

# CRS Report for Congress

## **Air Quality: Multi-Pollutant Legislation in the 110<sup>th</sup> Congress**

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**Prepared for Members and  
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# Air Quality: Multi-Pollutant Legislation in the 110<sup>th</sup> Congress

## Summary

With the prospect of new layers of complexity being added to air pollution controls, and with electricity restructuring putting a premium on economic efficiency, interest is being expressed in finding mechanisms to achieve health and environmental goals in simpler, more cost-effective ways. The electric utility industry is a major source of air pollution, particularly sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), and mercury (Hg), as well as unregulated greenhouse gases, particularly carbon dioxide (CO<sub>2</sub>). At issue is whether a new approach to environmental protection could achieve the nation's air quality goals more cost-effectively than the current system.

One approach being proposed is a “multi-pollutant” strategy — a framework based on a consistent set of emissions caps, implemented through emissions trading. Just how the proposed approach would fit with the current (and proposed) diverse regulatory regimes remains to be worked out; they might be replaced to the greatest extent feasible, or they might be overlaid by the framework of emissions caps.

In February 2002, the Bush Administration announced two air quality initiatives. The first, “Clear Skies,” would amend the Clean Air Act to place emission caps on electric utility emissions of SO<sub>2</sub>, NO<sub>x</sub>, and Hg. Implemented through a tradeable allowance program, the emissions caps would generally be imposed in two phases: 2008 and 2018. “Clear Skies” was re-introduced in the 109<sup>th</sup> Congress as S. 131. The second initiative begins a voluntary greenhouse gas reduction program. This plan, rather than capping CO<sub>2</sub> emissions, focuses on improving the carbon efficiency of the economy, reducing 2002 emissions of 183 metric tons per million dollars of GDP to 151 metric tons per million dollars of GDP in 2012.

In the 110<sup>th</sup> Congress, five bills have been introduced that would impose multi-pollutant controls on utilities. They are all four-pollutant proposals that include carbon dioxide. S. 1168 and S. 1177 are revised versions of S. 2724, introduced in the 109<sup>th</sup> Congress. S. 1201 and S. 1544 are expanded and revised versions of S. 150, introduced in the 109<sup>th</sup> Congress, while H.R. 3989 is a new proposal. All of these bills involve some form of emission caps, beginning in the 2009-2012 time frame, with all but S. 1544 including a second phase in 2013-2015 (CO<sub>2</sub> only for H.R. 3989). They would employ a tradeable credit program to implement the SO<sub>2</sub>, NO<sub>x</sub>, and CO<sub>2</sub> caps; all but H.R. 3989 permit plant-wide averaging in complying with the Hg requirements. The provisions concerning SO<sub>2</sub>, NO<sub>x</sub>, and Hg in the 110<sup>th</sup> Congress bills are generally more stringent than the comparable provisions of S. 131 of the 109<sup>th</sup> Congress. It is difficult to compare the CO<sub>2</sub> caps contained in these bills with the Administration's proposal concerning CO<sub>2</sub> — both because the Administration's proposal is voluntary rather than mandatory and because it is broader (covering all greenhouse gas emissions rather than just utility CO<sub>2</sub> emissions).

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# Air Quality: Multi-Pollutant Legislation in the 110<sup>th</sup> Congress

## Introduction

Electric utility generating facilities are a major source of air pollution. The combustion of fossil fuels (petroleum, natural gas, and coal), which accounts for about two-thirds of U.S. electricity generation, results in the emission of a stream of gases. These gases include several pollutants that directly pose risks to human health and welfare, including particulate matter (PM),<sup>1</sup> sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NOx), and mercury (Hg). Particulate matter, SO<sub>2</sub>, and NOx are currently regulated under the Clean Air Act (CAA), and the Environmental Protection Agency (EPA) has promulgated rules to regulate mercury beginning in 2010. Other gases may pose indirect risks, notably carbon dioxide (CO<sub>2</sub>), which contributes to global warming.<sup>2</sup> **Table 1** provides estimates of SO<sub>2</sub>, NOx, and CO<sub>2</sub> emissions from electric generating facilities. Annual emissions of Hg from utility facilities are more uncertain; current estimates indicate about 48 tons. Utilities are subject to an array of environmental regulations, which affect in different ways both the cost of operating existing generating facilities and the cost of constructing new ones.

