

# CRS Report for Congress

## Climate Change Legislation in the 109<sup>th</sup> Congress

Updated January 3, 2007

Brent D. Yacobucci  
Specialist in Energy Policy  
Resources, Science, and Industry Division



Prepared for Members and  
Committees of Congress

# Climate Change Legislation in the 109<sup>th</sup> Congress

## Summary

Climate change and greenhouse gas (GHG) emissions were issues in the 109<sup>th</sup> Congress, as they had been in past Congresses. Bills directly addressing climate change issues ranged from those focused primarily on climate change research to comprehensive emissions cap-and-trade programs for the six greenhouse gases covered under the United Nations Framework Convention on Climate Change. Additional bills focused on GHG reporting and registries, or on power plant emissions of carbon dioxide, as part of wider controls on pollutant emissions.

Within several broad categories, the bills varied in their approaches to climate change issues. For example, some bills covering research issues focused solely on modeling the effects of future climate change, whereas others addressed the development of monitoring technologies. Bills focusing on technology deployment did so through tax incentives and credit-based programs within the United States or by promoting deployment in developing countries. Bills with greenhouse gas registries were either voluntary or mandatory and varied in the entities covered and the gases registered. Bills with emission reduction requirements also varied in the entities covered, the gases limited, and the target emissions levels.

Most notably, on August 8, 2005, President Bush signed the Energy Policy Act of 2005 (P.L. 109-58, H.R. 6). Among other provisions, Title XVI of the bill established programs to promote the development and deployment of technologies to reduce greenhouse gas intensity.

This report briefly discusses the basic concepts on which these bills were based and compares major provisions of the bills in each of the following categories: climate change research, technology deployment, GHG reporting and registries, and emissions reduction programs.

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# Climate Change Legislation in the 109<sup>th</sup> Congress

Climate change is viewed as a global issue, but proposed responses generally require action at the national level. In 1992, the United States ratified the United Nations' Framework Convention on Climate Change (UNFCCC), which called on industrialized countries to take the lead in making voluntary efforts to reduce greenhouse gases.<sup>1</sup> Over the past 15 years, a variety of voluntary and regulatory actions have been proposed or undertaken in the United States, including monitoring of utility carbon dioxide emissions, improved appliance efficiency, and incentives for developing renewable energy sources. In 2001, President George W. Bush rejected the Kyoto Protocol to the UNFCCC, which called for legally binding commitments by developed countries to reduce their greenhouse gas emissions. Instead, the Bush Administration has focused on reducing the greenhouse gas intensity<sup>2</sup> of the U.S. economy. In the meantime, some states and local governments, as well as private entities, have taken actions to reduce emissions and limit the potential impacts of climate change. In light of these actions, a number of bills were introduced in Congress to address climate change.

In the 109<sup>th</sup> Congress, numerous bills were introduced that directly or indirectly address climate change. Several bills addressed the climate change issue directly, either through emissions limits, incentives for reductions, or research and information gathering on climate change and greenhouse gas emissions mitigation. This report describes and compares bills that directly addressed climate change, as opposed to those that addressed other issues but could have had ancillary impacts (e.g., energy efficiency and conservation). Topics covered by these bills fall into four major categories: (1) those that would have promoted research on the effects of climate change and on methods to measure and predict climate change; (2) those that would have created incentives for the deployment of emission-reducing technologies in the United States or other countries; (3) those that would have established greenhouse gas (GHG) monitoring systems as a basis for research or for any potential reduction program; and (4) those that would have established market-based programs to directly limit greenhouse gas emissions. These categories are not mutually exclusive, and several bills addressed more than one of the above categories. The major provisions of these bills are categorized in **Appendix 1** and summarized in **Appendix 2**.

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<sup>1</sup> Under the United Nations Framework Convention on Climate Change (UNFCCC), greenhouse gases include carbon dioxide (CO<sub>2</sub>, the most ubiquitous and primary greenhouse gas), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluorane (SF<sub>6</sub>). Some other greenhouse gases are controlled under the Montreal Protocol on Substances That Deplete the Ozone Layer.

<sup>2</sup> Greenhouse gas intensity is a measure of the amount of carbon dioxide (or equivalent) emitted per unit of gross domestic product.

