

# CRS Report for Congress

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## **Clean Air Act Issues in the 109th Congress**

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## Summary

The courts and the executive branch have faced major decisions on clean air issues in 2006, with Congress playing a limited role. One focus has been the EPA Administrator's September 21, 2006 decision regarding air quality standards for fine particles. According to EPA and the consensus of the scientific community, current concentrations of fine particles cause tens of thousands of premature deaths annually. The Administrator's September 21 decision will strengthen the standards; according to the agency, it will reduce premature mortality by 1,200 - 13,000 persons annually. However, many are unhappy that the new standard will not be more stringent — for the first time ever, it falls outside of a range recommended by the Clean Air Scientific Advisory Committee (CASAC), an independent body established by the Clean Air Act to provide expert scientific advice. On September 29, the seven members of CASAC stated that the Administrator's decision does not provide an adequate margin of safety requisite to protect the public health.

In 2005, Congress acted on several Clean Air Act (CAA) issues in legislation that it passed and sent to the President. The most significant of these issues, dealing with ethanol and reformulated gasoline (RFG), were addressed in the Energy Policy Act of 2005, H.R. 6 (P.L. 109-58). Congress also amended the Clean Air Act in H.R. 3 (P.L. 109-59), the transportation bill that the President signed August 10, 2005. H.R. 3 modified the requirement that state and local transportation planners demonstrate conformity between their transportation plans and the timely achievement of air quality standards.

Other Clean Air Act amendments have stalled. A bill that would have established a cap-and-trade program for emissions of sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), and mercury from coal-fired electric power plants (S. 131) was among the first items on the agenda of the 109<sup>th</sup> Congress: entitled the Clear Skies Act, the bill was scheduled for markup by the Senate Environment and Public Works Committee March 9, 2005. But the committee failed to approve it on a 9-9 tie vote, in large part because of complaints that the bill would weaken existing Clean Air Act requirements. Another issue in the debate was whether to cap emissions of the greenhouse gas carbon dioxide (CO<sub>2</sub>) in addition to the other three pollutants. With Clear Skies stalled, EPA finalized the Clean Air Interstate Rule (CAIR), which will cap emissions of SO<sub>2</sub> and NO<sub>x</sub> from power plants in 28 eastern states and the District of Columbia and establish a cap-and-trade system through regulation.

A deadline for mercury regulations helped drive the Clear Skies debate: EPA faced a judicial deadline of March 15, 2005, to promulgate standards for power plant mercury emissions. The agency met this deadline, but the specific regulations have been widely criticized. A resolution to "disapprove" (overturn) the regulations under the Congressional Review Act (S.J.Res. 20) was defeated on a vote of 51-47, September 13, 2005, but the courts have yet to rule on challenges filed by 15 states and other groups. Whether to modify other requirements of the Clean Air Act (New Source Review, deadlines for nonattainment areas, and provisions dealing with interstate air pollution) have also been contentious issues. This report replaces CRS Issue Brief IB10137, *Clean Air Act Issue in the 109<sup>th</sup> Congress*.

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# Clean Air Act Issues in the 109th Congress

## Introduction

Despite steady improvements in air quality in many of the United States' most polluted cities, the goal of clean air continues to elude the nation. The most widespread problems involve ozone and fine particles. As of March 2006, 158 million people lived in areas classified "nonattainment" for the ozone National Ambient Air Quality Standard<sup>1</sup>; 88 million lived in areas that were nonattainment for fine particles (PM<sub>2.5</sub>).<sup>2</sup>

Air quality has improved substantially since the passage of the Clean Air Act in 1970: annual emissions of the six most widespread ("criteria") air pollutants have declined 160 million tons (53%), despite major increases in population, motor vehicle miles traveled, and economic activity.<sup>3</sup>

Meanwhile, however, scientific understanding of the health effects of air pollution has caused EPA to tighten standards for ozone and fine particles. (Fine particles, as defined by EPA, consist of particulate matter 2.5 micrometers or less in diameter, abbreviated as PM<sub>2.5</sub>.) The agency attributes at least 33,000 premature deaths and millions of lost work days annually to exceedances of the PM<sub>2.5</sub> standard. Recent research has begun to tie ozone pollution to premature mortality as well. Thus, there is continuing pressure to tighten air quality standards: a tightening of the standard for fine particles was finalized September 21, 2006. Ozone standards are scheduled for review in 2007, with a final decision due by February 2008. And attention has focused on major sources of ozone and particulate pollution, such as coal-fired power plants and mobile sources.

With this background in mind, the bulk of this report provides an overview of seven prominent air issues of interest in the 109<sup>th</sup> Congress: revision of the particulate standards; multi-pollutant (or Clear Skies) legislation for electric power plants; mercury from power plants; New Source Review; the gasoline additives MTBE and ethanol; ozone nonattainment area deadlines; and the "conformity" of transportation and clean air planning. This report (formerly an Issue Brief) provides an overview:

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<sup>1</sup> Data for ozone nonattainment areas are from the U.S. EPA "Green Book," at [<http://www.epa.gov/oar/oaqps/greenbk/gntc.html>].

<sup>2</sup> Data for PM<sub>2.5</sub> nonattainment areas are also from the U.S. EPA "Green Book," at [<http://www.epa.gov/oar/oaqps/greenbk/qntc.html>].

<sup>3</sup> See U.S. EPA, "Air Emission Trends — Continued Progress Through 2005," at [<http://www.epa.gov/airtrends/econ-emissions.html>].

most of these issues are addressed at greater length in separate CRS reports, which contain more information and detailed sources. The CRS reports are referenced in the appropriate sections.

## Revision of the Particulate Standards

On September 21, 2006, EPA Administrator Stephen Johnson signed revisions to the National Ambient Air Quality Standards (NAAQS) for particulate matter. (The standards appeared in the *Federal Register* on October 17.<sup>4</sup>) EPA reviewed 2,000 scientific studies on particulates in developing the revision, and found associations between particulates and numerous significant health problems, including aggravated asthma, chronic bronchitis, reduced lung function, irregular heart beat, heart attacks, and premature death in people with heart or lung disease.

The revisions would strengthen the pre-existing standard for particulate matter 2.5 micrometers or less in diameter (known as fine particles or PM<sub>2.5</sub>), but the standard will not be strengthened to the degree recommended by the agency's staff or scientific advisors. As shown in Table 1, the new standard will cut the allowable concentration of PM<sub>2.5</sub> in the air averaged over 24-hour periods from 65 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) to 35  $\mu\text{g}/\text{m}^3$ ; the annual standard, currently set at 15  $\mu\text{g}/\text{m}^3$ , will not be changed.

**Table 1. Pre-Existing, Recommended, and New NAAQS for PM<sub>2.5</sub>**

	Annual Standard	24-Hour Standard
Pre-Existing Standards <sup>a</sup>	15 $\mu\text{g}/\text{m}^3$	65 $\mu\text{g}/\text{m}^3$
EPA Staff Recommendation	15 $\mu\text{g}/\text{m}^3$ and mid to lower end of 25-35 $\mu\text{g}/\text{m}^3$ OR 12-14 $\mu\text{g}/\text{m}^3$ and mid to lower end of 30-40 $\mu\text{g}/\text{m}^3$	
CASAC Recommendation	13 to 14 $\mu\text{g}/\text{m}^3$	30 to 35 $\mu\text{g}/\text{m}^3$
Administrator's Decision	15 $\mu\text{g}/\text{m}^3$	35 $\mu\text{g}/\text{m}^3$

- a. Although these standards were promulgated in 1997, they are only now coming into effect, because of legal challenges, the need to establish a monitoring network, and various administrative factors. For additional information on implementation of the current standard, see CRS Report RL32431, *Particulate Matter (PM<sub>2.5</sub>): National Ambient Air Quality Standards (NAAQS) Implementation*, by Robert Esworthy.

