Clean Air Issues in the 111th Congress

James E. McCarthy
Specialist in Environmental Policy

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Summary

Attention to clean air issues in the 111th Congress is expected to focus on climate change and the regulation of emissions from electric utilities. In the last Congress, at least half a dozen bills were introduced to address electric utility air emissions and about a dozen bills addressed the regulation of greenhouse gases (GHGs) economy-wide. None passed. The Lieberman-Warner bill to establish a cap-and-trade system for GHGs (S. 2191/S. 3036) was reported by the Environment and Public Works Committee and debated briefly on the Senate floor. Bills similar to this are expected to have a high priority in the new Congress.

The Bush Administration's EPA made a number of clean air regulatory decisions that have been vacated or remanded to the agency by the courts. Among these were decisions on mercury emissions and the long-range transport of conventional pollutants (sulfur dioxide [SO_2] and nitrogen oxides [NOx]) from power plants, as well as decisions on whether EPA and the states can use existing Clean Air Act authority to regulate GHGs. EPA could resolve most of these issues through regulations (and in some cases, it would appear that the new Administration intends to do so); but Congress might also address the issues through legislation. Legislating might resolve ambiguities in current law, and, depending on how the legislation is drafted, could reduce the likelihood of court challenges.

Among the electric utility issues, the most immediate involve SO_2 and NOx. Both pollutants travel long distances, contributing to nonattainment of air quality standards in downwind states. EPA had promulgated cap-and-trade programs for the two pollutants in 2005 through a regulation known as the Clean Air Interstate Rule (CAIR). The first phase of this rule is to take effect in 2009 and 2010, but only for a temporary period: the D.C. Circuit Court of Appeals vacated CAIR in July 2008, later modifying its decision to allow the rule to remain in effect until EPA drafts an alternative. Without CAIR, most Eastern states would have a huge gap in their emission control programs; thus, there is general agreement among the states, electric utilities, and environmental groups that the CAIR rule or something like it should be salvaged. As part of any new CAIR regulation, many states and environmental groups would like a more stringent second phase than the vacated regulations would have provided. A number of additional questions need to be addressed, the most basic of which is whether Congress, EPA, or the courts should be the venue for efforts to restore CAIR. If legislation is to be considered, further issues will be whether to include mercury and carbon dioxide controls in the bill. Electric utilities are the largest emitters of both.

Throughout the Bush years, states interested in setting more stringent environmental standards developed and implemented regulations that went well beyond the requirements of federal law. The Clean Air Act provides no federal preemption of state controls on stationary sources of emissions. In the case of mobile sources, however, there is a general federal preemption, with the exception that California (which developed the nation's first emission controls on cars and trucks) may seek a waiver for standards if they are, in the aggregate, at least as stringent as comparable federal standards and the state needs the standards to meet compelling and extraordinary conditions. If California is granted such waivers, other states with poor air quality may then adopt identical standards. Of particular interest during the last year has been California's request for a waiver to control greenhouse gas emissions from cars and light trucks. EPA denied that waiver request in March 2008. The Obama Administration plans to reverse that decision.

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Introduction

Attention to air quality issues in the 111th Congress is expected to focus on climate change and the regulation of emissions from electric utilities. The last Congress devoted considerable attention to climate change: hearings were held by at least 10 committees, and 17 bills to cap emissions of greenhouse gases (GHGs) were introduced.[1] Legislation was not enacted: a combination of opposition within the Congress and the opposition of the Bush Administration to anything beyond research and voluntary emission reductions caused Congress to move on to other issues. With fewer opponents of climate legislation in the 111th Congress and an incoming Administration committed to action on the issue, both the House and Senate are expected to begin moving climate legislation this year.

Congress may also address several issues related to emissions of conventional pollutants (sulfur dioxide and nitrogen oxides) and mercury from electric utilities. Regulations addressing these emissions were vacated by the D.C. Circuit Court of Appeals in 2008, leaving major gaps in EPA and state regulations. While EPA can develop new regulations that address the court's concerns, legislation might provide a quicker and more straightforward solution, resolving ambiguities in current law and reducing the likelihood of further delays from litigation.

This report provides a brief overview of these issues, and will be updated throughout the Congress to reflect current developments.

Climate Change

Climate change (often referred to as global warming) has been of interest to the Congress on some level for more than 30 years. Hearings on the topic occurred as early as 1975, with as many as 250 additional hearings since that time. In 1992, the United States ratified the U.N. Framework Convention on Climate Change (UNFCCC), which established a goal of reducing developed countries' greenhouse gas emissions to 1990 levels by the year 2000. In 1997, the parties to the UNFCCC, as a first step to advance stronger measures, negotiated binding emission reductions for developed countries in the Kyoto Protocol. The United States subsequently rejected the Protocol, focusing instead on research and on voluntary emission reduction programs.[2] Despite existing programs, U.S. emissions of greenhouse gases have continued to climb: in 2005, U.S. emissions were 15% higher than in 1990.[3]

In recent years, Congress has expressed renewed interest in climate issues for several reasons. Perhaps the most important factor has been the continued strengthening of the science supporting the connection between emissions of greenhouse gases and climate changes, including mounting

[1] Twelve of the 17 would have established economy-wide cap-and-trade programs. The other five bills would have established cap-and-trade programs for the electric utility sector only.

[2] The Bush Administration focused voluntary efforts on reducing the "greenhouse gas intensity" of the economy, i.e., the amount of greenhouse gases emitted per unit of economic activity. GHG intensity has consistently declined since the 1970s; but the rate of economic growth has outpaced the intensity reductions, leading to an increase in emissions. The Administration's target was little more than would likely have occurred without its policy.

[3] World emissions also grew in the period. According to the World Resources Institute, world emissions of GHGs grew 26% from 1990 to 2005.

evidence that glaciers and polar ice caps are shrinking, global average temperatures are rising, and other climate-related phenomena are occurring. (For a summary of the science, see CRS Report RL33849, *Climate Change: Science and Policy Implications*.) In response, about two dozen states have entered into regional agreements to address the issue. (For a summary of state actions, see CRS Report RL33812, *Climate Change: Action by States to Address Greenhouse Gas Emissions*.) There has also been a shift in attitude on the part of some in industry, prompted in part by the growing patchwork of state-level and foreign requirements. New business coalitions have formed to urge Congress to address the problem, or to influence any legislation that Congress might consider.[4]

Congress was already beginning to respond to these changes before the 2006 elections. In the 109th Congress, in 2005, the Senate passed a Sense of the Senate resolution that acknowledged a "growing scientific consensus" that human activity is a substantial cause of greenhouse gas accumulation in the atmosphere, causing average temperatures to rise, and called for a mandatory, market-based program to limit greenhouse gas emissions.[5] On a complicated issue such as greenhouse gas limits, the devil is in the details: agreement on general principles does not necessarily presage agreement on detailed legislative proposals. One detailed proposal reached the Senate floor prior to the 110th Congress: the McCain-Lieberman bill (S. 1151 in the 109th Congress, S. 139 in the 108th) would have established a mandatory cap-and-trade greenhouse gas reduction program. It was debated in the 109th Congress as an amendment to the Energy Policy Act of 2005 (S.Amdt. 826) and defeated by a 38-60 vote; as stand-alone legislation, a slightly different version was defeated 43-55 in the 108th Congress.[6]

