all three initiatives. In contrast, Mississippi and Florida have utilities targeted only under the NSR enforcement initiatives; Missouri, Connecticut, Rhode Island, and Massachusetts are targeted only under the Ozone Transport Rule. The other states have utilities targeted under the Ozone Transport Rule and either a Section 126 determination or NSR enforcement.

Figure 1



The costs and benefits of these initiatives could be substantial, as indicated by Table 1. The NO_x SIP Call is the most wide ranging of the initiatives, with estimated costs of \$1.7 billion annually and estimated quantifiable benefits of \$1.1-\$4.2 billion annually. Because EPA's methodology uses cost-effectiveness for determining emission budgets, the lion's share of the costs would be borne by the utility industry. The smaller scope of the Section 126 determinations reduces emissions abatement and benefits, but also costs.

Of course, this scope could increase if additional petitions submitted to EPA result in more states being implicated as sources of transported ozone. Finally, the evolving scope of EPA's NSR action makes estimates of its costs and benefits difficult, if not impossible, at this time.

Table 1. Estimated Costs and Benefits of Initiatives

	Estimated Emission Reductions (2007)	Estimated Costs (1990\$)	Estimated Quantifiable Benefits (1990\$)	Estimated Costs to Utilities (1990\$)
NOx SIP Call	NOx -1.14 million tons (ozone season)	\$1.7 billion	\$1.1-\$4.2 billion	\$1.4 billion
Section 126 Findings	NOx - 0.66 million tons (ozone season)	\$1.0 billion	\$1.2 billion	\$1.0 billion
NSR Action	NOx - n/a SO ₂ - n/a Particulates - n/a (annually)	n/a	n/a	n/a

n/a = not available

Source: CRS Report 98-236.

Recent Actions

Since January 2000 significant actions have occurred with all three of the initiatives. The status of these initiatives as of January 22, 2002, is summarized in Table 2. Perhaps the most significant action has been the decision of a 3-judge panel of the D.C. Circuit Court of Appeals to uphold EPA's Ozone Transport Rule with respect to the 1-hour ozone NAAQS (*Michigan v. EPA*, No. 98-1497 (D.C. Cir. March 3, 2000)), and to lift the stay on implementation. In upholding EPA's authority and methodology in developing the NOx SIP Call, the court did make some modifications; in particular, that EPA's methodology did not support the inclusion of Wisconsin or all of Missouri and Georgia in the Rule (a decision reflected in Figure 1). In lifting the stay, the court ordered affected states to submit revised SIPs within 4 months of its June 22, 2000, order. In a subsequent ruling issued August 30, 2000, the court ordered EPA to move its original May, 2003, compliance deadline to May 31, 2004. In December, 2000, EPA declared that 11 states and The District of Columbia failed to submit revised SIPs by the extended October 30th deadline. Sanctions will be imposed if the states do not submit revised SIPs within 18 months. In March 2001, the Supreme Court denied a hearing to opponents of the SIP Call, effectively affirming the appeals court decision.

None of these proceedings, however, affect the indefinite stay of EPA findings with respect to the 8-hour ozone standard. In February 2001, the Supreme Court ruled that although EPA has the authority to set a new 8-hour ozone standard, its interpretation of the relationship between the 1-hour standard's statutory implementation strategy and its new 8-hour standard implementation strategy was unreasonable and unlawful. The Court left it to EPA to "develop a reasonable interpretation" of the statutory provisions as they relate to the implementing the new 8-hour standard (*American Trucking Associations v. EPA*, 531 U.S. ____ (2001) decided February 27, 2001).

Table 2. Status of Initiatives

	Ozone Transport Rule	Section 126 Petitions	NSR Enforcement
1-hour Ozone Standard	Supreme Court denies hearing on SIP Call 3/5/01. Stay lifted by appeals court 6/22/00. EPA finds 11 states and D.C. failed to submit SIPs 11/19/00. Deadline for compliance moved to March 31, 2004	EPA granted 4 of original petitions, 1/18/00. D.C. Circuit Court of Appeals upholds EPA authority, 5/15/01. On 1/15/02, EPA announces it will delay compliance deadline until March 31, 2004	In February 2000, EPA and Tampa Electric announced agreement on a consent decree that would settle EPA's NSR suit with that utility. In November and December 2000, EPA announced agreements in principle with Virginia Power and Cinergy.
8-hour Ozone Standard	Appeals court granted EPA motion to stay 8-hour findings. Supreme Court rules EPA has authority to promulgate 8-hour standard, but that its implementation strategy is unlawful. EPA left to develop a "reasonable" alternative.	EPA has indefinitely stayed finding on original petitions, 1/18/00.	In January, 2002, EPA and PSEG announced the filing and settlement of a EPA/ State of New Jersey NSR suit.