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<sup>4</sup> 71 *Federal Register* 61144. EPA's website also contains a wealth of information related to the standards, at [<http://epa.gov/pm/actions.html>], including an 8-page fact sheet explaining the standards and maps and charts with background material.

EPA's professional staff and the Clean Air Scientific Advisory Committee (CASAC), a group established by the Clean Air Act to provide independent scientific advice to the Administrator, had recommended stronger standards. CASAC endorsed a 24-hour standard in the range of 30 to 35  $\mu\text{g}/\text{m}^3$  and an annual standard in the range of 13 to 14  $\mu\text{g}/\text{m}^3$ . Twenty of the CASAC panel's 22 members concurred in the recommendation.

In the Administrator's judgment, the science underlying this recommendation was not sufficient, relying primarily on two studies, neither of which "provide[s] a clear basis for selecting a level lower than the current standard...."<sup>5</sup> The Administrator agrees with CASAC that the science shows a relationship between higher levels of  $\text{PM}_{2.5}$  and an array of adverse health effects, but he believes there is too much uncertainty in the analysis to justify lowering the annual standard.<sup>6</sup> He also noted that EPA is undertaking substantial research to clarify which aspects of PM-related pollution are responsible for elevated risks of mortality and morbidity, including a multi-million dollar research program whose timeline should permit the results to inform the Agency's next periodic reevaluation of the  $\text{PM}_{2.5}$  standard, required by statute within five years. Thus, he concluded, "...it would be wiser to consider modification of the annual standard with a fuller body of information in hand than initiate a change in the annual standard at this time."<sup>7</sup>

The PM NAAQS also addresses slightly larger, but still inhalable particles, in the range of 10 to 2.5 micrometers. These are referred to as thoracic coarse particles, or  $\text{PM}_{10-2.5}$ . In its last review of the particulate standards (in 1997), EPA had regulated these as particles 10 microns or smaller ( $\text{PM}_{10}$ ), a category that overlapped the  $\text{PM}_{2.5}$  category. Challenged in the D.C. Circuit Court of Appeals, the  $\text{PM}_{10}$  standard was remanded to EPA, the court having concluded that  $\text{PM}_{10}$  is a "poorly matched indicator" for thoracic coarse particles, because it includes the smaller  $\text{PM}_{2.5}$  category as well as the larger particles. In response, earlier this year, EPA proposed a 24-hour standard for  $\text{PM}_{10-2.5}$ . The standard would have been set at a level of 70  $\mu\text{g}/\text{m}^3$ , compared to the current 24-hour  $\text{PM}_{10}$  standard of 150  $\mu\text{g}/\text{m}^3$ . The final standards signed by the Administrator September 21 reversed course, leaving in place the current form of the standard ( $\text{PM}_{10}$ ) and the current level (150  $\mu\text{g}/\text{m}^3$ ). The only change to the  $\text{PM}_{10}$  standard was revocation of its *annual* component. The agency argues that it has provided more thorough reasoning in support of the use of  $\text{PM}_{10}$  as its coarse particle indicator, and believes that its explanation will satisfy the court.

**CASAC's Views.** The Administrator's decisions represent the first time in CASAC's nearly 30-year history that the promulgated standards fall outside of the range of the scientific panel's recommendations. In a letter dated September 29, the 7 members of CASAC objected to the Administrator's actions, both as regards  $\text{PM}_{10}$  and  $\text{PM}_{2.5}$ . With regard to  $\text{PM}_{2.5}$ , the letter stated: "CASAC is concerned that EPA did not accept our finding that the annual  $\text{PM}_{2.5}$  standard was not protective of human

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<sup>5</sup> U.S. EPA, National Ambient Air Quality Standards for Particulate Matter, Proposed Rule, Preamble, 71 *Federal Register* 2651, January 17, 2006.

<sup>6</sup> See discussion beginning at 71 *Federal Register* 61172, October 17, 2006..

<sup>7</sup> 71 *Federal Register* 2652, January 17, 2006.

health and did not follow our recommendation for a change in that standard.”<sup>8</sup> The letter noted that *“there is clear and convincing scientific evidence that significant adverse human-health effects occur in response to short-term and chronic particulate matter exposures at and below 15 µg/m<sup>3</sup>,”* and noted that 20 of the 22 Particulate Matter Review Panel members, including all seven members of the statutory committee, were in “complete agreement” regarding the recommended reduction. *“It is the CASAC’s consensus scientific opinion that the decision to retain without change the annual PM<sub>2.5</sub> standard does not provide an ‘adequate margin of safety ... requisite to protect the public health’ (as required by the Clean Air Act) ....”*<sup>9</sup>

With regard to PM<sub>10</sub>, the letter stated that CASAC was “completely surprised” at the decision to revert to the use of PM<sub>10</sub> as the indicator for coarse particles, noting that the option of retaining the existing daily PM<sub>10</sub> standard was not discussed during the advisory process and that CASAC views this decision as “highly problematic.”

The Administrator is not required by statute to follow CASAC’s recommendations; but CASAC’s objections and its description of its recommendations as *“consistent with the mainstream scientific advice that EPA received from virtually every major medical association and public health organization that provided their input to the Agency”*<sup>10</sup> could contribute to a sense that the Administrator’s decision was arbitrary and capricious. Legal challenges by states and by environmental and public health groups are expected. CASAC’s detailed objections to the Administrator’s decisions could play an important role in these challenges.

**Impacts of the New Standard.** EPA is prohibited from taking cost into account in setting NAAQS, but in order to comply with an Executive Order, the agency has produced a Regulatory Impact Analysis (RIA) analyzing in detail the costs and benefits of the new PM standards.<sup>11</sup> The agency estimates that compliance with the new PM<sub>2.5</sub> standard will prevent 1,200 to 13,000 premature deaths annually, as well as substantial numbers of hospital admissions and missed work or school days due to illness.<sup>12</sup> Critics of the rule argue that as many as 30,000 premature deaths could be avoided annually if the Administrator had chosen the more stringent

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<sup>8</sup> Letter of Rogene Henderson et al. to Hon. Stephen L. Johnson, EPA Administrator, September 29, 2006, available at [<http://www.epa.gov/sab/pdf/casac-ltr-06-003.pdf>].

<sup>9</sup> Ibid. Italics in original.

<sup>10</sup> Ibid. Italics in original.

<sup>11</sup> [<http://epa.gov/pm/actions.html>].

<sup>12</sup> See “Regulatory Impact Analysis of EPA’s Final Revisions to the National Ambient Air Quality Standards for Particle Pollution (Particulate Matter),” Fact Sheet, p. 2, at Ibid. The agency actually produced three sets of benefit numbers, based on three different studies, and different agency documents provide varying estimates. The study on which the agency seems to have placed the greatest emphasis, a study done for the American Cancer Society, was used to estimate that 2,500 premature deaths would be avoided. The other two studies would have produced higher benefit numbers. The Harvard Six-City Study, for example, was used to estimate a reduction of 5,700 premature deaths annually, and an expert elicitation produced a mean estimate of 7,000 premature deaths reduced.

standards endorsed by CASAC.<sup>13</sup> The higher estimate is based on an “Expert Elicitation” conducted for EPA and released on the same day the Administrator signed the new NAAQS.<sup>14</sup>

**Table 2. Estimated Costs and Benefits  
of EPA’s New PM<sub>2.5</sub> Standards**  
(\$ billion)

Basis of Benefit Estimate	Cost	Benefits
American Cancer Society Study	\$5.4	\$15 - \$17
EPA Expert Elicitation	\$5.4	\$8 - \$76

**Source:** EPA Regulatory Impact Analysis

The agency’s RIA estimates the cost of meeting the new standards at \$5.4 billion annually in 2020, and provides a range of benefit estimates (from \$8 billion to \$76 billion annually, depending on the number of avoided deaths, the choice of discount rate, and other factors). A more stringent alternative (reducing the annual standard to 14 µg/m<sup>3</sup>) would increase the cost by about 50%, to \$7.9 billion annually, according to the agency, but would nearly double the estimated benefits.<sup>15</sup> Thus, the benefit-cost ratio would be more favorable, according to the agency’s analysis, had the Administrator chosen the more stringent standard.