In the 110th Congress, there was new impetus. In the Senate, the Chairs of both the Environment and Public Works Committee and the Energy and Natural Resources Committee announced their intentions to move legislation; the Environment and Public Works Committee approved S. 2191, amended, December 5, 2007, by a vote of 11-8. The bill was reported (S.Rept. 110-337) May 20, 2008, and Senate debate on a modified version of the bill (S. 3036) began June 2. A motion to invoke cloture failed, however, June 6, on a vote of 48-36.[7] In the House, the Speaker urged quick action, but markup of legislation did not occur. The Energy and Commerce Committee, which has jurisdiction, held a number of hearings and posted four white papers describing aspects of a possible cap-and-trade program on its website, before producing a discussion draft of climate change legislation, October 7, 2008. The same committee has jurisdiction over the related issue of

[4] For example, see "Businesses Call on Congress to Act in 2007," *Daily Environment Report*, January 23, 2007, p. A-1. The article reported that the formation of the U.S. Climate Action Partnership, initially a coalition of 10 large U.S. energy and manufacturing firms. They were joined by environmental organizations in calling on Congress to approve legislation in 2007 that would create an economy-wide cap-and-trade system to cut the nation's greenhouse gas emissions, saying they would support legislation that would cap U.S. emissions at 2007 levels by 2012 and gradually reduce them by 60 percent to 80 percent by 2050. The companies included Alcoa, BP America, Caterpillar Inc., Duke Energy, DuPont, General Electric, Florida Power & Light, Lehman Brothers, PG&E, and PNM Resources. Since the coalition's formation, other large companies, including all three domestic auto manufacturers and the oil company ConocoPhillips, have joined the coalition. For more information, see [http://www.us-cap.org/]. See also, "Exxon Mobil Greens Up Its Act," *Fortune*, January 26, 2007, which notes: "In its ubiquitous corporate advertising, the company is talking about what actions should be taken to reduce greenhouse gas emissions, instead of questioning the science of climate change.... That's a turnabout from the late 1990s and early 2000s when Exxon led the opposition to the Kyoto Protocol and provided funding for think tanks that challenged mainstream science."

[5] The resolution, which was Section 1612 of the Senate energy bill (H.R. 6, as amended by S.Amdt. 866), was not included in the enacted version of the bill, P.L. 109-58.

[6] The bill that was defeated was S. 139, as amended by S.Amdt. 2028.

[7] The vote to invoke cloture was on an amendment in the nature of a substitute, S.Amdt. 4825.

energy policy and focused its efforts in the first session on the passage of landmark energy legislation (P.L. 110-140), which was signed by the President December 19, 2007. While there was further attention to climate change bills in the second session of the Congress, the committee did not attempt to mark up a climate bill.

As the 111th Congress gets underway, both the House and Senate committees of jurisdiction are expected to give climate legislation high priority, and President Obama, a proponent of greenhouse gas controls, has said that a new energy, environment, and climate policy will be "a leading priority of my presidency, and a defining test of our time."[8] Opponents can be expected to raise a number of arguments, including whether a major regulatory initiative is appropriate during the worst economic climate since the Great Depression; but proponents counter that the legislation would be designed to address the long term, and that energy-efficiency and lower emissions should be the building blocks of a program to restore the economy. However these arguments play out, a significant number of questions, both procedural and substantive, will remain as Congress and the new Administration consider what actions to take.

Legislative and Regulatory Issues

What Role for the Clean Air Act?

The relationship of climate change legislation to the more traditional air pollution programs of the Environmental Protection Agency (EPA) is one such question. In brief, should GHGs (particularly carbon dioxide) be considered air pollutants subject to regulation under the Clean Air Act, or are they more properly regulated through fuel economy standards and regulation of the use of fossil fuels to produce energy?

The answer to this question could affect the comprehensiveness of the chosen policies, and whether they focus more on ends or means. It would affect jurisdiction over a climate change program (particularly in the Senate, where both the Energy and Natural Resources Committee and the Environment and Public Works Committee have considered GHG-related legislation). It could determine whether EPA, the Department of Energy, or some other agency would administer an enacted GHG control program. And it might affect whether states have authority independent of the federal government to control certain greenhouse gas emissions.

Over the years, EPA has taken both sides of this issue: under the Clinton Administration, it claimed that CO_2 is an air pollutant, and thus could be regulated under the existing authority of the Clean Air Act; under the Bush Administration, it reversed course, denying a petition in 2003 for GHG controls on motor vehicles. In denying the petition, EPA argued that Congress had authorized research and data collection on GHGs under the Clean Air Act, but had expressly decided not to regulate the pollutant. The Bush Administration subsequently maintained that controlling CO_2 and other greenhouse gas emissions from automobiles is equivalent to setting fuel economy standards (a regulatory authority that Congress reserved for the federal Department of Transportation), not controlling air pollution (where states do have a regulatory role).

[8] Remarks of President-Elect Barack Obama, as prepared for delivery at the announcement of his Energy and Environment Team, December 15, 2008, Chicago, Illinois, at http://change.gov/newsroom/entry/president_elect_barack_obama_announces_key_members_of_energy_and_environmen/.

EPA's denial of the petition to regulate mobile source GHGs was challenged by Massachusetts, 11 other states, and various other petitioners, in a case that ultimately reached the Supreme Court. In an April 2, 2007 decision (*Massachusetts v. EPA*), the Court found by 5-4 that:

> The Clean Air Act's sweeping definition of "air pollutant" includes "any air pollution agent or combination of such agents, including any physical, chemical ... substance or matter which is emitted into or otherwise enters the ambient air.... " ... Carbon dioxide, methane, nitrous oxide, and hydrofluorocarbons are without a doubt "physical [and] chemical ... substances[s] which [are] emitted into ... the ambient air." The statute is unambiguous.[9]

Thus, the Court's majority had no doubt that the Clean Air Act gives EPA the authority to regulate greenhouse gases (in this case, from new motor vehicles), although the specifics of such regulation might be subject to agency discretion.[10]

In nearly two years since that decision, EPA has managed to avoid responding to the original petition: its only formal action has been to issue a detailed information request, called an Advance Notice of Proposed Rulemaking (ANPR), on July 30, 2008.[11] Under the Obama Administration, however, the authority EPA possesses may take on new significance. The new President is committed to addressing GHG emissions, and he can use existing Clean Air Act authority in a number of ways to do so. In the wake of the *Massachusetts* decision, EPA has received additional petitions to regulate GHG emissions from power plants, oil refineries, ships, non-road engines, and aircraft, in addition to the still pending petition for controls on cars and trucks. Any of these petitions could prompt agency action.[12]

Treating GHGs as conventional pollutants does raise issues, however. The basic structure of the Clean Air Act requires EPA to identify concentrations of pollutants that endanger public health or the environment and set National Ambient Air Quality Standards (NAAQS) for them. It presumes that these concentrations are local or regional, and requires states to develop implementation plans that will reduce the pollution in areas that exceed the NAAQS within a 10-20 year timeframe at most. GHG concentrations are a worldwide problem, not amenable to the same type of planning, and not amenable to a quick solution. In general, too, the act defines major emission sources as those that emit more than 100 tons per year of a pollutant: this would include hundreds of thousands of relatively small sources in the case of CO_2, potentially overburdening EPA and

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[9] Massachusetts v. EPA, 127 S.Ct. 1438 (2007).

[10] For further discussion of the Court's decision, see CRS Report RS22665, *The Supreme Court's Climate Change Decision: Massachusetts v. EPA*.