In several cases, bill sponsors introduced modified versions of their climate change bills. For the purposes of the discussion below, it is assumed that the newest version supersedes earlier versions. These bills include S. 1151 for S. 342 (McCain); S. 883 for S. 386 (Hagel); S. 887 for S. 388 (Hagel); and S. 1203 for S. 387 (Hagel).

## **Energy Bill Amendments**

On August 8, 2005, President Bush signed the Energy Policy Act of 2005 (P.L. 109-58). Title XVI established a voluntary national program designed to accelerate demonstration and deployment of less-carbon-intensive technology to encourage voluntary reductions in greenhouse gases. The title attempts to support actions focused on reducing U.S. carbon intensity (the ratio of greenhouse gas emissions per unit of gross domestic product). The program would not establish a requirement to reduce emissions. This title also establishes a program to encourage exports of carbon intensity-reducing technologies to developing countries.

As part of the Senate debate over the Energy Policy Act of 2005, several amendments on climate change were offered. S.Amdt. 817, which inserted a new Title XVI in the bill, incorporated language from S. 883 and S. 887. This amendment was agreed to on a 66-29 vote. These provisions are similar to those included in the final version of the bill. The House version of the bill did not expressly address climate change issues.

Not included in the final law was Section 1612 of the Senate bill (S.Amdt. 866), which expressed the Sense of the Senate that human activities are a substantial cause of greenhouse gas accumulation in the atmosphere, causing average temperatures to rise. Further, the resolution stated that “Congress should enact a comprehensive and effective national program of mandatory market-based limits and incentives on emissions of greenhouse gases that slow, stop, and reverse the growth of such emissions at a rate and in a manner that — (1) will not significantly harm the United States economy; and (2) will encourage comparable action by other nations that are major trading partners and key contributors to global emissions.” This was the first Sense of the Senate resolution on climate change since S.Res. 98 in 1997, which voiced concern over the economic effects of emissions limits and the sense that developing countries must participate in meaningful action to control emissions. Similar to S.Amdt. 866, S.J.Res. 5 also urged U.S. action on climate change, but this resolution saw no action after being referred to committee.

The Senate also debated whether to adopt S.Amdt. 826, which contained language similar to S. 1151. This amendment would have established a mandatory cap-and-trade system to limit greenhouse gas emissions from covered entities to year 2000 levels by 2010. This amendment was rejected on a 38-60 vote.

## **Climate Change Research Bills**

Global climate change is a complex issue. While most scientists agree that the climate is changing in response to greenhouse gas (GHG) emissions, uncertainties concerning the causes and the effects of climate change remain and are a continuing

subject of extensive scientific research.<sup>3</sup> Further, research is ongoing into technologies to improve efficiency, reduce fossil fuel consumption, and sequester carbon dioxide emissions.

**Research Bills.** One bill in the 109<sup>th</sup> Congress, S. 245 (Collins), focused solely on climate change research.<sup>4</sup> It called for the development and testing of climate change models based on historic climatic changes, and to incorporate nonlinear aspects of geophysical systems that could lead to abrupt changes in climate.

**Research Provisions in Broader Bills.** Several bills included climate change research provisions as part of a broader climate change legislation. Specifically, research in S. 1151, S. 3698, S. 4039, H.R. 759, and H.R. 2828 would have focused on abrupt climate change research and new climate change measurement technologies. H.R. 5049 would have established a new Advanced Research Projects Agency within the Department of Energy.

## Deployment of Greenhouse Gas Reduction Technology

In the 109<sup>th</sup> Congress, several bills would have promoted the deployment and diffusion of technologies to reduce greenhouse gas emissions, either as part of broader legislation to limit greenhouse gases, or as stand-alone legislation. Deployment strategies included tax incentives for investment in technologies to improve efficiency and/or lower emissions and grants, loans, and other incentives for technology transfer to developing countries. S. 1203 (Hagel) and H.R. 6417 (Meehan) would have established tax incentives for investment in technologies to reduce greenhouse gas intensity. S. 745 (Byrd), S. 883 (Hagel), S. 1151 (McCain), and S. 3698 (Jeffords) would have established grant and loan programs to deploy technologies in developing countries that have been developed or demonstrated in the United States. S. 887 (Hagel) would establish a credit-based deployment program for technologies to reduce greenhouse gas intensity; support would include direct loans, loan guarantees, lines of credit, and production incentive payments. The final version of H.R. 6 incorporates language similar to S. 883 and S. 887. H.R. 2828 (Inslee) provides a wide array of incentives for improvements in energy efficiency and other strategies that would reduce greenhouse gas emissions. S. 4039 (Kerry) includes several provisions to either mandate or establish incentives for various low-emission technologies.