Using the most recent available monitoring data, the agency identified 141 counties where air quality is worse than allowed under the new standards. Observed on a map, these areas can seem small compared to the approximately 3,000 counties in the United States, but two factors make the impact of the standards far larger. First, the number of counties where emissions will need to be controlled may be 2 or 3 times the number of those exceeding the standard, since “nonattainment areas” include both counties where pollutant concentrations exceed the standard, and those that *contribute* to exceedance of the standard in adjoining counties. Entire metropolitan areas tend to be designated nonattainment, even if only one county in the area has readings worse than the standard. Second, the nonattainment counties tend to have larger populations than those in attainment: 88 million people (about 30% of the U.S. population) live in the 208 counties designated nonattainment for the

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<sup>13</sup> “Stronger Soot Rule Could Avert 30,000 Premature Deaths — EPA Report,” *E&E News PM*, September 22, 2006.

<sup>14</sup> Industrial Economics, Incorporated, *Expanded Expert Judgment Assessment of the Concentration-Response Relationship Between PM<sub>2.5</sub> Exposure and Mortality*, Cambridge, MA, September 21, 2006.

<sup>15</sup> U.S. EPA, *Regulatory Impact Analysis of the 2006 National Ambient Air Quality Standards for Fine Particle Pollution (PM<sub>2.5</sub>)*, Table ES-1, available at [<http://epa.gov/pm/actions.html>].



current standard. The new standard may affect an even larger percentage of the population.

**Implementation of the NAAQS.** A NAAQS does not directly limit emissions; rather, it represents the EPA Administrator's formal judgment regarding the level of ambient pollution that will protect public health with an adequate margin of safety. Promulgation of a NAAQS sets in motion a process under which the states and EPA first identify nonattainment areas. After these areas are formally designated (a process EPA estimates will take until April 2010 for the revised PM<sub>2.5</sub> standard), the states have three years to submit State Implementation Plans (SIPs) that identify specific regulations and emission control requirements that will bring the area into attainment. Attainment of the revised standard is to be achieved by 2015, according to EPA, with a possible extension to 2020.

**Issues.** A number of issues were raised during consideration of the proposed standards, and most remain in the wake of the Administrator's decision. Those who would like to see stronger standards (including a number of states and environment and health groups) have focused on the agency's disregard of CASAC's recommendation that the annual PM<sub>2.5</sub> standard be strengthened. Some industrial and agricultural interests, on the other hand, are questioning the agency's strengthening of the standard for *all* fine particles, without distinguishing their source or chemical composition. The agency's response to this is that "... studies suggest that many different chemical components of fine particles and a variety of different types of source categories are all associated with, and probably contribute to, mortality, either independently or in combinations."<sup>16</sup> These and other issues may be raised in court challenges or in congressional oversight. The Clean Air Subcommittee of the Senate Environment and Public Works Committee held oversight hearings on the PM proposal, July 13 and July 19, 2006.

(For a more detailed discussion of the new NAAQS, see CRS Report RL33254, *Air Quality: EPA's 2006 Changes to the Particulate Matter (PM) Standard*, by Robert Esworthy and James McCarthy.)

## Clear Skies/Multi-Pollutant Legislation

A major focus of congressional attention in the first session of the 109th Congress was whether to take action on the Clear Skies Act, a bill that would regulate multiple pollutants from coal-fired electric power plants. A tie vote in the Senate Environment and Public Works Committee blocked a Senate version of the bill, S. 131, from advancing to the Senate floor, March 9, 2005. The committee's 9-9 vote brought to an end, probably for the remainder of the Congress, further attempts to find a compromise on Clear Skies amendments. Earlier markups of Clear Skies, scheduled for February 16, March 2, and March 3, 2005, had been postponed so that Senators could undertake discussions aimed at crafting a compromise. The bill

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<sup>16</sup> EPA Office of Research and Development, *Air Quality Criteria for Particulate Matter*, p. 9-31, as cited in Section II.C. of the Preamble to the Final Particulate Rule. See 71 *Federal Register* 61162 et seq., October 17, 2006, for additional discussion.

would have significantly amended the Clean Air Act to establish a cap-and-trade system for emissions from electric power plants and other sources of air pollution, while eliminating or deferring numerous existing regulations affecting those sources.

Coal-fired power plants are among the largest sources of air pollution in the United States. Under the Clean Air Act, they are not necessarily subject to stringent requirements. Emissions and the required control equipment can vary depending on the location of the plant, when it was constructed, whether it has undergone major modifications, the specific type of coal it burns, and, to some extent, the vagaries of EPA enforcement policies. More than half a dozen separate Clean Air Act programs could potentially be used to control emissions, which makes compliance strategy complicated for utilities and difficult for regulators. And, since the cost of the most stringent available controls, for the entire industry, could range into the tens of billions of dollars, utilities have fought hard and rather successfully to limit or delay regulation.

As a result, emissions from power plants have not been reduced as much as those from some other sources. Many plants built in the 1950s or 1960s (generally referred to as “grandfathered” plants) have little emission control equipment. Collectively, these plants are large sources of pollution. In 2003, power plants accounted for nearly 11 million tons of sulfur dioxide (SO<sub>2</sub>) emissions (69% of the U.S. total), about 45 tons of mercury emissions (more than 40% of the U.S. total), and nearly 4.5 million tons of nitrogen oxides (22% of the U.S. total). Power plants are also considered major sources of fine particles (PM<sub>2.5</sub>) and account for about 40% of U.S. anthropogenic emissions of the greenhouse gas carbon dioxide.

An example of their importance was seen in the August 2003 Northeast blackout. With about 100 power plants (most of them coal-fired) shut down, researchers found that ambient levels of SO<sub>2</sub> and ozone were 90% and 50% lower, respectively, in blacked-out areas.

With new ambient air quality standards for ozone and fine particles taking effect, emissions of NO<sub>x</sub> (which contributes to the formation of ozone) and SO<sub>2</sub> (which is among the sources of fine particles) need to be reduced to meet standards. Mercury emissions have also been a focus of concern: 44 states have issued fish consumption advisories for mercury, covering 13 million acres of lakes, 765,000 river miles, and the coastal waters of 12 entire states. The continuing controversy over the interpretation of New Source Review requirements for existing power plants (discussed at greater length in a separate section below) is also exerting pressure for a more predictable regulatory structure.

Thus, many in industry, environmental groups, Congress, and the Administration agree that the time is ripe for legislation that addresses power plant pollution in a comprehensive (multi-pollutant) fashion. Such legislation (the Administration version of which is dubbed “Clear Skies”) would address the major pollutants on a coordinated schedule, and would rely, to a large extent, on a system like that used in the acid rain program, where national or regional caps on emissions are implemented through a system of tradeable allowances. The key questions have been how stringent the caps should be, and whether carbon dioxide (CO<sub>2</sub>) will be among the emissions subject to a cap.