[11] U.S. EPA, "Regulating Greenhouse Gas Emissions Under the Clean Air Act," 73 *Federal Register* 44354, July 30, 2008. The *Massachusetts* decision required that EPA make a finding as to whether GHG emissions from motor vehicles endanger public health or welfare. An affirmative finding would be the first step in regulating such emissions. The ANPR discussed in detail the complications that would arise from a finding that GHG emissions endanger public health or welfare, including the likelihood that other sources of emissions would also meet the criteria for regulation. Throughout 2007, EPA Administrator Johnson maintained that he would make an endangerment finding in response to the *Massachusetts* decision by the end of that year. According to EPA staff, an endangerment of welfare finding was prepared and a proposed GHG emission standard for motor vehicles was approved by the Administrator. The endangerment finding was sent to the White House Office of Management and Budget (OMB) somewhere between December 5 and December 8, 2007, and a proposed GHG emission standard was sent to the Department of Transportation, but no further action was taken. The agency substituted the ANPR for the draft endangerment decision. For further discussion see archived CRS Report RL33776, *Clean Air Issues in the 110th Congress: Climate Change, Air Quality Standards, and Oversight*, pp. 11-13.

[12] There are also two lawsuits seeking EPA action on New Source Performance Standards for greenhouse gas emissions.

state environmental agencies. Thus, the Clean Air Act's existing authority may be useful as a starting point, but most observers conclude that a new control program designed specifically to address GHGs would make more sense.

As noted, 10 of the 17 bills introduced in the 110th Congress to cap greenhouse gas emissions would have amended the Clean Air Act, as would the Energy and Commerce Committee's discussion draft. In order to sidestep the complexities of treating GHGs as traditional pollutants, they generally would have created a new Title VII to establish a separate program for greenhouse gas emissions. In this respect, the bills emulated the 1990 Clean Air Act Amendments, which created separate titles to deal with acid precipitation (Title IV) and stratospheric ozone depletion (Title VI).

Should Legislation Focus on Individual Sectors, the Economy as a Whole, or Both?

Most of the bills dubbed "climate change" bills in the 110th Congress would have established economy-wide programs to reduce greenhouse gas emissions. But recent Congresses have also seen dozens of bills aimed at the emissions of individual sectors, notably electric utilities, cars and trucks, electrical appliances, and commercial or government buildings. Together, these sectors account for the lion's share of energy use and GHG emissions. Electric utilities account for about 40% of U.S. emissions of CO_2. Transportation (of which the dominant portion is cars and trucks) accounts for about one-third. Appliances, other electrical equipment, and buildings all play important roles as consumers of energy; thus, reducing their energy use through efficiency standards, better insulation, etc., can be important means of reducing GHG emissions.

If the focus is on individual sectors rather than the economy as a whole, the likelihood is that new legislation to reduce GHGs would not amend the Clean Air Act, and the resulting regulatory programs would be implemented and administered by agencies other than EPA. For example, the Corporate Average Fuel Economy (CAFE) standards, which have regulated the fuel economy of automobiles and light trucks since the mid-1970s, are set and administered by the National Highway Traffic Safety Administration of the Department of Transportation. P.L. 110-140, signed by President Bush December 19, 2007, strengthened the automobile standards for the first time since 1975. The new standards will require new vehicles to achieve about a 40% improvement in fuel economy by 2020. Appliance efficiency standards are set by the Department of Energy (DOE). These standards were also strengthened in P.L. 110-140. Other potential elements of a GHG reduction program, such as building codes, are administered by state and local governments, although DOE provides input to commercial building codes under provisions of the Energy Policy Act of 1992.[13] Power plants represent a particularly complicated sector, which, depending on the source of power, may be regulated by the Nuclear Regulatory Commission, the Federal Energy Regulatory Commission, or EPA, with a major role also for state governments. (For a discussion of federal programs and policies, see CRS Report RL31931, *Climate Change: Federal Laws and Policies Related to Greenhouse Gas Reductions*.)

[13] P.L. 110-140 also strengthened DOE's authority regarding building energy efficiency standards.

Is Cap-and-Trade the Best Approach?

The complexity and sheer number of measures that might need to be taken in order to have a significant impact on GHG emissions in sector-specific approaches leads many to suggest an economy-wide approach, in which a decreasing annual emissions cap is established, and emission allowances are distributed or sold to major emitters. As the cap (and hence, the number of allowances) is gradually ratcheted down, markets would determine who reduces emissions: companies that could do so at low cost would have incentives to take action; companies with fewer or more costly options could buy allowances to cover excess emissions. (For a more complete discussion of these issues see CRS Report RL33799, *Climate Change: Design Approaches for a Greenhouse Gas Reduction Program*.)

Such cap-and-trade programs have an enviable reputation, largely based on the success of the Clean Air Act's acid rain program. That program imposed a cap on sulfur dioxide emissions for a limited number of electric power plants in 1995, and in 2000 lowered the cap and expanded coverage to more plants. It met its emission reduction goals at low cost, with virtually 100% compliance, and with minimal administrative oversight.

The success of the program was at least partly the result of the favorable circumstances in which it was implemented: the reduction targets were easily met because of an abundant supply of cheap low-sulfur coal; there were only about 1,000 entities (power plants) covered by the trading program, making it simple and inexpensive to monitor and administer; and most of the regulated entities were allowed 10 years to achieve compliance, by which time, early reductions had generated an enormous number of extra allowances that helped lubricate the trading system.

Some other trading programs have not been as successful. Southern California's Regional Clean Air Incentives Market (RECLAIM), for example, which was implemented in 1994 to reduce emissions of NOx and SO_2 in the Los Angeles area, saw a 50-fold increase in NOx allowance prices during the 2000-2001 California energy crisis. To permit its continued functioning and allow utilities to use backup power generators, electric utilities were removed from the RECLAIM system, charged a flat fee of $15,000 per ton for excess emissions, and subjected to new command and control requirements (i.e., the type of regulation the trading system was designed to avoid). The European GHG trading system (EU-ETS), established to help European Union countries meet their Kyoto Protocol targets, saw wild swings in short-term allowance prices during its start-up years, making planning and decision-making difficult for participating entities.[14]

A U.S. cap-and-trade system for GHG emissions would face a number of challenges. First, with the exception of electric utilities, sources of GHGs have not generally been required to monitor or report their GHG emissions; what we know about sources is based, for the most part, on estimates. Thus, a monitoring requirement would need to be established to serve as a basis for any future reduction scheme, whether cap-and-trade or not. P.L. 110-161, the Consolidated Appropriations Act, 2008, directed EPA to develop regulations that establish a mandatory GHG reporting program that will apply "above appropriate thresholds in all sectors of the economy," but a registry does not yet exist.

[14] For additional information on the EU trading system, see CRS Report RL34150, *Climate Change and the EU Emissions Trading Scheme (ETS): Kyoto and Beyond*.

Second, decisions need to be made regarding the comprehensiveness of any program: what economic sectors to include, what to establish as a small emitter exemption, etc. Again, this problem is not unique to cap-and-trade, but it assumes increasing importance if one is designing any economy-wide approach.