**Table 1. Emissions from U.S. Fossil-Fuel Electric  
Generating Plants**  
(thousands of metric tons)

Emissions	2000	2001	2002	2003	2004	2005
SO <sub>2</sub>	11,297	11,174	10,881	10,646	10,309	10,340
NOx	5,380	5,290	5,194	4,532	4,143	3,961
CO <sub>2</sub>	2,429,394	2,389,745	2,395,048	2,415,680	2,456,934	2,513,609

**Source:** Energy Information Administration.

**Note:** Includes emissions from combined-heat-and-power plants.

The evolution of air pollution controls over time and as a result of growing scientific understanding of health and environmental impacts has led to a

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<sup>1</sup> Particulate matter is regulated depending on the particle size; current regulations address particles less than 10 microns in diameter (PM<sub>10</sub>); the EPA has promulgated regulations for particles less than 2.5 microns in diameter (PM<sub>2.5</sub>) that are in the process of being implemented. SO<sub>2</sub> and NOx emissions would be affected by regulations of PM<sub>2.5</sub>.

<sup>2</sup> In addition, steam-electric utilities produce minor amounts of volatile organic compounds (VOCs), carbon monoxide (CO), and lead — on the order of 2% or less of all sources.

multilayered and interlocking patchwork of controls. Moreover, additional controls are in the process of development, particularly with respect to NO<sub>x</sub> as a precursor to ozone, to both NO<sub>x</sub> and SO<sub>2</sub> as contributors to PM<sub>2.5</sub>, and to Hg as a toxic air pollutant. Also, under the United Nations Framework Convention on Climate Change (UNFCCC), the United States agreed to voluntary limits on CO<sub>2</sub> emissions. The current Bush Administration has rejected the Kyoto Protocol, which would impose mandatory limits, in favor of a voluntary reduction program. In contrast to the Administration's position, in June 2005, the Senate passed a Sense of the Senate calling for mandatory controls on greenhouse gases that would be designed not to impose significant harm on the economy.<sup>3</sup>

For many years, the complexity of the air quality control regime has caused some observers to call for a simplified approach. Now, with the potential both for additional control programs on SO<sub>2</sub> and NO<sub>x</sub> and for new controls directed at Hg and CO<sub>2</sub> intersecting with the technological and policy changes affecting the electric utility industry, such calls for simplification have become more numerous and insistent. One focus of this effort is the "multi-pollutant" or "four-pollutant" approach. This approach involves a mix of regulatory and economic mechanisms that would apply to utility emissions of up to four pollutants in various proposals — SO<sub>2</sub>, NO<sub>x</sub>, Hg, and CO<sub>2</sub>. The objective would be to balance the environmental goal of effective controls across the pollutants covered with the industry goal of a stable regulatory regime for a period of years.

## The Bush Administration's Proposals

In February 2002, the Bush Administration announced two air quality proposals to address the control of emissions of SO<sub>2</sub>, NO<sub>x</sub>, Hg, and CO<sub>2</sub>.<sup>4</sup> The first proposal, called "Clear Skies," would amend the Clean Air Act to place emission caps on electric utility emissions of SO<sub>2</sub>, NO<sub>x</sub>, and Hg. Implemented through a tradeable allowance program, the emissions caps would be imposed in two phases: 2010 (2008 in the case of NO<sub>x</sub>) and 2018. As part of a complete rewrite of Title IV of the Clean Air Act, the Administration's proposal was introduced in the 108<sup>th</sup> Congress as H.R. 999 and S. 485. Revised versions of Clear Skies legislation were introduced in the 109<sup>th</sup> Congress as H.R. 227 and S. 131.<sup>5</sup> The proposal has not been reintroduced in the 110<sup>th</sup> Congress.

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<sup>3</sup> S.Amdt. 866 to H.R. 6, The Energy Policy Act of 2005 (June 22, 2005).

<sup>4</sup> Papers outlining the Administration's proposals are available from the White House website: [<http://www.whitehouse.gov/news/releases/2002/02/clearskies.html>] for the three pollutant proposal, and [<http://www.whitehouse.gov/news/releases/2002/02/climatechange.html>] for the climate change initiative.

