

CRS Issue Brief for Congress

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Clean Air Act Issues in the 109th Congress

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CONTENTS

SUMMARY

MOST RECENT DEVELOPMENTS

BACKGROUND AND ANALYSIS

- Revision of the Particulate Standards
- Clear Skies/Multi-Pollutant Legislation
- Mercury from Power Plants
- New Source Review (NSR)
- MTBE and Ethanol
- Ozone Nonattainment Area Deadlines
- Conformity of Transportation Plans and SIPs

Clean Air Act Issues in the 109th Congress

SUMMARY

The courts and the executive branch face major decisions on clean air issues in 2006, with Congress more likely playing an oversight role. One focus will be EPA's Jan. 17, 2006 proposal to strengthen air quality standards for fine particles, which are estimated to cause tens of thousands of premature deaths annually. Whether the proposal is supported by the available science and what impact its implementation would have are likely issues of concern. Other issues of continuing interest are EPA's 2005 decisions limiting interstate transport of air pollution and establishing cap-and-trade systems for emissions from coal-fired power plants, and the agency's proposed changes to New Source Review. All of these issues face court challenges.

Congress acted on several Clean Air Act (CAA) issues in legislation that it passed and sent to the President in late July 2005. 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). The act eliminates a requirement that RFG, used in the nation's most polluted areas, contain at least 2% oxygen. In its place, the act requires that the total gasoline supply contain increasing amounts of renewable fuels, the most likely being ethanol.

Congress also amended the Clean Air Act in H.R. 3 (P.L. 109-59), the transportation bill that the President signed August 10. H.R. 3 addresses the requirement that state and local transportation planners demonstrate conformity between their transportation plans and the timely achievement of air quality standards. Under the act, the frequency of conformity determinations and the time horizon over which conformity must be demonstrated will both be reduced. Failure to dem-

onstrate conformity can lead to a temporary suspension of federal highway funds.

Other Clean Air Act amendments appear to have stalled. A bill that would have established a cap-and-trade program for emissions of sulfur dioxide (SO₂), nitrogen oxides (NO_x), and mercury from coal-fired electric power plants was among the first items on the agenda of the 109th Congress: S. 131 (the Clear Skies Act) was scheduled for markup by the Senate Environment and Public Works Committee March 9, 2005. But the committee failed to approve the bill, 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 carbon dioxide (CO₂) in addition to the other three pollutants. With Clear Skies stalled, EPA finalized the Clean Air Interstate Rule (CAIR), which will cap emissions of SO₂ and NO_x 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 and are now being challenged by at least 15 states. The regulations could have been overturned if Congress disapproved them under the Congressional Review Act. A resolution to do so (S.J.Res. 20) was defeated on a vote of 51-47, September 13. 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.

MOST RECENT DEVELOPMENTS

On March 17, 2006, the U.S. Court of Appeals for the D.C. Circuit struck down an EPA rule that would have exempted most equipment replacement projects at power plants and other industrial sites from requirements to install pollution control equipment under the New Source Review provisions of the Clean Air Act. In a 3-0 decision, the court held that the EPA's attempt to change the NSR regulations was "contrary to the plain language" of the act.

On January 17, 2006, the Environmental Protection Agency proposed revisions to the National Ambient Air Quality Standards for particulate matter. The new standards, which were subject to public comment until April and will be finalized in some form in September 2006, would cut the allowable concentration of fine particles in the air averaged over 24-hour periods almost in half, from 65 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) to 35 $\mu\text{g}/\text{m}^3$, avoiding several thousand premature deaths annually. The EPA Administrator proposed to leave the annual standard for fine particles unchanged at 15 $\mu\text{g}/\text{m}^3$, despite the recommendation of his independent scientific advisory committee that it be reduced to 13 or 14. The committee strongly disagrees with the Administrator, and took the unprecedented step of urging him to reconsider the proposal. The proposed changes are expected to increase the number of counties in nonattainment areas from 208 to at least 283. More stringent standards might have tripled the number of counties with readings above the standard, according to the agency.

BACKGROUND AND ANALYSIS

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 September 2005, 159 million people lived in areas classified "nonattainment" for the ozone National Ambient Air Quality Standard; 88 million lived in areas that were nonattainment for fine particles ($\text{PM}_{2.5}$).