Third, there is a wide array of issues related to the distribution or sale of allowances, including what year to choose as the base year against which to measure emission reductions; what criteria or method to use to allocate allowances; whether to auction allowances to existing sources of emissions or give them away; whether to establish reserves for new sources; etc. These are enormously important decisions: an economy-wide program in which all allowances are auctioned might impose costs and raise revenues totaling hundreds of billions of dollars each year, depending on the stringency of the program's cap. How the revenues would be allocated (whether treated as general revenues, used for tax reduction, or, at least in part, dedicated to programs designed to reduce emissions or alleviate the impacts of climate change) raises another set of complicated issues.[15]

Fourth, in order to prevent wild swings in allowance prices, a variety of flexibility mechanisms have been suggested, including a "safety valve" (a price at which the regulatory authority would sell additional allowances if the market cost rose above predicted levels); the banking of excess allowances (achieved through early reductions) for later use; borrowing authority; etc. Others have proposed a floor below which prices would not be allowed to fall, to promote research and development of GHG reduction technologies and reduce risk for sources that make GHG reductions. If a safety valve or floor were established, the price of additional allowances and/or the floor price would be key determinants of the stringency of the program.

Fifth, for more than a decade, a primary concern has been how a GHG emissions cap or other GHG controls would affect the competitiveness of U.S. industry: whether, for example, it might lead manufacturers of carbon-intensive goods to relocate production to countries with weaker GHG regulations or no cap at all. A number of options have been proposed to address this "carbon leakage" concern, including directly supporting domestic carbon-intensive industries, imposing countervailing duties or allowance requirements on imports from countries with weaker GHG requirements, and/or developing sectoral approaches that address the emissions of specific industries worldwide.[16]

Sixth, there are a number of issues related to whether and how to permit international trading of allowances themselves. Many of the least cost GHG reduction options may be in developing countries, but verification of the baseline emissions and of the continued application of emission controls could pose challenges to the regulatory authority in such cases. Similar questions are raised by potential domestic or international offsets to emissions. An offset is a measurable reduction, avoidance, or sequestration of GHG emissions from a source not covered by an emission reduction program. Examples might include planting trees on previously non-forested lands, capturing methane emissions from agricultural sources, or implementing an energy-efficiency project in a developing country that has no GHG reduction program.[17]

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[15] For a discussion, see CRS Report RL34502, *Emission Allowance Allocation in a Cap-and-Trade Program: Options and Considerations*.

[16] For a discussion, see CRS Report R40100, *"Carbon Leakage" and Trade: Issues and Approaches*.

[17] For a discussion of offsets, see CRS Report RL34436, *The Role of Offsets in a Greenhouse Gas Emissions Cap-and-Trade Program: Potential Benefits and Concerns*. For a broader discussion of issues faced in designing a GHG (continued...)

What Role for Carbon Taxes?

The complications of establishing a viable cap-and-trade program suggest to some (especially to those trained in economics) that the simplest approach to controlling emissions would be to impose a fee for units of carbon or GHG emissions, also known as a carbon tax. From the point of view of economic efficiency, administrative ease, and comprehensiveness, a carbon tax has many advantages, but Congress has found it difficult to impose new taxes, limiting support for this option. It is worth noting that a "safety valve" and/or floor price (discussed in the cap-and-trade section above) combined with an auction scheme to allocate allowances would function to some extent like a carbon tax, and might represent a compromise between these two options.

What Role for State Programs?

Finally, as noted earlier, a number of states have begun programs to reduce GHG emissions. Although the federal government challenged some of these under the Bush Administration, particularly those affecting mobile sources, states do have clear authority to regulate emissions from power plants, landfills, residential and commercial buildings, and other sources of GHGs. The extent to which such state programs might serve as national models (or that a patchwork of state programs might serve as a catalyst to a federal regime) is one set of issues; another is the degree to which a federal program might preempt state measures affecting similar sources.[18]

California's Waiver Request

The question of federal preemption has already arisen under current law. California has adopted regulations requiring new motor vehicles to reduce GHG emissions, beginning in model year 2009. The standards require gradual reductions of GHG emissions until they are about 30% below the emissions of the 2002 fleet in 2016.[19] Compliance would be determined by fleet averages, rather than by the emissions of individual vehicles, and the regulations provide additional flexibility, including averaging, banking, and trading of credits within and among manufacturers.

Although California finalized its regulations in 2005, the standards have not gone into effect because the state first needs to obtain a waiver of federal preemption from U.S. EPA. The Clean Air Act generally preempts states from adopting their own emission standards for mobile sources of air pollution, but it makes a conditional exception for California—whose air pollution problems have been more severe than those of other states, and whose emission control program pre-dated federal requirements. To obtain this exception, the state must be granted a waiver by the EPA Administrator. The act also permits other states to adopt standards identical to California's, if California is granted a waiver: 14 states and the District of Columbia have adopted identical

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reduction program, see CRS Report RL33799, *Climate Change: Design Approaches for a Greenhouse Gas Reduction Program*. For information on how introduced bills in the 110th Congress addressed these and other issues, see CRS Report RL33846, *Greenhouse Gas Reduction: Cap-and-Trade Bills in the 110th Congress*.

[18] For a discussion of state climate change programs, see CRS Report RL33812, *Climate Change: Action by States to Address Greenhouse Gas Emissions*.

[19] A table showing the mandated reductions year-by-year can be found in the California Air Resources Board's Regulations to Control Greenhouse Gas Emissions from Motor Vehicles, Final Statement of Reasons, August 4, 2005, p. 8 at http://www.arb.ca.gov/regact/grnhsgas/fsor.pdf.

standards.[20] Together, the states that have adopted the California standards represent nearly half the U.S. auto market, so there is broad interest in EPA's decision and a great deal is at stake.

To obtain a waiver, California must meet conditions laid out in CAA Section 209(b): the state must first determine that its standards will in the aggregate be at least as protective of public health and welfare as applicable federal standards. The EPA Administrator must then find whether the state's determination in this regard is arbitrary and capricious; whether the state needs such standards to meet compelling and extraordinary conditions; and whether the standards and accompanying enforcement procedures are consistent with Section 202(a) of the Clean Air Act.

California appears to have a sound argument that it meets these tests. No federal standards explicitly address greenhouse gas emissions from mobile sources, so the requirement that the state's standards be at least as protective as federal standards would appear to be met. The state identified several compelling and extraordinary conditions that the standards are designed to address, and the state provided information describing technologies available to meet the standards, many of which are already available on vehicles, and addressed consistent with Section 202(a).

The legislative history of the waiver provision would also seem to support California's case. In the most recent amendment of Section 209(b), the House committee report stated: "The Administrator is not to overturn California's judgment lightly. Nor is he to substitute his judgment for that of the State."[21] (For a further discussion, see CRS Report RL34099, *California's Waiver Request to Control Greenhouse Gases Under the Clean Air Act*.)

Nevertheless, the EPA Administrator announced on December 19, 2007, that he would deny the waiver request. According to press reports, the decision to deny the waiver was taken against the unanimous advice of the agency's technical and legal staffs. In a letter to California's Governor Schwarzenegger on that date, the Administrator cited the signing earlier the same day of the Energy Independence and Security Act (P.L. 110-140), which established new fuel efficiency standards for motor vehicles, as providing a national approach to greenhouse gas emissions, a problem that, he noted, is "fundamentally global in nature." He also contrasted the problems caused by GHGs to the local and regional air quality problems addressed by previous California waiver requests, more than 50 of which have been granted by EPA since the late 1960s.