Regarding the stringency issue, Clear Skies and other bills introduced in this Congress would require reduction of NO<sub>x</sub> emissions to somewhere between 1.5 and 1.8 million tons per year (a 70%-80% reduction from 1998 levels) and reduction of sulfur dioxide emissions to 2.0-3.0 million tons per year (also a reduction of 70%-80% versus 1998). Regarding mercury, the bills would either require EPA to determine the level of reductions, or require reductions of 70%-90% from current levels of emissions (from 45 to somewhere between 5 and 15 tons annually, depending on the bill).

In the most stringent of the bills (Senator Jeffords' S. 150 and Representative Waxman's H.R. 1451), these reductions would take place by 2009 or 2010 (depending on the pollutant). The Jeffords and Waxman bills would also set caps on CO<sub>2</sub> emissions. (For additional information and a detailed comparison of the legislative proposals, see CRS Report RL32755, *Air Quality: Multi-Pollutant Legislation in the 109<sup>th</sup> Congress*, by Larry Parker and John Blodgett.)

The Clear Skies bill (S. 131) envisions less stringent standards than those in most other bills, phased in over a much longer period of time. For NO<sub>x</sub>, the bill would reduce emissions to 1.79 million tons per year, but not until 2018; an intermediate limit of 2.19 million tons would be imposed in 2008. For sulfur dioxide, the limit would be 3.0 million tons annually, also in 2018, with an intermediate limit of 4.5 million tons in 2010. For mercury, the limit would be 34 tons per year in 2010, declining to 15 tons in 2018. (In negotiations over S. 131, Senators Voinovich and Inhofe offered to change the Phase 2 deadlines under Clear Skies to 2016, and to implement a Phase 3 SO<sub>2</sub> cap of 2.5 million tons in 2018.)

Because the deadlines are far in the future, the Administration's analysis of Clear Skies shows that utilities would be likely to "overcomply" in the early years of the program. The Administration uses this as a selling point for its approach, arguing that it will achieve reductions sooner than would a traditional regulatory approach with the same deadlines. But overcompliance in the early years would lead to "banked" emission allowances; these could be used in later years to delay achievement of required reductions. In its analysis of the bill, EPA does not expect to see the full 70% emission reductions until 2026 or later, a point seized upon by its opponents to support a more aggressive approach.

In return for establishing its new cap-and-trade program, Clear Skies would also eliminate or restrict numerous existing Clean Air Act requirements with respect to electric generating units, including New Source Review, New Source Performance Standards, Prevention of Significant Deterioration, Lowest Achievable Emission Rate standards, Best Available Retrofit Technology, and Maximum Achievable Control Technology regulations for mercury. It would allow sources in other industries to opt into the cap-and-trade program, and escape existing Clean Air Act controls. It would remove deadlines for local areas to achieve ozone and particulate standards under certain conditions, and make it more difficult for nonattainment areas to challenge interstate sources of air pollution. The other bills generally would leave these existing controls in place. (For a more thorough discussion of how Clear Skies would change the Clean Air Act, see CRS Report RL32782, *Clear Skies and the Clean Air Act: What's the Difference?*, by Larry Parker and James McCarthy.)

Clear Skies includes no cap on CO<sub>2</sub> emissions. It is a three-pollutant (SO<sub>2</sub>, NO<sub>x</sub>, mercury) bill, whereas most competing bills have addressed four pollutants (the three plus CO<sub>2</sub>). The Administration views controls on CO<sub>2</sub> as a step toward implementing the Kyoto Protocol to the United Nations Framework Convention on Climate Change, which it opposes for a variety of reasons, principally the potential economic impacts on U.S. industries.

The absence of CO<sub>2</sub> from the mix leads to different strategies for achieving compliance, preserving more of a market for coal, and lessening the degree to which power producers might switch to natural gas or renewable fuels as a compliance strategy. In its opposition to CO<sub>2</sub> controls, the Administration is supported by most in the utility and coal industries. Others, mostly outside these industries but including some utilities, view CO<sub>2</sub> controls as inevitable, if not desirable, and support simultaneous implementation of cap-and-trade programs for CO<sub>2</sub> and the other pollutants.

Although stalled for the previous three years, Clear Skies was set for early consideration in the 109<sup>th</sup> Congress by the Senate Environment and Public Works Committee; but the opposing sides were not able to reach a consensus and the bill failed on a tie vote on March 9, 2005. The House has taken no action, other than an Energy and Commerce subcommittee hearing, May 26, 2005.

In negotiations preceding the Senate committee vote, there was some movement toward a compromise. On the Republican side, there were offers to move the deadlines for Phase 2 caps forward two years (from 2018 to 2016) and to add a third phase for SO<sub>2</sub>; a mechanism for addressing mercury hot spots was added; and adjustments to the provisions on interstate transport of pollution were offered. The opponents of the bill (who included all the committee Democrats, plus Senators Jeffords and Chafee) conceded that a bill with stringent CO<sub>2</sub> caps would not pass, and were willing to accept some less stringent provisions on that score. These compromises proved insufficient to bridge the gap. Whether they might serve as a basis for further discussions and action later in the Congress now appears doubtful.

Immediately following the vote, on March 10, 2005, EPA announced that it would promulgate final regulations for utility emissions of SO<sub>2</sub> and NO<sub>x</sub> in 28 eastern states and the District of Columbia through its Clean Air Interstate Rule (CAIR).<sup>17</sup> The cap-and-trade provisions of CAIR mimic those of Clear Skies, but CAIR does not allow EPA to remove existing Clean Air Act requirements, as Clear Skies would. Under CAIR, EPA projects that nationwide emissions of SO<sub>2</sub> will decline 53% by 2015, and NO<sub>x</sub> emissions will decline 48%. The agency also projects that the rule will result in \$85-\$100 billion in health benefits annually by 2015, including the prevention of 17,000 premature deaths annually.<sup>18</sup> CAIR's health and environmental benefits are more than 25 times greater than its costs, according to EPA. (For additional information on the CAIR rule, see CRS Report RL32927, *Clean Air Interstate Rule: Review and Analysis*, by Larry Parker.)

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<sup>17</sup> The rule appeared in the *Federal Register* on May 12, 2005 (70 FR 25162).

<sup>18</sup> U.S. EPA, Office of Air and Radiation, "Clean Air Interstate Rule — Basic Information," available at [<http://www.epa.gov/interstateairquality/basic.html>].

Finally, one of the issues raised by opponents of Clear Skies has been EPA's reluctance to conduct a cost-benefit analysis of the competing bills. On October 27, 2005, the agency responded to this criticism by producing an analysis of the costs and benefits of Clear Skies and two Senate bills: Senator Jeffords' S. 150, and Senator Carper's 108<sup>th</sup> Congress bill.<sup>19</sup> (The Carper bill that was analyzed was S. 843 from the 108th Congress. Subsequent to EPA's analysis, on May 4, 2006, Senator Carper introduced a new bill, S. 2724.)

The EPA analysis found significant benefits that exceed costs for all three bills, but it started from a baseline that did not include three recently promulgated regulations — notably the CAIR rule, whose requirements and benefits are similar to those of Clear Skies. Adjusting for the three regulations, one finds that Clear Skies would have negligible incremental costs and added benefits of \$6 billion in 2010 and \$3 billion in 2020. For the same years, Senator Carper's bill would have annual net benefits 8 and 5 times as great as Clear Skies at annual costs of \$4.2 billion in 2010 and \$3 billion in 2020, and Senator Jeffords' bill would have annual net benefits 10 and 16 times those of Clear Skies at annual costs of \$23.6 billion (in 2010) and \$18.1 billion (in 2020). The analysis contains a number of assumptions that have substantial impacts on the results; for a more complete discussion, see CRS Report RL33165, *Costs and Benefits of Clear Skies: EPA's Analysis of Multi-Pollutant Clean Air Bills*, by James E. McCarthy and Larry B. Parker.