<sup>5</sup> For a further discussion of the Administration's Clear Skies proposal, see CRS Report RL32782, *Clear Skies and the Clean Air Act: What's the Difference?* by Larry Parker and James E. McCarthy, and CRS Report RL33165, *Cost and Benefits of Clear Skies: EPA's Analysis of Multi-Pollutant Clean Air Bills*, by James E. McCarthy and Larry B. Parker. Although H.R. 227 adopted the SO<sub>2</sub> and NO<sub>x</sub> emission caps of the Administration's Clear Skies proposal, it did not include many other provisions, including regulatory changes.

The second Administration proposal initiates a new voluntary greenhouse gas reduction program, similar to ones introduced by the earlier George H. W. Bush and Clinton Administrations.<sup>6</sup> Developed in response to the U.S. ratification of the 1992 UNFCCC, these previous plans projected U.S. compliance, or near compliance, with the UNFCCC goal of stabilizing greenhouse gas emissions at their 1990 levels by the year 2000 through voluntary measures. The Bush Administration proposal does not make that claim, projecting only a 100 million metric ton reduction in emissions from what would occur otherwise in the year 2012. Total emissions would continue to rise. Instead, the plan focuses on improving the carbon efficiency of the economy, reducing 2002 emissions of 183 metric tons per million dollars of GDP to 151 metric tons per million dollars of GDP in 2012. It proposes several voluntary initiatives, along with increased spending and tax incentives, to achieve this goal. The Administration notes that the new initiatives would achieve about one-quarter of the objective, while three-quarters of the projected reduction is seen as occurring through existing efforts.

## Proposed Legislation and Legislative Action in the 110<sup>th</sup> Congress

In the 110<sup>th</sup> Congress, five bills have been introduced that would impose multi-pollutant controls on utilities. They are all four-pollutant proposals that include carbon dioxide. S. 1168, introduced by Senator Alexander, and S. 1177, introduced by Senator Carper, are revised versions of S. 2724, introduced in the 109<sup>th</sup> Congress. S. 1201, introduced by Senator Sanders, and S. 1544, introduced by Senator Collins, are similar but revised versions of S. 150, introduced in the 109<sup>th</sup> Congress.<sup>7</sup> In contrast, H.R. 3989, introduced by Representative McHugh, represents a new proposal. All of these bills involve some form of emission caps, beginning in 2009-2012 time frame. S. 1168, S. 1177, and S. 1201 include a second phase beginning in 2013-2015; H.R. 3989 includes a multi-phase program for CO<sub>2</sub> only. They would employ a tradeable credit program to implement the SO<sub>2</sub>, NO<sub>x</sub>, and CO<sub>2</sub> caps while all but H.R. 3989 permit plant-wide averaging in complying with the Hg requirements. The provisions concerning SO<sub>2</sub>, NO<sub>x</sub>, and Hg in the five bills are generally more stringent than the comparable provisions of S. 131 of the 109<sup>th</sup> Congress. It is difficult to compare the CO<sub>2</sub> caps contained in these bills with the Administration's proposal concerning CO<sub>2</sub> — both because the Administration's proposal is voluntary rather than mandatory and because it is broader (covering all greenhouse gas emissions rather than just utility CO<sub>2</sub> emissions).

The five bills are summarized in the **Appendix**. Each of these bills generally builds on the SO<sub>2</sub> allowance trading scheme contained in Title IV of the 1990 Clean

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<sup>6</sup> For a discussion of those previous plans, see CRS Report 94-404, *Climate Change Action Plans*, by Larry Parker and John Blodgett (out of print, available from the authors).

<sup>7</sup> Besides its multi-pollutant control provisions for electric utilities, S. 1544 contains separate titles on transportation fuel efficiency, renewable fuels, elimination of certain tax provisions for the oil industry, and research on abrupt climate change.

Air Act Amendments (CAAA).<sup>8</sup> Under this program, utilities are given a specific allocation of permitted emissions (allowances) and may choose to use those allowances at their own facilities, or, if they do not use their full quota, to bank them for future use or to sell them to other utilities needing additional allowances.