In addition to the above bills on technology deployment, §585(b) of the FY2006 Foreign Operations Appropriation Act (P.L. 109-102) required the President to submit a report on federal agency expenditures (foreign and domestic) on climate change activities. The act specifically required a report on U.S. Agency for International Development funding for climate change activities in developing

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<sup>3</sup> For more information on the science and policy of Global Climate Change, see CRS Report RL33602, *Global Climate Change: Major Scientific and Policy Issues*, by John R. Justus and Susan R. Fletcher.

<sup>4</sup> This report does not include bills with other focuses that also had research components related to climate change (particularly sequestration, renewable energy, and energy efficiency).

countries, including technology deployment. In April 2006, the White House submitted to Congress a report titled *Federal Climate Change Expenditures Report to Congress*.<sup>5</sup>

## GHG Reporting and Registry Bills

Under the UNFCCC, the United States annually publishes reports on its GHG emissions.<sup>6</sup> The United States Environmental Protection Agency (EPA) does this reporting using various techniques (e.g., fuel analysis for CO<sub>2</sub>). The three dominant sources of GHG emissions are electricity generation (33.1%), transportation (26.9%), and industry (19%).<sup>7</sup> At the national level, most electric utilities must report their GHG emissions pursuant to the 1990 Clean Air Act, but there is no overall national GHG reporting requirement. However, some states also gather data through voluntary or mandatory GHG emissions reporting mechanisms.<sup>8</sup>

H.R. 955 (Olver) focused primarily on expanding emissions reporting to include a broad array of sources. All entities that emit more than 10,000 metric tons of carbon dioxide equivalent would have been required to report their emissions, except that farms were exempt. Further, manufacturers and importers of automobiles and Department of Energy-listed products<sup>9</sup> would have been required to report the emissions from their products. The purpose of the bill was to promote greenhouse gas reductions and to generate accurate emissions data that can be used by public and private entities for various purposes.

In addition to H.R. 955, which focused solely on GHG reporting, several other bills would have required emissions monitoring and reporting as part of a program to reduce emissions of carbon dioxide or of all greenhouse gases. These emissions reductions efforts are discussed in the following section. S. 150 (Jeffords), S. 730 (Leahy), H.R. 1451 (Waxman), and H.R. 1873 (Bass) would have required electricity producers to report their carbon dioxide emissions in order to determine compliance with carbon dioxide caps. S. 1151 (McCain), H.R. 759 (Gilchrest), and H.R. 2828 (Inslee) would have required major emitters of all six greenhouse gases to report their emissions; the bills required reporting from entities that emit more than 10,000 metric tons (11,000 tons) of carbon dioxide equivalent. H.R. 5049 (Udall, T.) would have required all fossil fuel suppliers to report the amount of greenhouse gases that will result from combustion of the fuel supplied. S. 4039 (Kerry) would have

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<sup>5</sup> Available at [[http://www.whitehouse.gov/omb/legislative/fy07\\_climate\\_change.pdf](http://www.whitehouse.gov/omb/legislative/fy07_climate_change.pdf)]

<sup>6</sup> For more information, see CRS Report 98-235, *Global Climate Change: U.S. Greenhouse Gas Emissions — Status, Trends, and Projections*, by John Blodgett and Larry Parker.

<sup>7</sup> U.S. Environmental Protection Agency, *U.S. GHG Emissions and Sinks 1990-2001*, p. ES-6. Additional sources are agriculture (7.6%), commerce (7.2%), and residential activities (5.4%).

<sup>8</sup> For more information, see Pew Center on Global Climate Change, *Climate Change Activities in the United States: 2004 Update*, Arlington, VA, 2004.

<sup>9</sup> Defined as any product for which the Department of Energy has promulgated final regulations for energy efficiency, energy conservation, maximum energy use, or energy consumption.

required reporting from all major sources as defined by Section 169A of the Clean Air Act.