On February 29, 2008, the Administrator signed a formal decision document denying the waiver. (The decision document appeared in the March 6, 2008 *Federal Register*.[22]) In it, he based his denial on the "compelling and extraordinary conditions" test, finding that Section 209(b) was intended to allow California "to address problems that are local or regional," not a global problem such as climate change, and that the effects of climate change in California are not compelling

[20] The 14 states are Arizona, Connecticut, Florida, Maine, Maryland, Massachusetts, New Jersey, New Mexico, New York, Oregon, Pennsylvania, Rhode Island, Vermont, and Washington. Under Section 177 of the act, states that have nonattainment or "maintenance" areas can adopt California's emission standards for mobile sources in lieu of federal standards. Every state except Hawaii, North Dakota, and South Dakota would be eligible to adopt California's standards under this so-called "piggyback" provision.

[21] U.S. Congress, House Interstate and Foreign Commerce Committee, *Clean Air Act Amendments of 1977*, May 12, 1977, H.Rept. 95-294, pp. 301-302.

[22] U.S. EPA, "California State Motor Vehicle Pollution Control Standards; Notice of Decision," 73 *Federal Register* 12156, March 6, 2008.

and extraordinary, as the statute requires, compared to the effects in the rest of the country.[23] California and 18 other states have filed suit challenging the Administrator's decision.[24]

The auto industry, in addition to the Bush Administration, has opposed the granting of a waiver. The industry maintains that there is effectively no difference between California and federal emission standards in their impact on criteria air pollutants, that the benefits of California's GHG regulations are "zero", and that emissions will actually increase as a result of the regulations as consumers keep older, higher-emitting cars longer.[25]

The incoming Administration appears poised to reverse EPA's denial of the waiver request,[26] but the mechanism for such a reversal remains uncertain. In general, a regulation (or "rule") can be reversed only by following the same procedural steps that were taken to promulgate it, but the Administrator's waiver decision is not a regulation. It was never formally proposed in the *Federal Register*; and the Clean Air Act itself does not treat decisions under Section 209(b) as being subject to the same administrative procedures that it sets out for regulatory decisions in Section 307 of the act. In reaching his decision, the Administrator simply requested public comment on whether he should grant the request, held two public hearings, and some time later announced that he had decided not to grant a waiver, stating his reasons. Thus, reversing the decision might be somewhat simpler than reversing a formal regulation. It would surely not require a formal proposal, since the original decision was not proposed; and, since the original public comments were overwhelmingly in favor of granting the waiver, it is not clear whether it would even require a new public comment period or hearings. In addition, the justification for granting a waiver was already prepared by EPA staff, before the Administrator discarded it and changed course in December 2007.[27] Thus, a reversal by the Administrator might be prepared relatively quickly after the new Administration takes charge.

Although EPA could on its own reverse the waiver decision, there might be an advantage to Congressional action. An administrative reversal by EPA would presumably be challenged by the auto industry in court, whereas if Congress were to reverse EPA's decision, it could remove the grounds for litigation. Legislation could take several forms:

- stand-alone legislation could state directly that it waives the Clean Air Act's preemption of California's model year 2009-2016 GHG standards, or it could order EPA to grant such a waiver by a date certain; or
- the CAA could be amended to clarify that Section 209(b) can be used to authorize California standards for GHGs, or to establish new criteria for determining whether to waive preemption in the case of GHG standards.[28]

[23] Ibid.

[24] California v. U.S. EPA, No. 08-1178 (D.C. Cir. filed May 5, 2008).

[25] Alliance of Automobile Manufacturers, "California Waiver Request," presentation materials from U.S. EPA public hearing, Sacramento, CA, May 30, 2007.

[26] "Obama Likely to Take Action on Regulating Emissions, Clearing California Waiver Request," *Daily Environment Report*, November 13, 2008, p. A-1.

[27] The history of the decision is known in some detail as the result of an investigation by the House Oversight and Government Reform Committee. See "White House Involved in California Waiver Denial," May 19, 2008, at http://oversight.house.gov/investigations.asp?start=25&id=121.

[28] An EPA appropriation bill could order the agency to grant a waiver, perhaps as a step toward national GHG standards for cars and trucks, but that seems unlikely given the Administration's willingness to grant a waiver. (continued...)

In the 110th Congress, a Senate bill taking the first of these forms was reported (S. 2555, S.Rept. 110-407). The bill would have considered California's application for a waiver to be approved, notwithstanding any other provision of law. Beyond reporting the bill, no further action was taken.

If California were granted a waiver, particularly through means other than Congressional action, there might be other impediments to the implementation of its standards, as industry opponents challenge EPA's authority in court. Already, in several court cases, the issue has been raised whether EPA and California are prohibited from regulating greenhouse gases by the Corporate Average Fuel Economy (CAFE) requirements of the Energy Policy and Conservation Act of 1975 (EPCA, P.L. 94-163). Under EPCA, the authority to set fuel economy standards is reserved for the federal government, and specifically, the National Highway Traffic Safety Administration. The auto industry maintains that the regulation of GHGs is simply another method of regulating fuel economy, and, therefore, that California's GHG standards are preempted by EPCA. In the first of the cases to be tried, *Green Mountain Chrysler Plymouth Dodge Jeep v. Crombie*,[29] the federal district court in Vermont ruled September 12, 2007, that the Clean Air Act/EPCA relationship is one of overlap, not conflict, and concluded that California and other states are not preempted by EPCA from setting mobile source GHG standards. In a second decision, *Central Valley Chrysler Jeep, Inc. v. Goldstene*,[30] a district court in the Ninth Circuit similarly rejected claims that California's regulation of GHG emissions from cars and trucks was precluded or preempted by EPCA. Both of these decisions have been appealed. Two other cases making similar arguments are pending in district courts in Rhode Island and New Mexico.

Emissions from Power Plants

In addition to climate change, other clean air issues with a shorter time horizon may be addressed by the 111th Congress. Most of these have to do with emissions from electric power plants.

Coal-fired power plants are among the largest sources of air pollution in the United States; however, 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 fuel 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. Because 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 regulations affecting them, particularly with respect to plants constructed before the Clean Air Act of 1970 was passed.

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 and 1960s (generally referred to as "grandfathered"

(...continued)

Appropriation language is more commonly used to require or prevent action in cases where Congress wishes to impose its views on the agency.

[29] Green Mountain Chrysler Plymouth Dodge Jeep v. Crombie, 508 F. Supp. 2d 295 (D. Vt. 2007).

[30] Central Valley Chrysler Jeep, Inc. v. Goldstene, 529 F. Supp. 2d 1151 (E.D. Cal. 2007).

plants) have little emission control equipment. Collectively, power plants are large sources of pollution. In 2005, they accounted for 10.2 million tons of sulfur dioxide (SO_2) emissions (70% of the U.S. total), 46 tons of mercury emissions (more than 40% of the U.S. total), and 3.6 million tons of nitrogen oxides (19% of the U.S. total). Power plants are also considered major sources of fine particles ($PM_{2.5}$), many of which form in the atmosphere from emissions from a wide range of stationary and mobile sources. In addition, power plants account for about 40% of U.S. anthropogenic emissions of the greenhouse gas carbon dioxide; these emissions are not subject to federal regulation but have been the focus of much debate in recent years.

With new ambient air quality standards for ozone and fine particles taking effect, emissions of NOx (which contributes to the formation of ozone and fine particles) and SO_2 (which is also among the sources of fine particles) will necessarily have to be reduced to meet standards. Mercury emissions have also been a focus of concern: 48 states have issued fish consumption advisories due to mercury pollution, covering 14 million acres of lakes, 882,000 river miles, and the coastal waters of 13 entire states. The continuing controversy over the interpretation of New Source Review requirements for existing power plants (discussed below) is also exerting pressure for a more predictable regulatory structure.