## **Allowance Allocations for SO<sub>2</sub>, NO<sub>x</sub>, and CO<sub>2</sub>**

All five bills introduced in the 110<sup>th</sup> Congress provide for a tradeable allowance scheme to implement their emission caps on SO<sub>2</sub>, NO<sub>x</sub>, and CO<sub>2</sub>. However, allowance allocation schemes in the bills differ, with S. 1201 and S. 1544 containing detailed provisions for allocating SO<sub>2</sub>, NO<sub>x</sub>, and CO<sub>2</sub> allowances to various economic sectors and interests. In most cases, these interests (or their trustees in the case of households and dislocated workers and communities) would auction off (or otherwise sell) their allowances to the affected utilities and use the collected funds for their own purposes. In addition, S. 1201 requires the increasing use of auctions, mandating 100% of the annual allowance allocation be auctioned within 15 years of enactment.

In contrast, S. 1168 bases its allowance formulas on fuel usage adjusted by factors specified in the bill, along with a requirement that 25% of the allowances be auctioned.

S. 1177 specifies CO<sub>2</sub> and NO<sub>x</sub> limitations based on electricity output, and SO<sub>2</sub> limitations based on the current Title IV program. The bill sets a schedule for increasing the percentage of the annual allowance allocation that is to be auctioned with 100% required in 2036 and thereafter.

Finally, H.R. 3989 auctions 100% of its CO<sub>2</sub> allowances while providing discretion to EPA to allocate SO<sub>2</sub> and NO<sub>x</sub> allowances.

## **Hg Controls**

On mercury, all five bills focus on achieving a 90% reduction by 2011 (S. 1544 and H.R. 3989), 2013 (S. 1201) or 2015 (S. 1168 and S. 1177). In contrast, the emissions goal of S. 131 of the 109<sup>th</sup> Congress would have allowed about three times more emissions and three to five more years for compliance. In addition, all but H.R. 3989 restrict Hg credit trading to plant-wide averaging of emissions, in contrast with the cap-and-trade program of S. 131. H.R. 3989 is even more stringent, imposing the emissions rate limitation on a unit-by-unit basis.

## **CO<sub>2</sub> Reduction Requirements**

The bills currently introduced in the 110<sup>th</sup> Congress specify CO<sub>2</sub> reductions. In contrast, the Administration's CO<sub>2</sub> proposal relies on various voluntary programs and incentives to encourage reductions in greenhouse gases from diverse sources, including CO<sub>2</sub> emissions from electric generation. These voluntary reductions should not be taken as a given, as neither the George H. W. Bush Administration's nor the

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<sup>8</sup> P.L. 101-549.

Clinton Administration's voluntary programs achieved their stated goals. Thus, in one sense, comparing a mandatory reduction program such as that proposed by S. 1168, S. 1177, S. 1201, and S. 1544 with the Administration's voluntary program is comparing apples to oranges. The first is legally binding, the second has been criticized as merely an exhortation.

The CO<sub>2</sub> reduction requirements of S. 1168, S. 1201, and S. 1544 are similar, except that S. 1201 and S. 1544 requires affected sources also offset CO<sub>2</sub> emissions from small electric generating units. In contrast, S. 1177 imposes a cap that starts out slightly higher than the other two bills and declines on a slower schedule. Finally, H.R. 3989 has the most detailed reduction scheme with substantial reductions from coal-fired facilities scheduled through 2050.

All but H.R. 3989 have provisions to create offsets and facilitate sequestration efforts. Among its titles, S. 1168 has extensive provisions providing for greenhouse gas offsets from landfill methane (CH<sub>4</sub>), sulfur hexafluoride (SF<sub>6</sub>) projects, afforestation or reforestation, energy efficiency, agricultural practices (manure management), and biomass. The provisions in S. 1177 include allowance allocations for incremental nuclear capacity, clean coal technology, and renewable energy, along with programs to encourage sequestration. Likewise, S. 1544 includes allowance allocations to encourage renewable energy, energy efficiency, and sequestration. Finally, S. 1201 requires the EPA to develop standards for providing allowances for geologic and biological sequestration.