## GHG Emission-Reduction Bills

The United States has no federal GHG reduction requirements, though there have been proposals to require such reductions. These proposals include “command and control” regulations on emissions, GHG emission taxes, and market-based techniques to limit emissions. The latter, market-based programs typically take as their model the Clean Air Act’s acid rain program.<sup>10</sup>

In the 109<sup>th</sup> Congress, bills were introduced that would have established market-based caps on GHG emissions. These bills are compared in **Table 1**. Three bills, S. 1151 (McCain), H.R. 759 (Gilchrest), and H.R. 2828 (Inslee), would have capped the emissions of the six greenhouse gases specified in the United Nations’ Framework Convention on Climate Change. Five other bills, S. 150 (Jeffords), S. 730 (Leahy), S. 2724 (Carper), H.R. 1451 (Waxman), and H.R. 1873 (Bass), would have focused on reducing carbon dioxide from electric utilities. Each of these bills would have used market-based trading mechanisms to limit GHG emissions. Cap-and-trade programs set strict limits on specific emissions from a particular group of sources, allowing individual sources to trade reductions. This flexibility in who makes reductions can lead to lower costs. In an efficient market, entities that face relatively low emission-reduction costs could achieve extra emission reductions. These entities could then sell their unused allowances to entities that face higher emission-reduction costs. An entity facing higher costs could purchase allowances that would allow it to emit more than its initial emissions allotment would otherwise permit. It should be noted that in all cases, total U.S. emissions may decrease or increase depending on the entities covered, the greenhouse gases controlled, and the emissions trading schemes.

Another market-based option is to require tradeable emissions permits, but establish a “safety valve” price. In this scenario, if the market value of a permit exceeds a set price — the safety valve — covered entities can purchase an unlimited number of permits from the government. In this way, the overall price to covered entities — and the economy — is limited, but specific emission reduction targets may not be reached. H.R. 5049 (Udall, T.) would have established a such a system.

**Carbon Dioxide Reduction Bills.** As shown in **Table 1**, S. 150, S. 730, H.R. 1451, and H.R. 1873 focused on electric utility emissions. These “multi-pollutant” bills would have limited emissions of carbon dioxide, along with other air

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<sup>10</sup> The acid rain program caps emissions from each source, but allows sources to exceed their caps if they purchase credits from sources that achieve emissions reductions beyond those required.



pollutants.<sup>11</sup> (See **Table 1**.) In all four cases, carbon dioxide emissions limitations would have started in 2010.<sup>12</sup>

**Comprehensive GHG Emissions Reductions.** Unlike other bills proposed in the 109<sup>th</sup> Congress, the Climate Stewardship Act of 2005 (H.R. 759), the New Apollo Energy Act of 2005 (H.R. 2828), and the Climate Stewardship and Innovation Act of 2005 (S. 1151) focused on achieving market-driven reductions in all six greenhouse gases (see **Table 1**). The legislation applied to entities in the electricity, transportation, industry, and commercial sectors that emit over 10,000 metric tons (11,000 tons) of greenhouse gases per year. Starting in 2010, the bills would have capped total GHG emissions from all these sources at 6.5 billion tons (CO<sub>2</sub> equivalent emissions), reduced by the amount of CO<sub>2</sub> (equivalent emissions) from non-covered entities in the year 2000. The bills would also have established a formula for allocating GHG emissions allowances, and a climate change credit corporation to manage allowance trading. Language similar to S. 1151 was offered as an amendment on the Senate floor to H.R. 6. This amendment was rejected on a 38-60 vote.

In addition to establishing caps on all six greenhouse gases, the above bills would have supported climate change research and established a GHG emissions inventory (see above). The bills also included a requirement that the Administrator of the EPA establish a national GHG database, and develop methods and standards to measure and verify GHG emissions.

The Safe Climate Act of 2006 (H.R. 5642), the Global Warming Pollution Act (S. 3698), and the Global Warming Reduction Act of 2006 (S. 4039) would have granted EPA broad authority to establish regulations such that total greenhouse gas emissions are reduced to 80% (65% in the case of H.R. 4039) below 1990 levels by 2050. These bills did not designate covered entities or required reduction levels for specific sectors, but would have left those decisions to EPA's discretion.

**Safety Valve Bills.** The Keep America Competitive Global Warming Policy Act of 2006 (H.R. 5049) would have established a system of allowances for fossil fuel suppliers and a safety valve of \$25 per ton of carbon, indexed to inflation.