Thus, some in industry, environmental groups, Congress, and the last two Administrations have said that legislation addressing power plant pollution in a comprehensive (multi-pollutant) fashion would be desirable. Such legislation would address the major pollutants on a coordinated schedule and would rely, to a large extent, on a system such as the one used in the acid rain program, where national or regional caps on emissions are implemented through a system of tradable allowances. The key questions have been how stringent the caps should be and whether carbon dioxide (CO_2), the major gas of concern with regard to climate change, would be among the emissions subject to a cap.

Clean Air Interstate Rule (CAIR)

The Senate Environment and Public Works Committee has voted twice on a multi-pollutant bill, but neither of the bills progressed to the Senate floor. In the House, similar bills have been introduced, but none has progressed to markup. On March 10, 2005, therefore, EPA announced that it would use existing Clean Air Act authority to promulgate final regulations similar to the Bush Administration's multi-pollutant bill (the "Clear Skies" bill[31]) for utility emissions of SO_2 and NOx in 28 eastern states and the District of Columbia.[32]

The Clean Air Interstate Rule (CAIR) established cap-and-trade provisions like those of the Clear Skies bill for SO_2 and NOx.[33] Unlike Clear Skies, which was national in scope, CAIR covered

[31] President Bush first proposed the Clear Skies Act on February 14, 2002, and the bill was introduced by request in the 107th Congress as H.R. 5266/S. 2815. In the 109th Congress, a somewhat modified Clear Skies bill, introduced as S. 131, was considered by the Environment and Public Works Committee, but failed to advance, on a 9-9 vote. Clear Skies was not introduced in the 110th Congress.

[32] The rule appeared in the *Federal Register* two months later. See U.S. EPA, "Ambient Air quality standards, national—Fine particulate matter and ozone; interstate transport control measures," 70 *Federal Register* 25162, May 12, 2005.

[33] A separate regulation, the Clean Air Mercury Rule (CAMR), promulgated at the same time, established a Clear-Skies-like cap-and-trade system for mercury emissions. It is described in a separate section below.

only the eastern half of the country. Also, as a regulation, CAIR had no authority to allow EPA to remove other existing Clean Air Act requirements, as the Clear Skies bill would have done.

Under CAIR, EPA projected that nationwide emissions of SO_2 would decline 53% by 2015 and NOx emissions 48%. The agency also projected that the rule would result in $85-$100 billion in health benefits annually by 2015, including the annual prevention of 17,000 premature deaths. CAIR's health and environmental benefits would be more than 25 times greater than its costs, according to EPA.

North Carolina v. EPA

CAIR was one of the few Bush Administration environmental initiatives that was generally supported by environmentalists. It also had broad support among the regulated community. But a variety of petitioners, including the State of North Carolina, which argued that the rule was not strong enough to address pollution from upwind sources, and some individual utilities that felt they were unfairly treated by the rule's emission budgets, challenged the rule in the D.C. Circuit, and the court vacated it July 11, 2008. A unanimous court found that EPA had established a significant contribution made by power plants to nonattainment of standards or failure to maintain standards in downwind states, as required by Section 110 of the Clean Air Act, but the court concluded that the agency's methodology for establishing emission budgets for each state was unrelated to that link.[34] The court also found that the choice of 2015 for a second phase compliance deadline, based on technological and economic feasibility, ignored EPA's statutory mandate. And it found the fuel adjustment factors in the rule (which set more stringent requirements for natural gas- and oil-fired plants than for coal-fired ones) to be arbitrary and capricious. It concluded: "CAIR's flaws are deep. No amount of tinkering ... will transform CAIR, as written, into an acceptable rule."[35]

Despite the seemingly high hurdle set by the language the court used, EPA, environmental groups, and the utility and mining industries asked the court to review its decision. On December 23, 2008, the court modified its decision, allowing CAIR to remain in effect until a new rule is promulgated by EPA. [36] The court was not specific about how long this process would be allowed to take, but stated:

> Though we do not impose a particular schedule by which EPA must alter CAIR, we remind EPA that we do not intend to grant an indefinite stay of the effectiveness of this court's decision. Our opinion revealed CAIR's fundamental flaws, which EPA must still remedy.[37]

Effects of the Decision

From a policy standpoint, the court's vacatur of CAIR removed the lynchpin of the Bush Administration's approach to clean air over the past eight years. CAIR was a principal means by which EPA projected that nonattainment areas in the eastern half of the country would attain the ozone and fine particulate National Ambient Air Quality Standards (NAAQS); in the agency's

[34] North Carolina v. EPA, 531 F.3d 896 (D.C. Cir. 2008).

[35] Id. at 930.

[36] North Carolina v. EPA, 2008 Westlaw 5335481 (D.C. ir. Dec. 23, 2008).

[37] Id. at *1.

analysis, it would also have been responsible for achieving the lion's share of reductions in mercury emissions from coal-fired power plants (as discussed further below); it would have addressed regional haze impacts from power plants; and it would have addressed state petitions to control upwind sources of ozone and fine particulate pollution, making controls on individual power plants under Section 126 of the Clean Air Act unnecessary, according to EPA. Thus, EPA asked the court to reconsider its decision, which led the court to announce that it would delay issuing its mandate.

The agency would presumably like to see the court's invalidation of CAIR reversed, not just delayed. Thus, the possibility exists that it might further appeal, either to the full (en banc) D.C. Circuit, or to the Supreme Court.

In addition to EPA, there is also general agreement among the states, electric utilities, and environmental groups that something like CAIR should be salvaged.

- Without CAIR, most eastern states would have huge gaps in their emission control programs, which would have to be filled by other regulatory measures if the states are to attain the NAAQS by the statutory deadlines. The states could be subject to sanctions, including a suspension of federal highway funding for new projects, if they fail to adopt such measures.
- For the utilities, CAIR was designed to build on the existing regulatory framework of cap-and-trade programs under the acid rain program and the "NOx SIP Call."[38] Anticipating the ability to bank and trade emission allowances under CAIR, numerous utilities have already invested in equipment to meet or exceed CAIR's requirements, the first phase of which are to be implemented this year.
- For environmental groups, which found little to their liking in the Bush Administration, CAIR was the major exception. They might be inclined to argue for a stronger version of CAIR—particularly its second phase, to be implemented in 2015—but they generally supported the basic approach.

Issues to Be Resolved

Assuming CAIR is to be salvaged, a number of questions need to be addressed, the most basic of which is whether the courts, EPA, or Congress will take the lead.

The **courts** might be the venue for further consideration of the issues if EPA or one of the plaintiffs chooses to appeal the D.C. Circuit's decision, either to the Court of Appeals en banc, or to the Supreme Court. An en banc reversal might provide the shortest path to CAIR's restoration; but the odds of such a reversal, given the panel's unanimous July 2008 decision, seem slim. Absent a reversal, the main effect of an appeal could be substantial further delay in resolving the issues raised by the court: if the Supreme Court were to accept the case, for example, it is doubtful that argument would be scheduled before fall 2009, with a decision in 2010. If an appeal to the en banc Court of Appeals is granted prior to consideration by the Supreme Court, more time is tacked on to the schedule. At the end of the process, EPA might be essentially where they are now, faced with the prospect of developing a new regulation.

[38] The acid rain program is described above on p. 6. The NOx SIP Call implemented in 2004, is a cap-and-trade program for control of nitrogen oxide emissions in the eastern half of the country.