## **Related Regulatory Provisions**

In addition to emissions caps, S. 131 of the 109<sup>th</sup> Congress would have substantially modified or eliminated several provisions in the Clean Air Act with respect to electric generating facilities. The bill would have eliminated New Source Performance Standards (NSPS) (Section 111) and replaced them with statutory standards for SO<sub>2</sub>, NO<sub>x</sub>, particulate matter, and Hg for new sources. Modified sources could have also opted to comply with these new statutory standards and be exempted from the applicable Best Available Control Technology (BACT) determinations under Prevention of Significant Deterioration (PSD) provisions (CAA, Part C) or Lowest Achievable Emissions Rate (LAER) determinations under non-attainment provisions (CAA, Part D). Compliance with these provisions would have exempted such facilities from New Source Review (NSR), PSD-BACT requirements, visibility Best Available Retrofit Technology (BART) requirements, Maximum Achievable Control Technology (MACT) requirements for Hg, and non-attainment LAER and offset requirements. The exemption would not have applied to PSD-BACT requirements if facilities were within 50 km of a PSD Class 1 area. Existing sources could have also received these exemptions if they agreed to meet a particulate matter standard specified in the bill along with good combustion practices to minimize carbon monoxide emissions within three years of enactment. In addition, S. 131 would have provided these exemptions for industrial sources that choose to opt into the Clear Skies program. S. 131 also would have included an exemption for steam electric generating facilities from Hg regulation under Section 112 of the CAA (including the residual risk provisions), and relief from enforcement of any Section 126 petition (with respect to reducing interstate transportation of pollution) before December 31, 2014.



The five bills in the 110<sup>th</sup> Congress generally omit the regulatory changes of S. 131, while introducing new provisions. All five bills would revise the current New Source Review (NSR) program to require affected electric generating units 40 years or older (30 years old in the case of H.R. 3989) to meet more stringent SO<sub>2</sub> and NO<sub>x</sub> performance standard by either 2015 (S. 1201), 2016 (S. 1544), 2020 (S. 1168 and S. 1177), or five years after enactment (H.R. 3989). All except S. 1544 and H.R. 3989 contain provisions establishing a new performance standard for CO<sub>2</sub>. S. 1168 and S. 1177 would also eliminate the annual NO<sub>x</sub> and SO<sub>2</sub> caps contained in the recently promulgated Clean Air Interstate Rule (CAIR).

In addition to the above, S. 1201 and S. 1544 would create several new regulatory programs and standards, including an Efficiency Performance Standard, and a Renewable Portfolio Standard. These programs would be implemented through a credit trading program.

## Appendix. Comparison of Multi-Pollutant Control Proposals

Provisions	S. 131 (Inhofe) (109 <sup>th</sup> Congress)	S. 1168 (Alexander)	S. 1177 (Carper)	S. 1201 (Sanders)	S. 1544 (Collins)	H.R. 3989 (McHugh)
<b>Emissions cap on NO<sub>x</sub></b>	1.473603 million tons in the East in 2008, declining to 1.07603 million tons in 2018. 0.714794 in the West beginning in 2008.	1.45 million tons in the East in 2009, declining to 1.3 million tons in 2015. 0.32 million ton in the West beginning in 2015.	1.39 million tons in the East in 2012, declining to 1.3 million tons in 2015. 0.40 million tons in the West in 2012, declining to 0.32 million tons in 2015.	1.51 million tons in 2010, declining to 0.9 million tons in 2013. Additional reductions may be required for O <sub>3</sub> NAAQS compliance.	1.51 million tons in 2012, reduced annually by emission emitted by small electric generating facilities. Additional reductions may be required if necessary to protect public health or welfare or the environment.	Estimated at 1.51 million tons in 2010.  Additional reductions may be required if necessary to protect public health or welfare.
<b>Emissions cap on SO<sub>2</sub></b>	4.5 million tons in 2010, declining to 3.0 million tons in 2018.	3.5 million tons in the East in 2010, declining to 2.0 million tons in the 48 contiguous states in 2015.	3.5 million tons in 2012, declining to 2.0 million tons in 2015.	1.9755 million tons in the East in 2010, declining to 1.1414 million tons in 2013. 0.2745 million tons in the West in 2010, declining to 0.1586 million tons in 2013.	1.975 million tons in the East and 0.275 million tons in the West in 2012, reduced annually by emission emitted by small electric generating facilities. Additional reductions may be required if necessary to protect public health or welfare or the environment.	Estimated at 2.225 million tons in 2010.  Additional reductions may be required if necessary to protect public health or welfare.
<b>Emission cap on CO<sub>2</sub></b>	Not covered.	2.3 billion metric tons (tonnes) in 2011, declining to 2.1 billion tonnes in 2015, 1.8 billion tonnes in 2020, and 1.5 billion tonnes	Estimated at 2.47 billion metric tonnes in 2012, declining to 2.39 billion tonnes in 2015, declining by 1% annually beginning	2.3 billion metric tonnes in 2011, declining to 2.1 billion tonnes in 2015, declining to 1.803	2.05 billion metric tonnes in 2022, reduced annually by emission emitted by small electric generating facilities. Additional	Estimated at 1.94 billion metric tonnes in 2015, declining to 1.46 billion tonnes in 2020, declining to 0.97 billion tonnes in