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<sup>11</sup> S. 131 (Inhofe) and H.R. 227 (Sweeny) would also establish a cap-and-trade program for nitrogen oxides, sulfur dioxide, and mercury from utilities. However, the bills do not address carbon dioxide emissions.

<sup>12</sup> For more information on multi-pollutant bills, see CRS Report RL32755, *Air Quality: Multi-Pollutant Legislation in the 109<sup>th</sup> Congress*, by Larry Parker and John Blodgett.

## Comparison of Emissions Reduction Bills

**Table 1. Market-Based Greenhouse Gas Emission Caps**

	<b>S. 150 (Jeffords)</b>	<b>S. 1151 (McCain), H.R. 759 (Gilchrest), H.R. 2828 (Inslee)</b>	<b>S. 730 (Leahy)</b>	<b>H.R. 1451 (Waxman)</b>	<b>H.R. 1873 (Bass)</b>	<b>S. 2724 (Carper)</b>
<b>Covered sources</b>	Any fossil fuel-fired electric generating facility that has a capacity of greater than 15 megawatts, generates electricity for sale, and emits a covered pollutant into the air.	Any electric power, industrial, or commercial entity that emits over 10,000 metric tons of CO <sub>2</sub> equivalent/year; any refiner or importer of petroleum products for transportation use that when combusted will emit over 10,000 metric tons of CO <sub>2</sub> equivalent/year; and, any importer or producer of HFCs, PFCs or SF6 that, when used, will emit over 10,000 metric tons of CO <sub>2</sub> equivalent/year.	All electricity generating facilities in the United States.	Any fossil fuel-fired electric generating facility that has a capacity of greater than 15 megawatts and generates electricity for sale.	Any fossil fuel-fired electric generating facility that has a capacity of greater than 25 megawatts and generates electricity for sale.	Any fossil fuel-fired electric generating facility that has a capacity of greater than 25 megawatts and generates electricity for sale.
<b>Covered pollutants</b>	One GHG: carbon dioxide; other Pollutants: sulfur dioxide, nitrogen oxides, and mercury.	All six GHGs.	One GHG: CO <sub>2</sub> ; other pollutants: sulfur dioxide, nitrogen oxides, and mercury.	One GHG: CO <sub>2</sub> ; other pollutants: sulfur dioxide, nitrogen oxides, and mercury.	One GHG: CO <sub>2</sub> ; other pollutants: sulfur dioxide, nitrogen oxides, and mercury.	One GHG: CO <sub>2</sub> ; other pollutants: sulfur dioxide, nitrogen oxides, and mercury.

	<b>S. 150 (Jeffords)</b>	<b>S. 1151 (McCain), H.R. 759 (Gilchrest), H.R. 2828 (Inslee)</b>	<b>S. 730 (Leahy)</b>	<b>H.R. 1451 (Waxman)</b>	<b>H.R. 1873 (Bass)</b>	<b>S. 2724 (Carper)</b>
<b>Emissions cap</b>	Utility CO <sub>2</sub> emissions limited to 2.05 billion tons per year <sup>a</sup> beginning in 2010.	6.5 billion tons of CO <sub>2</sub> equivalent per year beginning in 2010 for all covered entities taken together.	Utility CO <sub>2</sub> emissions limited to 2.05 billion tons per year beginning in 2010.	Utility CO <sub>2</sub> emission cap estimated at 1.94 billion tons per year beginning in 2010.	Estimated at 2.46 billion tons in 2010, declining to 2.38 billion tons in 2015.	Estimated at 2.65 billion tons in 2010, declining to 2.45 billion tons in 2015.
<b>Implementation Strategy</b>	Tradeable allowance system. Allowances allocated to various sectors and interests, including households, dislocated workers and communities, electricity-intensive industries, affected utilities, energy efficiency and renewable energy activities, and sequestration activities.	Tradeable allowance system. EPA is directed to determine allocations based on several economic and equity criteria, including efficiency and impact on consumers. Allowances are to be allocated upstream to refiners and importers of transportation fuel, along with producers of HFCs, PFCs, and SF <sub>6</sub> ; downstream to electric generation, industrial, and commercial entities.	Absolute caps on mercury emissions, no trading permitted between facilities at different sites. Implementation strategy for other pollutants to be determined by EPA.	To be determined by EPA — market mechanisms permitted (except for mercury).	Tradeable allowance system for all pollutants; allocations based on historic electricity output. CO <sub>2</sub> program includes allowance allocations for incremental nuclear capacity and renewable energy.	Tradeable allowance system varies by pollutant. For CO <sub>2</sub> , allocations based on historic electricity output. CO <sub>2</sub> program includes allowance allocations for incremental nuclear capacity and renewable energy, along with sequestration and early action provisions.