## Mercury from Power Plants

On March 15, 2005, EPA also finalized through regulation a cap-and-trade program for mercury emissions from electric utilities.<sup>20</sup> The mercury regulations (which, like CAIR, mimic the requirements of Clear Skies) rely almost entirely on co-benefits of the CAIR rule. The agency's analysis of the mercury rule finds that less than 1% of coal-fired power plant capacity would install pollution control equipment specifically designed to control mercury within 10 years as a result of the mercury rule. By 2020, only 4% of capacity would have such equipment.

EPA reversed course several times before choosing its final approach to mercury regulation. The agency was required by the terms of the 1990 Clean Air Act Amendments and a 1998 consent agreement to determine whether regulation of mercury from power plants under Section 112 of the Clean Air Act was appropriate

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<sup>19</sup> Rather than a single document, the agency actually released a group of 45 documents: an 18-page "Comparison Briefing"; a 4-page table comparing the options; separate analyses of each of the six options; and 37 background documents. This group of 45 documents is the agency's cost-benefit analysis. The full package is available at [<http://www.epa.gov/airmarkets/mp/>].

<sup>20</sup> The mercury rule appeared in the *Federal Register* in two parts: in the first part, on March 29, 2005 (as explained further in the text below), the agency revised its determination that mercury emissions from electric generating units should be regulated as hazardous air pollutants under Section 112 of the Clean Air Act (70 FR 15994); in the second part, on May 18, 2005, the agency promulgated a cap-and-trade program under Section 111 of the act (70 FR 28606).

and necessary. It concluded that it was so, in a December 2000 regulatory finding. The finding triggered other provisions of the consent agreement: that the agency propose Maximum Achievable Control Technology (MACT) standards for electric power plants by December 15, 2003, and finalize them by March 15, 2005.

The December 2003 proposal offered two alternatives. The first met the agency's requirement under the consent agreement by proposing MACT standards. The standards would have applied on a facility-by-facility basis, and would have resulted in emissions of 34 tons of mercury annually, a reduction of about 30% from the 1999 level. The standards would have taken effect in 2008, three years after promulgation, with possible one-year extensions.

The second mercury alternative, a variant of which the agency chose to promulgate March 15, 2005, uses Section 111(d) of the act. To avoid having to promulgate MACT standards, the agency proposed reversing its December 2000 regulatory finding, arguing that while MACT standards were "appropriate," they were not "necessary," since the emissions could be controlled under Section 111(d) instead. Section 111(d) has rarely been used before — and never for hazardous air pollutants. In the final rule, the agency went a step further, concluding that MACT regulations are neither appropriate nor necessary, and so revises its December 2000 regulatory finding.

The final regulations establish a national cap-and-trade system for power plant emissions of mercury. As in Clear Skies, the cap will be 15 tons of emissions nationwide in 2018 (about a 70% reduction from 1999 levels, if achieved). There will also be an intermediate cap of 38 tons in 2010. The caps will be implemented through an allowance system similar to that used in the acid rain program, through which utilities can either control the pollutant directly or purchase excess allowances from other plants that have controlled more stringently or sooner than required. As with Clear Skies, early reductions could be banked for later use, which the agency says would result in emissions of 31.3 tons in 2010, nearly 7 tons less than the cap. If this happens, it would allow utilities to delay compliance with the full 70% reduction until well beyond 2018, as they use up banked allowances rather than installing further controls. The agency's analysis projects actual emissions to be 24.3 tons (less than a 50% reduction) as late as 2020. Full compliance with the 70% reduction would be delayed until after 2025.<sup>21</sup>

Besides the stretched out implementation schedule, one of the main criticisms of the cap-and-trade proposal is that it would not address "hot spots," areas where mercury emissions and/or concentrations in water bodies are greater than elsewhere. It would allow a facility to purchase allowances and avoid any emission controls, if that compliance approach makes the most sense to the plant's owners and operators. If plants near hot spots do so, the cap-and-trade system may not have an impact on

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<sup>21</sup> U.S. EPA, Office of Air Quality Planning and Standards, *Regulatory Impact Analysis of the Clean Air Mercury Rule*, March 2005, Table 7-3, p. 7-5, available at [[http://www.epa.gov/ttn/atw/utility/ria\\_final.pdf](http://www.epa.gov/ttn/atw/utility/ria_final.pdf)]. For further discussion see CRS Report RL32868, *Mercury Emissions from Electric Power Plants: An Analysis of EPA's Cap-and-Trade Regulations*, January 13, 2006, p. 7.

mercury concentrations in the most contaminated areas. By contrast, a MACT standard would have required reductions at all plants, and would therefore be expected to improve conditions at hot spots.

Many argue that the mercury regulations should be more stringent or implemented more quickly. To a large extent, these arguments and EPA's counterarguments rest on assumptions concerning the availability of control technologies. Controlling SO<sub>2</sub>, NO<sub>x</sub>, and mercury simultaneously, as the agency prefers, would allow utilities to maximize "co-benefits" of emission controls. Controls such as scrubbers and fabric filters, both of which are widely used today to control SO<sub>2</sub> and particulates, have the side effect of reducing mercury emissions to some extent. Under EPA's cap-and-trade regulations, both the 2010 and 2018 mercury emission standards are set to maximize use of these co-benefits. Thus, few controls would be required to specifically address mercury emissions before the 2020s; the costs specific to controlling mercury would be minimal; and emissions would decline to about 50% of the 1999 level in 2020.

Besides citing the cost advantage of relying on co-benefits, EPA has claimed that technology specifically designed to control mercury emissions (such as activated carbon injection, ACI) would not be generally available until after 2010. This assertion is widely disputed. ACI and fabric filters have been in use on municipal waste and medical waste incinerators for a decade, and have been successfully demonstrated in at least 16 full-scale tests at coal-fired power plants, for periods as long as a year. Manufacturers of pollution controls and many others maintain that, if the agency required the use of ACI and fabric filters at power plants, reductions in mercury emissions as great as 90% could be achieved at reasonable cost in the near future.

The agency can take cost into consideration under the MACT or cap-and-trade rules, and cost to electric utilities appears to have been a determining factor in EPA's analysis. In its proposal, however, calculations of the overall societal costs and benefits seemed to support the imposition of a more stringent standard. The agency projected MACT compliance costs at \$945 million per year, versus quantifiable annual benefits (from longer lives and less illness) of more than \$15 billion (a 16 to 1 advantage). The final rule completely changes this analysis. It concludes that the benefits of mercury control are at most \$43 million per year, with annual costs as high as \$896 million. The new analysis did not include several peer-reviewed studies that indicated stricter utility mercury rules would have yielded large benefits.