Provisions	S. 131 (Inhofe) (109 <sup>th</sup> Congress)	S. 1168 (Alexander)	S. 1177 (Carper)	S. 1201 (Sanders)	S. 1544 (Collins)	H.R. 3989 (McHugh)
		in 2025.	in 2016, and by 1.5% beginning in 2020.	billion tonnes in 2020, and finally declining to 1.5 billion tonnes in 2025. Further reductions required after 2025. Cap also reduced by emissions from small electric generation facilities.	reductions may be required if necessary to protect public health or welfare or the environment.	2030, declining to 0.68 billion tonnes in 2040, and finally declining to 0.39 billion tonnes in 2050.
<b>Emissions cap on mercury</b>	34 tons in 2010, declining to 15 tons in 2018.	Less stringent of 60% reduction or 0.02 lb./Gwh four years after enactment, declining to the lesser of 90% reduction or 0.0060 lb./Gwh in 2015. One year extension available to install equipment.	Less stringent of 60% reduction or 0.02 lb./Gwh in 2012, declining to the lesser of 90% reduction or 0.0060 lb./Gwh in 2015. Subject to EPA review.	5 tons and, to the extent practicable, achieve a 90% reduction on a facility-specific basis by 2013.	2.48 grams of Hg per Gwh on a facility specific basis by 2011.	Emission rate limit set at 0.6 lb. per trillion Btu for new (2009) and existing (2011) coal-fired units. (Roughly equivalent to 0.0060 lb./Gwh.)
<b>Scope</b>	50 states, DC, and territories.	48 contiguous states and DC.	50 states and DC.	50 states and DC.	50 states and DC.	50 states and DC.
<b>Affected units</b>	Existing electric generating facilities 25 Mw or greater (coal-fired only for Hg); co-generation sources exempted.	Electric generating facilities greater than 25 Mw for CO <sub>2</sub> , fossil fuel-fired electric generating facilities for NO <sub>x</sub> and SO <sub>2</sub> (coal-fired only for Hg).	Electric generating facilities greater than 25 Mw, including incremental nuclear capacity for CO <sub>2</sub> , fossil-fuel-fired electric generating facilities for NO <sub>x</sub> , Title IV definition for SO <sub>2</sub> , coal-fired only for	Electric generating facilities 25 Mw or greater (coal-fired only for Hg).	Electric generating facilities 15 Mw or greater (coal-fired only for Hg).	Electric generating facilities 25 Mw or greater (coal-fired only for Hg and CO <sub>2</sub> ).