If **EPA** undertakes to develop a replacement rule, as the D.C. Circuit has ordered, it will need to undertake additional analyses and restart the regulatory process. Developing, proposing, and promulgating the original rule took three to four years. There is every reason to believe a new regulation might take as long, or longer, in part because the agency must undertake a new round of analyses to determine the emission budgets for each state. The original CAIR modeling neglected to include sources other than power plants, an omission that would need to be rectified. In addition, EPA has tightened ambient air quality standards for ozone and particulates in the years since the original CAIR modeling was conducted, and the inventory of emissions sources has changed as a result of plant modifications, new construction, and the installation of pollution controls on a number of sources. All of this means that the agency will be starting from scratch and will need a significant amount of time to develop emissions budgets that would enable downwind states to reach attainment of the new NAAQS. Thus, it could be 2012 before EPA promulgated a replacement for CAIR.

Phase 1 of CAIR could continue to be implemented while EPA undertook these analyses; the principal result of a new regulatory process would be a new version of Phase 2, scheduled for implementation in 2015. Under CAIR, Phase 2 required only modest further reductions: the Phase 1 cap is set about 60% below baseline SO_2 emissions, with the Phase 2 cap an additional 13% below that; because banked allowances can be used in place of actual reductions, the actual SO_2 reductions in 2015 are projected by EPA to be only 54% compared to the 2010 baseline. For NOx, the Phase 1 cap is 45% below baseline, with Phase 2 providing an additional 7%.[39] The technology is clearly available to do more: EPA modeling shows 40% of electric generating units without scrubbers in 2015, and 50% without the best available NOx control.[40] Thus, assuming that modeling shows that more reductions are needed for the states to attain NAAQS, the pressure would be on EPA to strengthen Phase 2.

In order to shorten the regulatory process and avoid litigation, some argue that **Congress** needs to resolve the issues posed by the CAIR court decision. Over the past decade, several dozen multi-pollutant bills would have addressed SO_2 and NOx emissions from power plants through a cap-and-trade system, most of them in conjunction with controls on mercury and CO_2. If legislation is to be considered now, the issues might, therefore, include not only the stringency and timing of SO_2 and NOx controls, but also whether to include mercury and CO_2 controls in the bill.

Clean Air Mercury Rule (CAMR)

Background

Regulation of mercury emissions, in particular, has a complicated legislative and regulatory history, dating back to the 1990 Clean Air Act Amendments. EPA was required by that legislation 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. Section 112 is the section that regulates emissions of hazardous air pollutants. In general, it requires EPA to set standards based on the Maximum Achievable Control Technology (a term defined with great precision in

[39] See CRS Report RL32927, *Clean Air Interstate Rule: Review and Analysis*, Table 5.

[40] U.S. EPA, Office of Air Quality Planning and Standards, *Regulatory Impact Analysis of the Clean Air Mercury Rule*, March 2005, Table 7-9, p. 7-8, http://www.epa.gov/ttn/atw/utility/ria_final.pdf. Hereafter, "Mercury RIA." The technologies referred to are flue gas desulfurization (FGD) scrubbers and selective catalytic reduction (SCR) for NOx.

the act), and to impose the MACT standards at each individual emissions source. In a December 2000 regulatory finding, EPA concluded that regulation of mercury from power plants under Section 112 was appropriate and necessary. The finding added coal- and oil-fired electric generating units to the list of sources of hazardous air pollutants, and triggered other provisions of the 1998 consent agreement: that the agency propose MACT standards for them by December 15, 2003, and finalize the standards by March 15, 2005.

Rather than promulgate MACT standards, however, EPA reversed its December 2000 finding in March 2005, and established through regulations a national cap-and-trade system for power plant emissions of mercury, the Clean Air Mercury Rule (CAMR). Under CAMR, the final cap would have been 15 tons of emissions nationwide in 2018 (about a 70% reduction from 1999 levels, when achieved). There would also have been an intermediate cap of 38 tons in 2010, well above EPA's projection of emissions in that year.[41]

Under the cap-and-trade system, utilities could either control the pollutant directly or purchase excess allowances from other plants that instituted controls more stringently or sooner than required. As with the acid rain and CAIR cap-and-trade programs, early reductions under CAMR could have been banked for later use, which the agency itself said would result in utilities delaying compliance with the full 70% reduction until well beyond 2018, as they used up banked allowances rather than installing further controls. The agency's analysis projected actual emissions to be 24.3 tons (less than a 50% reduction) as late as 2020. Full compliance with the 70% reduction would have been delayed until after 2025.[42] (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*.)

New Jersey v. EPA

The CAMR rule was immediately challenged in petitions for review filed by New Jersey and 16 other states as well as other petitioners.[43] The D.C. Circuit, in a 3-0 decision handed down February 8, 2008,[44] vacated the rule. The court found that once the agency had listed electric generating units (EGUs) as a source of hazardous air pollutants, it had to proceed with MACT regulations under Section 112 of the act unless it "delisted" the source category, under procedures the act sets forth in Section 112(c)(9). Delisting would have required the agency to find that no EGU's emissions exceeded a level adequate to protect public health with an ample margin of safety, and that no adverse environmental effect would result from any source—a difficult test to meet, given the agency's estimate that EGUs are responsible for more than 40% of mercury emissions from all U.S. sources. Rather than delist the EGU source category, the agency had maintained that it could simply reverse its December 2000 "appropriate and necessary" finding, a decision that was much simpler because there were no statutory criteria to meet. The court found this approach unlawful. "This explanation deploys the logic of the Queen of Hearts, substituting EPA's desires for the plain text of Section 112(c)(9)," the court said in its opinion.[45]

[41] The agency projected emissions at 31 tons in 2010 even if 99% of the generating units installed no mercury control equipment.

[42] U.S. EPA, Mercury RIA, previously cited, Table 7-3, p. 7-5.

[43] Seven other states joined EPA in defending the rule.

[44] New Jersey v. EPA, 517 F.3d 574 (D.C. Cir. 2008).

[45] Id. at 582.

Other Mercury Issues

Besides the question of whether EPA complied with the law's requirements, critics found other reasons to oppose EPA's cap-and-trade approach to controlling mercury. One of the main criticisms has been that it would not address "hot spots," areas where mercury emissions and/or concentrations in water bodies are greater than elsewhere. In fact, under a cap-and-trade system, nothing would prevent emissions from increasing at hot spots. Many also argued that the mercury regulations should have been more stringent or implemented more quickly than the cap-and-trade regulations would have required. These arguments have found a receptive audience in the states: about 20 states have promulgated requirements stricter than the federal program, with several requiring 80% to 90% mercury reductions before 2010. (For additional information, see CRS Report RL33535, *Mercury Emissions from Electric Power Plants: States Are Setting Stricter Limits*.)

Next Steps

Under the D.C. Circuit's ruling, unless EPA delists the power plant category, it would appear that the agency does not have the legislative authority to establish a cap-and-trade program for their mercury emissions: it must impose MACT standards on each individual plant once it has listed the category. The agency can, of course, appeal the court's ruling: on October 17, 2008, it petitioned for certiorari to the Supreme Court.[46] If this petition is denied or if the Court rules against EPA, it will need to proceed with the development of MACT standards.