In addition to the arguments over technology availability and cost, it is unclear whether EPA has legislative authority to establish a cap-and-trade program for mercury: many argue that the agency is required by the statute to impose MACT standards on each individual plant once it has decided to control mercury emissions. Questions have also arisen regarding the role of industry lobbyists in crafting portions of the EPA proposal. For many of these reasons, 45 Senators wrote EPA Administrator Leavitt at the beginning of April 2004 to request that he withdraw the mercury proposal and begin over. In June, 2004, 178 House members wrote Leavitt that they hoped further review "will lead to a stronger final rule." On February 3, 2005, the EPA Inspector General echoed these comments, concluding that EPA senior management instructed the staff to develop a standard that would result in

emissions of 34 tons annually, instead of basing the standard on unbiased analysis. Nevertheless, the agency weakened the final rule rather than strengthening it.<sup>22</sup> Thus, opponents, including at least 15 states, have filed suit to overturn it.<sup>23</sup>

Congress could also have played a role in reversing the rule, under the provisions of the Congressional Review Act (5 U.S.C. Sections 801-808). On June 29, 2005, Senator Leahy and 31 cosponsors introduced S.J.Res. 20; on the same day, a similar resolution (H.J.Res. 56) was introduced in the House by Representative Meehan. If enacted into law, these resolutions would have disapproved the rule EPA promulgated on March 29, 2005, in which the agency determined not to regulate mercury from fossil-fueled electric utility units under Section 112. The net effect of disapproval would have been that EPA would be forced to issue MACT standards for coal- and oil-fired electric power plants. On September 13, however, the Senate rejected S.J.Res. 20, 51-47, thus allowing the EPA rule to go forward. The Senate action has no effect on judicial challenges, which are still pending.

In addition to judicial challenges, most of the same states and several environmental groups petitioned EPA to reconsider the mercury rules, in part, they said, because portions of the final rules had not been included in the proposal, and therefore the public had been denied the opportunity to comment. EPA agreed to a reconsideration on October 21, 2005. On May 31, 2006, the agency announced that it had completed the reconsideration, making only minor changes to the rule. The agency's action means that court proceedings, which were held in abeyance while the agency reconsidered, can now move forward.

(For additional information on the mercury rule, see CRS Report RL32868, *Mercury Emissions from Electric Power Plants: An Analysis of EPA's Cap-and-Trade Regulations*, by James McCarthy; and CRS Report RL32744, *Mercury Emissions from Electric Generating Units: A Review of EPA Analysis and MACT Determination*, by Dana Shea, et al. For discussion of the Congressional Review Act and how it applied to the mercury rule, see CRS Report RS22207, *Congressional Review of EPA's Mercury Rule*, by James McCarthy and Richard Beth.)

## **New Source Review (NSR)**

A related issue that has driven some of the debate over the regulation of power plant emissions is whether EPA has adequately enforced existing regulations, using a process called New Source Review. The New Source Review debate has occurred largely in the courts. EPA took a more aggressive stance on New Source Review under the Clinton Administration, filing lawsuits against 13 utilities for violations at 51 plants in 13 states. The Bush Administration has taken action against an additional half a dozen utilities, but has made little headway in settling the original

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<sup>22</sup> Office of the Inspector General, U.S. EPA, *Additional Analyses of Mercury Emissions Needed Before EPA Finalizes Rules for Coal-Fired Electric Utilities*, February 3, 2005, p. 10, available at [<http://www.epa.gov/oig/reports/2005/20050203-2005-P-00003.pdf>].

<sup>23</sup> *New Jersey v. EPA*, No. 05-1097 (D.C. Cir.) Filed Mar. 29, 2005.



suits or in bringing them to trial. In the meantime, it has proposed major changes in the NSR regulations that critics argue will gut New Source Review as it pertains to modifications of existing plants.

The controversy over the NSR process stems from EPA's application of New Source Performance Standards to existing stationary sources of air pollution that have been modified. The Clean Air Act states that new sources (subject to NSR and its requirement to install pollution controls) include modifications of existing sources as well as plants that are totally new. Industry has generally avoided the NSR process, however, by claiming that changes to existing sources were "routine maintenance" rather than modifications. In the 1990s, EPA began reviewing records of electric utilities, petroleum refineries, and other industries to determine whether the changes were, in fact, routine. As a result of these reviews, since late 1999, EPA and the Department of Justice have filed suit or administrative actions against numerous large sources of pollution, alleging that they made major modifications to their plants, extending plant life and increasing output without undergoing required New Source Reviews and without installing best available pollution controls.

Of the utilities charged with NSR violations, 11 have settled with EPA, generally without going to trial. Under the settlements, they have agreed to spend about \$5 billion over the next decade on pollution controls or fuel switching in order to reduce emissions at their affected units. Combined, these companies will reduce pollution by about 775,000 tons annually. Since July 25, 2000, the agency has also reached 17 agreements with petroleum refiners representing three-fourths of industry capacity. The refiners agreed to settle potential charges of NSR violations by paying fines and installing equipment to eliminate 315,000 tons of pollution.

About half the utilities charged with NSR violations have not settled with EPA. They and other critics of the agency's enforcement actions claim that EPA reinvented the rules. They also contend that a strict interpretation of what constitutes routine maintenance will prevent them from making changes that would have previously been allowed without a commitment of time and money for permit reviews and the installation of expensive pollution control equipment. This provides disincentives for power producers, refiners, and others to expand output at existing facilities, they maintain.

The first case involving one of the nonsettling utilities went to trial in February 2003. In an August 7, 2003, decision, the U.S. District Court for the Southern District of Ohio found that Ohio Edison had violated the Clean Air Act 11 times in modifying its W. H. Sammis power plant. The company subsequently settled the case, agreeing to spend \$1.1 billion to install controls that are expected to reduce pollution by 212,000 tons annually.<sup>24</sup> In a second case, decided in April 2004 and currently on appeal to the U.S. Supreme Court, Duke Energy was found not to have violated the act despite undertaking modifications that increased total emissions without undergoing New Source Review. The U.S. District Court for the Middle District of North Carolina, in a decision upheld by the Fourth Circuit Court of Appeals, held that since the maximum *hourly* emissions rate did not increase as a

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<sup>24</sup> United States v. Ohio Edison Co., No. C-2-99-1181, [S.D. Ohio].

result of the modifications, even if annual emissions did increase, the company was not required to undergo NSR and install more stringent pollution controls.<sup>25</sup>

While pursuing these enforcement actions, the Bush Administration has promulgated a number of changes to the NSR regulations that would make future enforcement of NSR less likely. In December 2002 and October 2003, the agency promulgated five sets of changes to the NSR rules. The most controversial were new regulations defining what constitutes routine maintenance.<sup>26</sup> The new regulations would have exempted industrial facilities from undergoing NSR (and thus from installing new emission controls) if they were replacing safety, reliability, and efficiency-rated components with new, functionally equivalent equipment, and if the cost of the replacement components was less than 20% of the replacement value of the process unit. Using this benchmark, few, if any, plant modifications would trigger new pollution controls.

These changes were highly controversial. The Administration and its supporters characterized them as streamlining or improving the program; others saw them as permanently “grandfathering” older, more polluting facilities from ever having to meet the clean air standards required of newer plants. Fifteen states, three municipalities, and several environmental groups filed suit to block the “equipment replacement / routine maintenance” rule. The rule was stayed by the U.S. Court of Appeals for the D.C. Circuit on December 24, 2003. On March 17, 2006, a three-judge panel of the court unanimously struck the rule down. In its decision, the court held that EPA’s attempt to change the NSR regulations was “contrary to the plain language” of the Clean Air Act.<sup>27</sup>

EPA proposed further changes to the NSR regulations October 20, 2005 and September 8, 2006<sup>28</sup>; these regulations have yet to be promulgated. Under the October 2005 proposal, power plants could modify existing facilities without triggering NSR, provided that the facility’s “maximum hourly emissions achievable” after the changes were no greater than the same measure at any point during the past five years. By focusing on the hourly rate, rather than the previous measure (annual emissions), the new rule would effectively allow increases in annual emissions any time a modification led to an increase in the hours of operation of a facility. The agency’s proposal stated that this change would establish a uniform national emissions test, in conformance with the Fourth Circuit’s decision in the Duke Energy case, and it downplayed the significance of the change in light of “substantial

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<sup>25</sup> United States v. Duke Energy Corp., 278 F.Supp. 2d 619 [M.D.N.C. 2003] affirmed, 411 F. 3d 539 [4th Cir., 2005], petition for cert. Filed [No. 05-848].