Provisions	S. 131 (Inhofe) (109 <sup>th</sup> Congress)	S. 1168 (Alexander)	S. 1177 (Carper)	S. 1201 (Sanders)	S. 1544 (Collins)	H.R. 3989 (McHugh)
			Hg.			
<b>Penalties for non-compliance</b>	NOx, SO <sub>2</sub> , Hg: reduces the excess emissions penalties under CAA, title IV to the EPA auction clearing price for allowances plus one-for-one offset from future emission allocations, if paid within 30 days. Otherwise, the number of excess emissions is multiplied by 1.5 for penalty purposes.	NOx, SO <sub>2</sub> and CO <sub>2</sub> : two-for-one offset from future emission allocations, plus an excess emissions penalty.  Hg: \$50,000 per excess pound, indexed to inflation.	NOx: Twice the average annual price in the appropriate zone per excess ton plus at least an one-for-one offset from future emission allocations.  SO <sub>2</sub> : Twice the average annual price per excess ton plus at least an one-for-one offset from future emission allocations.  Hg: \$50,000 per excess pound emitted.  CO <sub>2</sub> : Twice the two-year average price plus at least an one-for-one offset from future emissions allocations.	NOx , SO <sub>2</sub> and CO <sub>2</sub> same as CAA, title IV, except excess emission penalty is three times the average market price for allowances.  Hg: three times the average Hg control costs per gram of excess emission.	NOx , SO <sub>2</sub> and CO <sub>2</sub> same as CAA, title IV, except excess emission penalty is three times the average market price for allowances.  Hg: three times the average Hg control costs per gram of excess emission.	NOx and SO <sub>2</sub> same as CAA, title IV.  Hg: \$10,000 per ounce of excess emissions.  CO <sub>2</sub> : \$150 per ton, adjusted for inflation.
<b>Special provisions</b>	New performance standards for new sources replace current NSPS for new sources. Compliance with bill's	Revises NSR program to require affected electric generating units 40 years or older to meet specific SO <sub>2</sub> and NOx performance	Revises NSR program to require affected electric generating units 40 years or older to meet specific SO <sub>2</sub> and NOx performance	Beginning in 2015, all powerplants 40 years or older must meet emission limitations based on current best	Beginning in 2016, all powerplants 40 years or older must meet emission limitations based on current best available control	Beginning 5 years after enactment, all powerplants 30 years or older must meet most recent NSPS, Part C

Provisions	S. 131 (Inhofe) (109 <sup>th</sup> Congress)	S. 1168 (Alexander)	S. 1177 (Carper)	S. 1201 (Sanders)	S. 1544 (Collins)	H.R. 3989 (McHugh)
	<p>provisions exempts facilities from New Source Review (NSR), PSD-BACT requirements, visibility BART requirements, and non-attainment LAER and offset requirements. The exemption does not apply to PSD-BACT requirements if facility is within 50 Km of Class 1 area. Existing sources can opt in by meeting a particulate standard.</p> <p>Exempts utility units from Hg regulation under CAA, Section 112, including residual risk provisions.</p> <p>Prevents EPA from enforcing Section 126 petitions before December 31, 2014.</p>	<p>standards beginning in 2020.</p> <p>Beginning in 2015, New NSPS established for CO<sub>2</sub>.</p> <p>Annual SO<sub>2</sub> and NO<sub>x</sub> caps under CAIR eliminated in 2015.</p> <p>Extensive provisions providing for greenhouse gas offsets from landfill CH<sub>4</sub>, SF<sub>6</sub> projects, afforestation or reforestation, energy efficiency, agricultural practices (manure management), and biomass.</p> <p>CO<sub>2</sub> program includes allowance allocations for clean coal technology under a Climate Champions Program.</p>	<p>standards beginning in 2020.</p> <p>Beginning in 2015, New NSPS established for CO<sub>2</sub>. More stringent NSPS begins in 2025.</p> <p>Annual NO<sub>x</sub> cap under CAIR eliminated in the later of 2012 or effective date of NO<sub>x</sub> regulations.</p> <p>CO<sub>2</sub> program includes allowance allocations for incremental nuclear capacity, clean coal technology, and renewable energy, along with sequestration and early action provisions.</p>	<p>available control technology for a new major source.</p> <p>New CO<sub>2</sub> emissions standard for baseload powerplants that commerce operation after 2011. Standard would be based on the emission rate of a new combined cycle natural gas generating plant. EPA may increase the stringency to at least 90% by 2030. All baseload plants must meet New CO<sub>2</sub> emission standard by 2031, if feasible.</p> <p>New minimum Hg standard for new sources established as of the date of enactment.</p> <p>Creates a new Low-Carbon Generation</p>	<p>technology for a new major source.</p> <p>Creates a new Efficiency Performance Standard and credit program beginning in 2007.</p> <p>Creates a Renewable Portfolio Standard and credit program, beginning in 2009.</p> <p>Contains separate titles on transportation fuel efficiency, renewable fuels, elimination of certain tax provisions for the oil industry, and research on abrupt climate change.</p>	<p>(PSD) and Part D (non-attainment) requirements under the Act.</p> <p>Revenues from CO<sub>2</sub> auctions to fund research and development of renewable energy projects.</p> <p>Appropriations authorized for several monitoring networks.</p>