	<b>S. 150 (Jeffords)</b>	<b>S. 1151 (McCain), H.R. 759 (Gilchrest), H.R. 2828 (Inslee)</b>	<b>S. 730 (Leahy)</b>	<b>H.R. 1451 (Waxman)</b>	<b>H.R. 1873 (Bass)</b>	<b>S. 2724 (Carper)</b>
<b>Percentage change in CO<sub>2</sub> emissions v. business as usual by 2010<sup>b</sup></b>	-7.5%	-5%	-7.5%	-9.5%	-0.8%	-0.8%
<b>Percentage change in CO<sub>2</sub> emissions v. 1990 levels (UNFCCC baseline year)<sup>b</sup></b>	+24.2%	+27.7%	+24.2%	+21.7%	+32.2%	+32.2%
<b>Penalties for noncompliance</b>	Same as Clean Air Act, title IV except that the excess emission penalty is three times the average market price for allowances.	Excess emission penalty equal to three times the market price for allowances on the last day of the year at issue.	To be determined by EPA.	To be determined by EPA.	\$100 per excess ton plus one-for-one offset from future emissions allocations.	\$100 per excess ton plus one-for-one offset from future emissions allocations.

- a. S. 150 would further limit the number of emission allowances in a given year by the number of tons emitted two years prior by small electricity generating facilities, and by any number required to protect the public health, welfare, or the environment.
- b. CRS calculations based on projections contained in the UNFCCC Secretariat's *2002 Climate Action Report*. Available at [<http://yosemite.epa.gov/oar/globalwarming.nsf/content/ResourceCenterPublicationsUSClimateActionReport.html>]. For more information, see CRS Report RL32755, *Air Quality: Multi-Pollutant Legislation in the 109th Congress*, by Larry Parker and John Blodgett.

Appendix 1. Climate Change Bills in the 109<sup>th</sup> Congress

Bill(s) and Short Title(s)	Climate Change Research	Technology Deployment	GHG Reporting and Registry	Multi-Pollutant Bill	Emissions Caps and Allowance Trading for all GHGs
<b>ENACTED LAW</b>					
<b>H.R. 6, P.L. 109-58</b> <i>Energy Policy Act of 2005</i>		X			
<b>SENATE BILLS</b>					
<b>S. 150 (Jeffords)</b> <i>The Clean Power Act of 2005</i>			X	X	
<b>S. 245 (Collins)</b> <i>Abrupt Climate Change Research Act of 2005</i>	X				
<b>S. 730 (Leahy)</b> <i>Mercury Emission Act of 2005</i>			X	X	
<b>S. 745 (Byrd)</b> <i>International Clean Energy Deployment and Global Energy Markets Investment Act of 2005</i>		X			
<b>S. 883 (Hagel)</b> <i>Climate Change Technology Deployment in Developing Countries Act of 2005</i>		X			

Bill(s) and Short Title(s)	Climate Change Research	Technology Deployment	GHG Reporting and Registry	Multi-Pollutant Bill	Emissions Caps and Allowance Trading for all GHGs
<b>S. 887 (Hagel)</b> <i>Climate Change Technology Deployment and Infrastructure Credit Act of 2005</i>		X			
<b>S. 1151 (McCain)</b> <i>Climate Stewardship and Innovation Act of 2005</i>	X	X	X		X
<b>S. 1203 (Hagel)</b> <i>Climate Change Technology Tax Incentives Act of 2005</i>		X			
<b>S. 2724 (Carper)</b> <i>Clean Air Planning Act of 2006</i>			X	X	
<b>S. 3698 (Jeffords)</b> <i>Global Warming Pollution Reduction Act</i>	X	X	X		X
<b>S. 4039 (Kerry)</b> <i>Global Warming Reduction Act of 2006</i>	X	X	X		X
<b>S. 342* (McCain)</b> <i>Climate Stewardship Act of 2005</i>	X		X		X
<b>S. 386* (Hagel)</b> <i>Climate Change Technology Deployment in Developing Countries Act of 2005</i>		X			
<b>S. 387* (Hagel)</b> <i>Climate Change Technology Tax Incentives Act of 2005</i>		X			