With respect to the Section 126 petitions, EPA announced its 1-hour ozone findings on the 8 original petitions on January 18, 2000.³ EPA granted four of the eight petitions for the 1-hour ozone standard: Connecticut, Massachusetts, New York, and Pennsylvania. Petitions from four other states were denied as these states no longer had areas that were not in attainment with the 1-hour standard. The rule specifies NO_x allocations for 392 facilities in 12 states and the District of Columbia, and implemented through a cap-and-trade program. The D.C. Circuit Court of Appeals upheld EPA's authority to issue the rule on May 15, 2001, but ordered EPA to reconsider factors used in setting emission limits (*Appalachian Power Co. v. EPA*). EPA responded to the court's order on August 3, 2001. On January 15, 2002, the EPA announced it would delay the compliance deadline for the Section 126 rule from May 1, 2003 to May 31, 2004 in line with the deadline for the NO_x SIP Call. EPA argues that a court order issued August 24, 2001 had already suspended the compliance deadline for powerplants, and it would be unfair to make other emission sources meet an earlier deadline.

In January, 2000, EPA decided to indefinitely stay its original final determinations with respect to the 8-hour standard, given litigation regarding that standard. It also announced that findings with respect to petitions by the District of Columbia, Delaware, Maryland, and New Jersey would be determined in the future.

Since the filing of the NSR lawsuits in November 1999, several significant actions have occurred. First, in February 2000, EPA announced that it had come to an agreement with Tampa Electric Company on a consent decree that will settle the NSR lawsuit against that utility. The agreement will reduce NO_x emissions by over 85% (and SO₂ emissions by almost 80%) through a combination of fuel switching to natural gas, pollution control

³ Environmental Protection Agency, *Findings of Significant Contribution and Rulemaking on Section 126 Petitions for Purposes of Reducing Interstate Ozone Transport: Final Rule*, 65 *Federal Register* 2675-2767, January 18, 2000.

equipment optimization, and other techniques. The estimated \$1 billion program is expected by Tampa Electric to have a “small” impact on its customers’ bills.⁴

Second, additional waves of enforcement actions began in March 2000. In March 2000, the Justice Department expanded the lawsuits to include another 12 facilities owned by three of the defendants – American Electric Power, Cinergy, and Southern Company.⁵ This action was followed in April with EPA issuing a NSR-related notice of violation against Virginia Power’s Mount Storm plant, and in May against eight Duke Power facilities. In December 2000, EPA sued Duke Energy for NSR violations at eight coal-fired powerplants. These actions bring the total number of electric utility plants covered by the lawsuits to 38 in 12 states.

Third, on November 16, 2000, EPA and Virginia Power announced that an “agreement in principle” had been reached to settle EPA’s NSR suit against Virginia Power. Over 12 years, Virginia will spend \$1.2 billion to reduce NO_x and SO₂ emissions by about 70% through a combination of pollution control equipment and fuel switching. This announcement was followed on December 21, 2000 by a similar agreement in principle between EPA and Cinergy involving a \$1.4 billion investment in control technology.

Fourth, on January 24, 2002, EPA and the State of New Jersey announced the filing and settlement of a NSR suit against PSEG Fossil LLC. PSEG agreed to reduce its SO₂ emissions by 90%, its NO_x emissions by 83% from 2000 levels by 2012 at an estimated cost of \$337 million. In addition, PSEG agreed to reduce CO₂ emissions by 15% from 1990 levels.

Congressional Actions

The continuing difficulties in the Northeast both in meeting the ozone NAAQS and in reducing acid precipitation have focused attention on emissions from fossil fuel-fired utilities, particularly of NO_x – and on the potential costs of reducing those emissions. The interplay among these concerns came to a head when EPA promulgated new, more stringent ozone and particulate NAAQSs in 1997. The Congress tracked the unfolding of the NO_x SIP Call, the Section 126 petitions, and the NSR enforcement activity primarily through briefings and correspondence with EPA. However, the piecemeal efforts to address NO_x and other air emissions remain a concern. Since May, 2000, the Senate Environment and Public Works Committee has held several hearings on possible comprehensive, multi-pollutant strategies as alternatives to these piecemeal initiatives. Chairman Jeffords announced that the Committee intends to go to markup on multi-pollutant legislation early in the 2nd session of the 107th Congress.⁶

⁴ Tampa Electric, “Tampa Electric Reaches Agreement with EPA, Department of Justice on Environmental Issues,” [<http://www.tampaelectric.com/energy/ENEPAagrmnt.html>].

⁵ Environmental Protection Agency, “U.S. Expands Clean Air Act Lawsuit Against Electric Utilities,” March 1, 2000.

⁶ For a review of proposed legislation, see Larry Parker, *Electricity and Air Quality: Comparison of Proposed Multi-pollutant Legislation*, CRS Report RS20894, April 18, 2001.