<sup>26</sup> These changes appeared in the *Federal Register* on October 27, 2003 (68 FR 61247).

<sup>27</sup> State of New York v. EPA, No. 03-1380, 2006 Westlaw 662746 [D.C. Cir., Mar. 17, 2006].

<sup>28</sup> 70 FR 61081, October 20, 2005. The September 2006 proposal had not yet appeared in the Federal Register as of this writing, but it is available on EPA’s website at [[http://www.epa.gov/nsr/documents/dapn\\_frn\\_9-8-06.pdf](http://www.epa.gov/nsr/documents/dapn_frn_9-8-06.pdf)]. It would limit application of NSR by allowing plants to consider emissions only from the unit undergoing modification, rather than the entire plant, in determining whether NSR applies.

emissions reductions from other CAA [Clean Air Act] requirements that are more efficient.” But internal EPA documents released by an environmental group indicate that the proposed rule was strongly opposed by the Air Enforcement Division, whose Director concluded that it would adversely affect the agency’s NSR enforcement cases and is largely unenforceable as written.<sup>29</sup>

Thus, there appears to be a serious conflict between EPA’s regulatory actions and its enforcement stance. While the agency stated in promulgating the equipment replacement rule that “we do not intend our actions today to create retroactive applicability for today’s rule,” continued pursuit of the enforcement actions filed during the Clinton Administration would create a double standard for utilities, with one set of rules applicable to those utilities unlucky enough to have been cited for violations prior to promulgation of the new rule, and a different standard applicable afterward. Despite earlier agency denials that the rule would affect ongoing investigations, in early November 2003, EPA’s enforcement chief, J. P. Suarez, and another EPA official were reported to have indicated that the agency would drop enforcement actions against 47 facilities that had already received notices of violation, and would drop investigations of possible violations at an additional 70 power companies. Agency staff who were involved in the enforcement actions note that the prospect of an NSR rollback caused utilities already charged with violations to withdraw from settlement negotiations over the pending lawsuits, delaying emission reductions that could have been achieved in the near future.<sup>30</sup> (For additional information, see CRS Report RS21608, *Clean Air and New Source Review: Defining Routine Maintenance*, and CRS Report RL31757, *Clean Air: New Source Review Policies and Proposals*, both by Larry Parker.)

At Congress’s direction, the National Academy of Sciences began a review of the NSR program in May 2004. An interim report, released in January 2005, said the committee had not reached final conclusions, but it also said: “In general, NSR provides more stringent emission limits for new and modified major sources than EPA provides in other existing programs”; and “It is ... unlikely that Clear Skies would result in emission limits at individual sources that are tighter than those achieved when NSR is triggered at the same sources.”<sup>31</sup> The final report, issued July 21, 2006, found that,

More than 60% of all coal-fired electricity-generation capacity in the United States currently lacks the kinds of controls for SO<sub>2</sub> and NO<sub>x</sub> emissions that have been required under NSR. Also, the older facilities are more likely than newer

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<sup>29</sup> Memorandum of Adam M. Kushner, Director, Air Enforcement Division, U.S. EPA, to William Harnett, Director, Information Transfer and Program Integration Division, Office of Air Quality Planning and Standards, August 25, 2005, p. 1.

<sup>30</sup> See, for example, “Departing EPA Official Issues Broadside at Administration Air, Enforcement Programs,” *Daily Environment Report*, March 1, 2002, p. AA-1. Also, “Second Former EPA Enforcement Official Raps Bush’s New Source Review Reforms,” *Daily Environment Report*, October 22, 2002, p. A-9.

<sup>31</sup> National Research Council of the National Academies, *Interim Report of the Committee on Changes in New Source Review Programs for Stationary Sources of Air Pollutants* (Washington, D.C.: The National Academies Press, 2005), p. 27.

facilities to undergo maintenance, repair, and replacement of key components, so a substantial portion of emissions from the electricity-generating sector is potentially affected by the NSR rule changes.<sup>32</sup>

Nevertheless, the report reached ambivalent conclusions. On the one hand, the report stated, “It is reasonable to conclude that the implementation of the ERP [the proposed Equipment Replacement Provision] could lead to SO<sub>2</sub> and NO<sub>x</sub> emission increases in some locations and decreases in others.”<sup>33</sup> On the other hand, “the committee concluded overall that, because of a lack of data and the limitations of current models, it is not possible at this time to quantify with a reasonable degree of certainty the potential effects of the NSR rule changes on emissions, human health, energy efficiency, or on other relevant activities at facilities subject to the revised NSR program.”<sup>34</sup>

Besides the NAS study, on April 21, 2003, the National Academy of Public Administration released a report commissioned by Congress that made sweeping recommendations to modify NSR. The study panel recommended that Congress end the “grandfathering” of major air emission sources, by requiring all major sources that have not obtained an NSR permit since 1977 to install Best Available Control Technology or Lowest Achievable Emissions Rate control equipment. In the interim, the NAPA panel concluded, EPA and the Department of Justice should continue to enforce NSR vigorously, especially for changes at existing facilities.<sup>35</sup>

## MTBE and Ethanol

Congress acted on several Clean Air Act issues in H.R. 6, the comprehensive energy bill that it passed and sent to the President July 29, 2005. The most significant of these issues dealt with ethanol and reformulated gasoline (RFG). The final version of the bill stripped most provisions dealing with the related issue of MTBE, a gasoline additive that competes with ethanol and has been the subject of much controversy.

Until recently, MTBE and ethanol were used to meet Clean Air Act requirements that reformulated gasoline (RFG), sold in the nation’s worst ozone nonattainment areas, contain at least 2% oxygen, to improve combustion. Under the RFG program, areas with “severe” or “extreme” ozone pollution (124 counties with a combined population of 73.6 million) must use reformulated gas; areas with less severe ozone pollution may opt into the program as well, and many have. In all,

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<sup>32</sup> National Research Council of the National Academies, *New Source Review for Stationary Sources of Air Pollutants* (Washington, D.C.: The National Academies Press, 2006), Prepublication Copy, p. 3.

<sup>33</sup> *Ibid.*, p. 5.

<sup>34</sup> *Ibid.*, p. 2.

<sup>35</sup> National Academy of Public Administration, *A Breath of Fresh Air: Reviving the New Source Review Program*, Summary Report, April 2003, p. 3.

portions of 17 states and the District of Columbia use RFG, and about 30% of the gasoline sold in the United States is RFG.

Implemented in 1995, the law required (until May of this year) that RFG contain at least 2% oxygen by weight. Refiners could meet this requirement by adding a number of ethers or alcohols, any of which contains oxygen and other elements. By far the most commonly used oxygenate has been MTBE. In 1999, 87% of RFG contained MTBE, a number reduced to 46% by 2004. MTBE has also been used since the late 1970s in non-reformulated gasoline, as an octane enhancer, at lower concentrations. As a result, gasoline with MTBE has been used virtually everywhere in the United States, whether or not an area has been subject to RFG requirements.

MTBE leaks, generally from underground gasoline storage tanks, have been implicated in numerous incidents of ground water contamination. The substance creates taste and odor problems in water at very low concentrations, and some animal studies indicate it may pose a potential cancer risk to humans. For these reasons, 25 states have taken steps to ban or regulate its use. The most significant of the bans (in California, New York, and Connecticut) took effect at the end of 2003, leading many to suggest that Congress revisit the issue to modify the oxygenate requirement and set more uniform national requirements regarding MTBE and its potential replacements (principally ethanol).