Bill(s) and Short Title(s)	Climate Change Research	Technology Deployment	GHG Reporting and Registry	Multi-Pollutant Bill	Emissions Caps and Allowance Trading for all GHGs
<b>S. 388* (Hagel)</b> <i>Climate Change Technology Deployment and Infrastructure Credit Act of 2005</i>		X	X		
* Superseded by newer version					
<b>HOUSE BILLS</b>					
<b>H.R. 759 (Gilchrest)</b> <i>Climate Stewardship Act of 2005</i>	X		X		X
<b>H.R. 955 (Olver)</b> <i>National Greenhouse Gas Emissions Inventory Act of 2005</i>			X		
<b>H.R. 1451 (Waxman)</b> <i>Clean Smokestacks Act of 2005</i>			X	X	
<b>H.R. 1873 (Bass)</b> <i>Clean Air Planning Act of 2005</i>			X	X	
<b>H.R. 2828 (Inslee)</b> <i>New Apollo Energy Act of 2005</i>	X	X	X		X
<b>H.R. 5049 (Udall, T.)</b> <i>Keep America Competitive Global Warming Policy Act of 2006</i>	X		X		X
<b>H.R. 5642 (Waxman)</b> <i>Safe Climate Act of 2006</i>			X		X

Bill(s) and Short Title(s)	Climate Change Research	Technology Deployment	GHG Reporting and Registry	Multi-Pollutant Bill	Emissions Caps and Allowance Trading for all GHGs
<b>H.R. 6417 (Meehan)</b> <i>Climate Change Investment Act of 2006</i>		X			



## Appendix 2. Key Provisions of Climate Change Legislation in the 109<sup>th</sup> Congress

Bill No.	Sponsor	Major Actions	Key Provisions
<b>ENACTED LAW</b>			
H.R. 6, P.L. 109-58	Barton	Introduced April 18, 2005; passed House April 21, 2005; passed Senate June 28, 2005; conference report file July 27, 2005; agreed to in House July 28; agreed to in Senate July 29; signed into law August 8, 2005.	Omnibus energy bill addressing various climate- and non-climate related topics. Among other provisions, establishes loans, loan guarantees, etc. to deploy technology for greenhouse gas intensity reduction (similar language to S. 887); requires the Secretary of State to provide assistance to developing countries on projects to reduce greenhouse gas intensity; establishes an export initiative for greenhouse gas reduction technology (similar language to S. 883)
<b>SENATE BILLS</b>			
S. 150	Jeffords	Introduced January 25, 2005; referred to Senate Environment and Public Works.	Would have amended the Clean Air Act to require the Administrator of the Environmental Protection Agency to promulgate regulations to achieve specified reductions in emissions of sulfur dioxide, nitrogen oxides, carbon dioxide and mercury from certain electric generation facilities by January 1, 2010.
S. 245	Collins	Introduced February 1, 2005; referred to Senate Commerce, Science, and Transportation.	Would have established within the Department of Commerce a research program on abrupt climate change.
S. 730	Leahy	Introduced April 6, 2005; referred to Senate Environment and Public Works.	Would have amended the Clean Air Act to require the Administrator of the Environmental Protection Agency to promulgate regulations to achieve specified reductions in emissions of sulfur dioxide, nitrogen oxides, carbon dioxide and mercury from certain electric generation facilities by January 1, 2010.
S. 745	Byrd	Introduced April 11, 2005; referred to Senate Foreign Relations.	Would have established within the Department of State a program to assist developing countries in the demonstration and deployment of emission reduction technologies.