To speed this process, Senator Carper introduced S. 2643 in the 110th Congress. It would have required the Administrator to propose MACT standards no later than October 1, 2008, and would have required new and existing power plants to achieve a reduction in mercury emissions of not less than 90%. (For additional information, see CRS Report RS22817, *The D.C. Circuit Rejects EPA's Mercury Rules: New Jersey v. EPA*.) Similar legislation could be introduced in the 111th Congress, but a likely alternative, if legislation is to be considered, might be to combine mercury requirements with controls on SO_2 and NOx in a multi-pollutant bill.

In the meantime, while the agency and Congress consider their options, or while the agency develops new regulations in response to the court's remand, new coal-fired electric generating units and modifications of existing units will be required to obtain permits under a provision of the law known as the "MACT hammer" (Section 112(g)(2)). Under this provision, if no applicable emission limits have been established, no person may construct a new major source or modify an existing major source in the category unless the Administrator or the state determine on a case-by-case basis that they meet MACT emission limits. On February 28, 2008, the Natural Resources Defense Council (NRDC) released a list of 32 coal-fired power plants in 13 states that it believes must now adopt MACT mercury controls under this provision.[47]

[46] 77 U.S.LW 3253 (No. 08-512).

[47] NRDC, "32 Coal-Fired Power Plants in 13 States Now Up in the Air After Major Court Ruling on Mercury," Press Release, February 28, 2008, at http://www.nrdc.org/media/2008/080228.asp.

CO_2 Emissions from Power Plants

In addition to SO_2, NOx, and mercury, power plants are also the source of 40% of the nation's emissions of CO_2, the principal greenhouse gas. The interrelationship of CO_2 with the other three types of emissions suggests to some that the best approach to regulation would be to address all four pollutants at the same time. For example, if SO_2 and NOx are addressed separately from mercury and CO_2, the most cost-effective control strategies for a coal-fired EGU might be to burn low sulfur coal and buy NOx emission allowances. If mercury and CO_2 reductions are required simultaneously, then switching fuels (from coal to natural gas) begins to make more sense, since natural gas emits no SO_2, no mercury, and significantly less CO_2 and NOx. A multi-pollutant approach also makes renewable fuels and nuclear power more competitive with coal.

New Source Review

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 (NSR). The New Source Review debate has occurred largely in the courts. EPA took a more aggressive stance on NSR late in the Clinton Administration, filing lawsuits against 13 utilities for violations at 51 plants in 13 states. The Bush Administration took action against an additional half a dozen utilities and, after years of negotiation, has settled many of the original suits. In the meantime, however, it proposed major changes in the NSR regulations that critics argue would have weakened or eliminated New Source Review as it pertains to modifications of existing plants.

The controversy over the NSR process stems from EPA's use of it to require the installation of best available pollution controls on existing stationary sources of air pollution that have been modified. The Clean Air Act requires that plants undergoing modifications meet these NSR requirements, but industry has often avoided the NSR process 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, at least 13 have settled with the EPA, generally without going to trial. Under the settlements, they have agreed to spend about $10 billion on pollution controls or fuel switching to reduce emissions at their affected units. Combined, these companies will reduce pollution by 1.65 million tons annually.[48] 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.

[48] Total emissions of SO_2 and NOx from all sources nationwide were 37 million tons in 2003. Thus, settlements with the 13 utilities will eliminate about 5% of total emissions of the two pollutants.

The courts have generally sided with the Clinton Administration's interpretation of NSR. In the first case to go to trial, 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.[49] 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. A second case, involving Duke Energy, was initially decided in the utility's favor, but on appeal to the Supreme Court, the utility lost. The issue in that case involved whether EPA should consider the hourly emissions rate or the annual total of emissions in deciding whether to apply NSR. 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 the company was not required to undergo NSR and install more stringent pollution controls since the maximum hourly emissions rate did not increase as a result of the modifications, even if annual emissions did increase.[50] On April 2, 2007, the Supreme Court overturned the lower court rulings in a unanimous decision, finding that EPA's regulations, promulgated in 1980, clearly specified an increase in actual annual emissions as the measure of whether a permit for a modification was required.[51]

While pursuing these enforcement actions, the Bush Administration promulgated a number of changes to the NSR regulations that would have made 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.[52] The new regulations would have exempted industrial facilities from undergoing NSR (and thus from installing new emission controls) 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. Fifteen states, three municipalities, and several environmental groups filed suit to block this "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, and on March 17, 2006, a three-judge panel of the court unanimously struck the rule down.[53] 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.[54]

EPA proposed further changes to the NSR regulations on October 20, 2005, and September 14, 2006.[55] For the most part, 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. The new rule would have effectively allowed increases in annual emissions without an NSR permit, if a modification led to an increase

[49] United States v. Ohio Edison Co., 276 F. Supp. 2d 829 (S.D. Ohio 2003).

[50] United States v. Duke Energy Corp., 278 F.Supp. 2d 619 (M.D.N.C. 2003), *affirmed*, 411 F. 3d 539 (4th Cir., 2005).

[51] Environmental Defense v. Duke Energy Corp., 549 U.S. 561 (2007).

[52] U.S. EPA, "Prevention of significant deterioration and nonattainment new source review; routine maintenance, repair and replacement," 68 *Federal Register* 61247, October 7, 2003.

[53] New York v. EPA, 443 F.3d 880 (D.C. Cir. 2006) cert. denied, 127 S.Ct. 2127 (2007).

[54] Id. at 883.

[55] U.S. EPA, "Air pollution; standards of performance for new stationary sources: Electric generating units; emissions test," 70 *Federal Register* 61081, October 20, 2005, and "Prevention of significant deterioration and nonattainment new source review; debottlenecking, aggregation, and project netting," 71 *Federal Register* 54235, September 14, 2005. The September 2006 proposal, parts of which were finalized January 13, 2008, 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.

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,"[56] an allusion to CAIR.

Since that time, both of these justifications have disappeared—the Fourth Circuit decision being overturned by the Supreme Court, and the "more efficient" reduction requirements (CAIR) now being vacated by the D.C. Circuit. Thus, the rule has not been promulgated, and now seems unlikely to go forward.

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."[57] The final report, issued July 21, 2006, was ambivalent in many of its conclusions, but it found that:

> [m]ore than 60% of all coal-fired electricity-generation capacity in the United States currently lacks the kinds of controls for SO_2 and NOx emissions that have been required under NSR. Also, the older facilities are more likely than newer 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.[58]

Besides the NAS study, on April 21, 2003, the National Academy of Public Administration (NAPA) 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, the EPA and the Department of Justice should continue to enforce NSR vigorously, especially for changes at existing facilities.[59]

The continuing controversy over NSR, the court decisions involving CAIR and CAMR, and the prominence of the electric power industry's CO_2 emissions might all be addressed through multi-pollutant legislation. On the other hand, legislation addressing emissions from utilities could find itself competing for priority in the committees of jurisdiction with economy-wide climate change cap-and-trade legislation. As of early January, neither the new Administration nor Congressional leaders have addressed this choice.

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[56] 70 *Federal Register* 61083, October 20, 2005.

[57] 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, DC: The National Academies Press, 2005), p. 27.

[58] National Research Council of the National Academies, *New Source Review for Stationary Sources of Air Pollutants* (Washington, DC: The National Academies Press, 2006), Prepublication Copy, p. 3.

[59] National Academy of Public Administration, *A Breath of Fresh Air: Reviving the New Source Review Program*, Summary Report, April 2003, p. 3.

Author Contact Information

James E. McCarthy
Specialist in Environmental Policy
jmccarthy@crs.loc.gov, 7-7225