Support for eliminating the oxygen requirement on a nationwide basis has been widespread among the petroleum industry, environmental groups, and states. In general, these groups have concluded that gasoline can meet the same low emission performance standards as RFG without the use of oxygenates. But opposition to enacting legislation removing the oxygen requirement came from a number of agricultural interests. Nearly 13% of the nation's corn crop was used to produce the competing oxygenate, ethanol, in 2004. If MTBE use were reduced or phased out, but the oxygen requirement remained in effect, ethanol use would soar, increasing demand for corn. Ethanol use has already grown substantially as MTBE began to be phased out. Conversely, if the oxygen requirement were waived by EPA or by legislation, not only would MTBE use decline, but likely, so would demand for ethanol. Thus, Members of Congress and Senators from corn states took a keen interest in MTBE and RFG legislation.

As passed by the House on April 21, 2005, H.R. 6 contained numerous MTBE and ethanol provisions. With some potential exceptions, it would have banned the use of MTBE as a fuel additive, except in states that specifically authorized its use, after December 31, 2014. The Clean Air Act requirement to use MTBE or other oxygenates in RFG would have been repealed — 270 days after enactment in most states, immediately in California. In place of this requirement, the bill substituted a major stimulus to the use of ethanol: under a renewable fuels standard (RFS), annual production of gasoline would have been required to contain at least 5 billion gallons of ethanol or other renewable fuel (an increase from 3.4 billion gallons in 2004) by 2012. To prevent backsliding on air quality, the bill required that the reductions in emissions of toxic substances achieved by RFG be maintained; it authorized \$2 billion in grants to assist merchant MTBE production facilities in converting to the production of other fuel additives. The bill also authorized funds for MTBE cleanup, and perhaps most controversially, would have provided a “safe harbor” from

defective product liability lawsuits for producers of MTBE, ethanol, and other renewable fuels: product liability lawsuits have been used to force petroleum and chemical companies to pay for cleanup of ground and surface water contaminated by releases of fuels containing MTBE.

The Senate version of H.R. 6, passed June 28, 2005, contained MTBE and ethanol provisions as well, but they were different from the House bill in several respects. The Senate bill would have increased the renewable fuels standard to 8 billion gallons by 2012. It would have phased out the use of MTBE sooner (within four years of enactment, rather than at the end of 2014), and it omitted a potential nationwide presidential exception to the MTBE ban that the House version would have provided. The Senate version also omitted the safe harbor for MTBE producers. In the 108<sup>th</sup> Congress, the safe harbor provision had been among the most controversial provisions in a similar bill, cited by numerous opponents in Senate debate on the conference report. (The opponents prevailed on a cloture motion, and the bill died.) The 109<sup>th</sup> Congress Senate bill also differed in how much it would authorize for cleanup of MTBE releases and for transition assistance to MTBE producers.

In the end, unable to reach a compromise addressing MTBE, House and Senate conferees stripped most of the MTBE provisions from the conference report on H.R. 6. The final version, approved by the House July 28, 2005 and the Senate July 29, and signed into law (P.L. 109-58) by the President August 8, 2005, neither bans MTBE use nor provides a safe harbor for its producers, nor does it provide transition assistance for MTBE producers. It does, however, repeal the RFG program's oxygen requirement and, in place, requires that motor fuels contain 7.5 billion gallons of ethanol or other renewable fuels by 2012 — more than double the amount of 2004 consumption. When this requirement is fully implemented, as much as 30% of the nation's corn crop could be dedicated to ethanol production. (For additional discussion of the House and Senate bills, see CRS Report RL32865, *Renewable Fuels and MTBE: A Comparison of Selected Provisions in the Energy Policy Act of 2005 (H.R. 6)*, by Brent Yacobucci, et al. For background on the MTBE issue, see CRS Report RL32787, *MTBE in Gasoline: Clean Air and Drinking Water Issues*, by James McCarthy and Mary Tiemann. For information on ethanol, see CRS Report RL33290, *Fuel Ethanol: Background and Public Policy Issues*, by Brent Yacobucci.)

## Ozone Nonattainment Area Deadlines

Another Clean Air Act provision that was in the House-passed version of H.R. 6 dealt with the deadlines for attaining air quality standards. Section 1443 of the bill would have extended deadlines for areas that have not attained the ozone air quality standard if upwind areas “significantly contribute” to their nonattainment.

Under the 1990 Clean Air Act Amendments, ozone nonattainment areas with higher concentrations of the pollutant were given more time to reach attainment, but in return for the additional time, they were required to implement more stringent controls on emissions. Failure to reach attainment by the specified deadline was to result in reclassification of an area to a higher category and the imposition of more

stringent controls. Section 1443 would have amended this system to extend deadlines (without requiring more stringent controls) in areas affected by upwind sources of pollution. There was no comparable provision in the Senate bill, and the conferees did not include the House provision in the enacted law.

As enacted, the Energy Policy Act of 2005 does establish a demonstration project, however, to address the issue of upwind pollution. In Section 996, the enacted law requires EPA to work with state and local officials in a multi-county Western Michigan project area to determine the extent of ozone and ozone precursor transport, to assess alternatives to achieve compliance with the 8-hour ozone standard apart from local controls, and to determine the timeframe in which such compliance could take place. (Western Michigan is believed to be affected by pollution originating in the Chicago and Milwaukee metropolitan areas.) EPA is prohibited from imposing requirements or sanctions that might otherwise apply during the demonstration project.

In addition, on October 7, 2005, the House passed provisions to extend deadlines in areas affected by upwind pollution in H.R. 3893, a bill whose primary purpose is to facilitate the construction of new petroleum refineries. The Senate has not taken action on this bill.

## **Conformity of Transportation Plans and SIPs**

A seventh clean air issue considered by the 109<sup>th</sup> Congress is the conformity of metropolitan area transportation plans with the Clean Air Act. Under the act, areas that have not attained one or more of the six National Ambient Air Quality Standards must develop State Implementation Plans (SIPs) demonstrating how they will reach attainment. A total of 126 areas (474 counties) with a combined population in excess of 159 million are subject to the SIP requirements for ozone, and 208 counties with a combined population of 88 million are subject to SIP requirements for fine particulates. Section 176 of the Clean Air Act prohibits federal agencies from funding projects in these areas unless they “conform” to the SIPs. Specifically, projects must not “cause or contribute to any new violation of any standard,” “increase the frequency or severity of any existing violation,” or “delay timely attainment of any standard.” Because new highways generally lead to an increase in vehicle miles traveled and related emissions, both the statute and regulations require that an area’s Transportation Improvement Program (TIP), which identifies major highway and transit projects an area will undertake, demonstrate conformity each time it is revised. Prior to enactment of H.R. 3, nonattainment areas were required to revise their TIPs at least every two years. Highway and transit projects in most nonattainment areas cannot receive federal funds unless they are part of a conforming TIP.

In the 109<sup>th</sup> Congress, conformity provisions were included in H.R. 3 (P.L. 109-59), the transportation bill that the President signed August 10, 2005. As enacted, the law requires less frequent conformity demonstrations (at least every four years instead of every two years), and will shorten the planning horizon over which conformity must be demonstrated to 10 years in many cases, instead of the former

requirement of 20 years. The local air pollution control agency will need to be consulted and public comments solicited if the planning horizon is to be shortened. The law also establishes a 12-month grace period following a failure to demonstrate conformity before a lapse would be declared.