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 almost 163 million tons (54%), despite major increases in population, motor vehicle miles traveled, and economic activity. 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 $\text{PM}_{2.5}$.) The agency attributes at least 33,000 premature deaths and millions of lost work days annually to exceedance of the $\text{PM}_{2.5}$ standard. Recent research has begun to tie ozone pollution to premature mortality as well. Thus, there is continuing pressure to tighten air quality standards — as noted above, another tightening for fine particles was proposed January 17, with a final decision expected in September 2006. 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 issue brief provides an overview of seven prominent air issues of interest in the 109th 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. The issue brief provides an overview: most of these issues are addressed at greater length in separate CRS reports, which contain more information and detailed sources. These other CRS reports are referenced in the appropriate sections.

Revision of the Particulate Standards. On December 20, 2005, EPA Administrator Stephen Johnson signed a proposed revision to the National Ambient Air Quality Standard (NAAQS) for particulate matter. (The proposed standards appeared in the *Federal Register* January 17, 2006, officially beginning a three-month public comment period.) 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 proposed revision would strengthen the existing standard for particulate matter 2.5 micrometers or less in diameter (known as fine particles or PM_{2.5}). The existing standard was promulgated in 1997, but, because of the need to establish a monitoring network and to collect three years of data to determine whether or not areas were in attainment, is only now beginning to be implemented. (For additional information on implementation of the current standard, see CRS Report RL32431, *Particulate Matter (PM_{2.5}): National Ambient Air Quality Standards (NAAQS) Implementation*, by Robert Esworthy.)

The proposed standard would cut the allowable concentration of PM_{2.5} in the air averaged over 24-hour periods almost in half, from 65 micrograms per cubic meter (µg/m³) to 35 µg/m³, avoiding several thousand premature deaths annually. The proposed changes are expected to increase the number of counties in nonattainment (i.e., areas where pollutant concentrations exceed the standard, or contribute to exceedance of the standard in adjoining counties) from 208 under the current standard to at least 283. These numbers may seem small compared to the approximately 3,000 counties in the United States, but 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 currently designated nonattainment.

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_{2.5} 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.

In addition to the 24-hour standard for PM_{2.5}, there is also an *annual* PM_{2.5} NAAQS — the reason being that human health is affected by both short-term spikes of fine particles and by chronic exposures to lower levels of the pollutants. In his December 20 announcement, the Administrator proposed to leave the annual standard unchanged at 15 µg/m³. An independent scientific advisory committee that advises the Administrator (the Clean Air

Scientific Advisory Committee, CASAC) had recommended that the annual standard be reduced, to a range of 13 to 14 $\mu\text{g}/\text{m}^3$, a step that would have added at least 44 counties to the list of those in nonattainment, according to EPA, and might have required more stringent controls in most of the nonattainment areas.

In the Administrator's judgment, the science underlying this CASAC recommendation was not sufficient, relying primarily on two studies, both of which suggest the need for further study to increase confidence in their results, according to the text of the proposal. The Administrator 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."

The scientific advisory committee, CASAC, strongly disagrees with the Administrator, and took the unprecedented step of urging him to reconsider the proposal. Since the committee was established in the 1970s, this is the first time that it has ever challenged an Administrator's decision. Panel members stated that some of their research had been misrepresented by the Administrator, and charged that the proposal incorporated last-minute opinions and edits by the President's Office of Management and Budget that circumvented the peer review process.

The proposal also addresses slightly larger, but still inhalable particles, in the range of 10 to 2.5 micrometers (referred to as thoracic coarse particles, or $\text{PM}_{10-2.5}$). In its 1997 review of the particulate standards, EPA had regulated these as particles 10 microns or smaller (PM_{10}), a category that overlapped the $\text{PM}_{2.5}$ category. Challenged in the D.C. Circuit Court of Appeals, the PM_{10} standard was remanded to EPA, the court having concluded that 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. As a result, EPA is now proposing a 24-hour standard for $\text{PM}_{10-2.5}$. The standard would be set at a level of 70 $\mu\text{g}/\text{m}^3$, compared to the old 24-hour PM_{10} standard of 150 $\mu\text{g}/\text{m}^3$. The Administrator proposes to focus this standard on urban and industrial and construction sources, excluding any mix of particles "dominated by rural windblown dust and soils and PM generated by agricultural and mining sources." He also proposes to revoke the *annual* PM_{10} standard.

Several elements of the proposed PM standards are controversial. Those who would like to see stronger standards (including environment and health groups, and a number of states) are expected to focus on the exclusion of rural sources from the coarse particle standard and the disregard of CASAC's recommendation that the annual $\text{PM}_{2.5}$ standard be strengthened. Some industrial interests, on the other hand, are expected to question the agency's strengthening of the standard for *all* fine particles, without distinguishing their source or chemical composition. Congress may be asked to conduct oversight hearings, in addition to the public hearings that EPA has held.