Provisions	S. 131 (Inhofe) (109 <sup>th</sup> Congress)	S. 1168 (Alexander)	S. 1177 (Carper)	S. 1201 (Sanders)	S. 1544 (Collins)	H.R. 3989 (McHugh)
				<p>Requirement and credit trading program beginning in 2015.</p> <p>Creates new Energy Efficiency Performance Standard and credit program beginning in 2008.</p> <p>Creates a Renewable Portfolio Standard and credit program, beginning in 2008</p> <p>Requires standards for geological CO<sub>2</sub> disposal within 6 years of enactment and biological sequestration within 2 years of enactment.</p>		
<b>Implement- ation strategy</b>	Tradeable allowance system for SO <sub>2</sub> , NOx, and Hg. Allocation formulas based on historic fuel usage adjusted by factors	Tradeable allowance system for NOx, SO <sub>2</sub> and CO <sub>2</sub> . For NOx, and CO <sub>2</sub> , allocations based on historic heat input adjusted for each fuel's generally applicable	Tradeable allowance system for NOx, SO <sub>2</sub> and CO <sub>2</sub> . For NOx, and CO <sub>2</sub> , allocations based on historic electricity output.	Tradeable allowance system for SO <sub>2</sub> , NOx and CO <sub>2</sub> . Allocations to be based on economic, equity, and international	Tradeable allowance system for SO <sub>2</sub> , NOx and CO <sub>2</sub> . Allowances allocated to various sectors and interests, including households, dislocated	Tradeable allowance system for SO <sub>2</sub> , NOx and CO <sub>2</sub> .  SO <sub>2</sub> , and NOx allocations left to EPA discretion.

Provisions	S. 131 (Inhofe) (109 <sup>th</sup> Congress)	S. 1168 (Alexander)	S. 1177 (Carper)	S. 1201 (Sanders)	S. 1544 (Collins)	H.R. 3989 (McHugh)
	<p>specified in the bill.</p> <p>Special reserves for new units provided for SO<sub>2</sub>, NO<sub>x</sub> and Hg.</p>	<p>emissions rate for that pollutant.</p> <p>For SO<sub>2</sub> current Title IV allocations are revised and adjusted for newer units.</p> <p>Special reserves for new units provided for CO<sub>2</sub> and SO<sub>2</sub></p> <p>Beginning in 2011, 25% of CO<sub>2</sub> allowances to be auctioned with proceeds going to electricity consumers and energy-intensive industries.</p> <p>For Hg, plant-wide averaging is permitted.</p>	<p>For SO<sub>2</sub> current Title IV allocations are revised and adjusted for newer units.</p> <p>Special reserves for new units provided for NO<sub>x</sub>, CO<sub>2</sub>, and SO<sub>2</sub>.</p> <p>Beginning in 2012, 18% of CO<sub>2</sub> allowances to be auctioned, a percentage increased 3 percentage points annually until 2030 when the rate is increased to 5 percentage points until 2036 when 100% is auctioned. Revenues from the resulting Climate Action Trust Fund shall be used for innovative low- and zero emitting carbon technologies program, clean coal technologies program, and research and analysis, and an energy efficiency technology program. Other funded activities includes worker and community impact</p>	<p>competitiveness criteria specified in the bill. Allowances allocated to various sectors and interests, including households, dislocated workers and communities, electricity intensive industries, energy efficiency and renewable energy activities, sequestration activities, and ecosystem restoration.</p> <p>Beginning in 2010, at least 50% of CO<sub>2</sub> allowances to be auctioned, with successive increasing to raise it to 100% within 15 years of the date of enactment.</p> <p>For Hg, plant-wide averaging is permitted.</p>	<p>workers and communities, electricity intensive industries, energy efficiency and renewable energy activities, sequestration activities, and ecosystem restoration.</p> <p>For Hg, plant-wide averaging is permitted.</p>	<p>CO<sub>2</sub> allowances are 100% auctioned.</p> <p>Hg emissions rate limits are on a unit-by-unit basis.</p>

Provisions	S. 131 (Inhofe) (109 <sup>th</sup> Congress)	S. 1168 (Alexander)	S. 1177 (Carper)	S. 1201 (Sanders)	S. 1544 (Collins)	H.R. 3989 (McHugh)
			assistance, adaptation assistance, and protecting fish and wildlife habitat. For Hg, facility-wide averaging is permitted.			

**Source:** Congressional Research Service.