The complete $\text{PM}_{2.5}$ and $\text{PM}_{10-2.5}$ proposal appeared in the *Federal Register* January 17, beginning a 90-day public comment period. In addition to taking written comments, the agency held public hearings March 8 in Philadelphia, Chicago, and San Francisco. The

Administrator is under a court order to promulgate final revisions to the standards by September 27, 2006. (For additional information, see CRS Report RL33254, *Air Quality: EPA's Proposed 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 was whether to take action on the Clear Skies Act, a bill that would regulate multiple pollutants from coal-fired electric power plants. The Senate Environment and Public Works Committee blocked a Senate version of the bill, S. 131, from advancing to the Senate floor, on a tie vote, March 9, 2005. The committee's 9-9 vote brought an end, probably for the remainder of the Congress, to 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 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 current version of 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 (SO₂) 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_{2.5}) 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 SO₂ 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_x (which contributes to the formation of ozone) and SO₂ (which is among the sources of fine particles) need to be reduced. 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 (CO₂) will be among the emissions subject to a cap.

Regarding the stringency issue, Clear Skies and other bills introduced over the last two Congresses would require reduction of NO_x emissions to 1.5 or 1.8 million tons per year (a 70%-80% reduction from 1998 levels) and reduction of sulfur dioxide emissions to 2.23-3.0 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 5, 10, or 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 CO₂ emissions. (For additional information and a detailed comparison of the legislative proposals, see CRS Report RL32755, *Air Quality: Multi-Pollutant Legislation in the 109th 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_x, 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 SO₂ 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 CO₂ emissions. It is a three-pollutant (SO₂, NO_x, mercury) bill, whereas most competing bills have addressed four pollutants (the three plus CO₂). The Administration views controls on CO₂ 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 CO₂ 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 CO₂ controls, the Administration is supported by most in the utility and coal industries. Others, mostly outside these industries but including some utilities, view CO₂ controls as inevitable, if not desirable, and support simultaneous implementation of cap-and-trade programs for CO₂ and the other pollutants.

Although stalled for the previous three years, Clear Skies was set for early consideration in the 109th 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 SO₂; 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 hard CO₂ 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 remains to be seen.

Immediately following the vote, on March 10, 2005, EPA announced that it would promulgate final regulations for utility emissions of SO₂ and NO_x in 28 eastern states and the District of Columbia through its Clean Air Interstate Rule (CAIR). (The rule appeared in the *Federal Register* on May 12, 2005.) 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 SO₂ will decline 53% by 2015, and NO_x 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. 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.)

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 108th Congress bill (S. 843 in that Congress, but as of the analysis not introduced in the 109th). The 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 and \$3 billion, and Senator Jeffords' bill would have annual net benefits 10 and 16 times those of Clear Skies at annual costs of \$23.6 billion and \$18.1 billion. 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. (These rules appeared in the Federal Register March 29, 2005 and May 18, 2005.) 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 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.

Instead, 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 might be delayed until after 2030.

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 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 SO₂, NO_x, 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 SO₂ 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, hardly any controls would be required to specifically address mercury emissions before the 2020s, and the costs specific to controlling mercury would be minimal.

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. Thus, opponents, including at least 15 states, have filed suit to overturn the mercury rule.

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, 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. The agency agreed to a reconsideration, and on October 21, 2005, announced that it would reconsider seven specific issues related to the final rules.

(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 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, however. 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 were previously 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 (*United States v. Ohio Edison Co.*, No. C-2-99-1181, [S.D. Ohio]). 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 (*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]), held that since the maximum *hourly* emissions rate did not increase as a result of the modifications, even if annual emissions did increase, the company was not required to undergo NSR and install more stringent pollution controls.

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. (These changes appeared in the *Federal Register* on October 27, 2003.) 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 (*State of New York v. EPA*, No. 03-1380, 2006 Westlaw 662746 [D.C. Cir., Mar. 17, 2006]), the court held that EPA’s attempt to change the NSR regulations was “contrary to the plain language” of the Clean Air Act.

EPA proposed further changes to the NSR regulations October 20, 2005; these regulations have yet to be promulgated. Under the 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 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.

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 argue 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. (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, with an expected completion date of April 2006. 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."

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.

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.

MTBE and ethanol have been 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, 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 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 environmental groups, the petroleum industry, 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 potential opposition to enacting legislation removing the oxygen requirement came from a number of agricultural interests. Nearly 13% of the nation's corn crop is used to produce the competing oxygenate, ethanol. 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 108th 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 109th 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, 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.

The enacted version 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 109th 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 (i.e., at least every two years, prior to enactment of H.R. 3). Highway and transit projects in most nonattainment areas cannot receive federal funds unless they are part of a conforming TIP.

In the 109th 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.