Bill No.	Sponsor	Major Actions	Key Provisions
S. 883	Hagel	Introduced April 21, 2005; referred to Senate Foreign Relations — see also H.R. 6 (Senate Version)	Would have required the Secretary of State to provide assistance to developing countries on projects to reduce greenhouse gas intensity; would have established an export initiative for greenhouse gas reduction technology.
S. 887	Hagel	Introduced April 21, 2005; referred to Senate Energy and Natural Resources — see also H.R. 6 (Senate Version)	Would have established loans, loan guarantees, etc. to deploy technology for greenhouse gas intensity reduction.
S. 1151	McCain	Introduced May 25, 2005; referred to Senate Environment and Public Works.	Would have required any entity that emits more than 10,000 metric tons of greenhouse gases (CO <sub>2</sub> equivalent) to reduce emissions to year 2000 levels by 2010. Would have allowed: tradeable credits for reductions beyond those required, reductions from non-covered entities, increases in carbon sequestration, and emissions reductions in other countries. Would have promoted innovation on mitigation technologies and would have established incentives for technology deployment.
S. 1203	Hagel	Introduced June 8, 2005; referred to Senate Finance.	Would have established tax credits for investment in technologies to reduce greenhouse gas intensity; also provides tax incentives for nuclear technologies.
S. 2724	Carper	Introduced May 4, 2006; referred to Senate Environment and Public Works.	Would have amended the Clean Air Act to require the Administrator of the Environmental Protection Agency to promulgate regulations to achieve specified reductions in emissions carbon dioxide and pollutants from certain electric generation facilities by 2010 (2007 for nitrogen oxides).
S. 3698	Jeffords	Introduced July 20, 2006; referred to Senate Environment and Public Works.	Would have amended the Clean Air Act to require the Administrator of the Environmental Protection Agency to promulgate regulations to achieve an 80% reduction in greenhouse gas emissions below 1990 levels by 2050; would have established efficiency and/or emissions standards for various sectors; would have promoted research and development

Bill No.	Sponsor	Major Actions	Key Provisions
S. 4039	Kerry	Introduced September 29, 2006; referred to Senate Finance	Would have established a mandatory cap-and-trade program beginning in 2010 to reduce annual emissions by a set percentage each year so that annual emissions are 65% below year 2000 levels by 2050. Would have established research and development; greenhouse gas standards for passenger vehicles.
S. 342*	McCain	Introduced February 10, 2005; referred to Senate Environment and Public Works.	Would have required any entity that emits more than 10,000 metric tons of greenhouse gases (CO <sub>2</sub> equivalent) to reduce emissions to year 2000 levels by 2010. Would have allowed tradeable credits for reductions beyond those required, reductions from non-covered entities, increases in carbon sequestration, and emissions reductions in other countries.
S. 386*	Hagel	Introduced February 15, 2005; referred to Senate Foreign Relations.	Would have required the Secretary of State to provide assistance to developing countries on projects to reduce greenhouse gas intensity; would have established an export initiative for greenhouse gas reduction technology.
S. 387*	Hagel	Introduced February 15, 2005; referred to Senate Finance.	Would have established tax credits for investment in technologies to reduce greenhouse gas intensity; also would have provided tax incentives for clean coal and nuclear technologies.
S. 388*	Hagel	Introduced February 15, 2005; referred to Senate Energy and Natural Resources.	Would have established loans, loan guarantees, etc. to deploy technology for greenhouse gas intensity reduction; would have established a voluntary national greenhouse gas registry.
*Superseded by newer version			

Bill No.	Sponsor	Major Actions	Key Provisions
<b>HOUSE BILLS</b>			
H.R. 759	Gilchrest	Introduced February 10, 2005; referred to House Science, and House Energy and Commerce.	Would have required any entity that emits more than 10,000 metric tons of greenhouse gases (CO <sub>2</sub> equivalent) to reduce emissions to year 2000 levels by 2010. Would have allowed: tradeable credits for reductions beyond those required, reductions from non-covered entities, increases in carbon sequestration, and emissions reductions in other countries.
H.R. 955	Olver	Introduced February 17, 2005; referred to House Energy and Commerce.	Would have required EPA to establish a GHG emissions information system to collect information submitted regarding an entity's GHG emissions. Would have established mandatory registry for entities that emit more than 10,000 metric tons of carbon dioxide equivalent.
H.R. 1451	Waxman	Introduced March 17, 2005; referred to House Energy and Commerce.	Would have amended the Clean Air Act to require the Administrator of the Environmental Protection Agency to promulgate regulations to achieve specified reductions in emissions of carbon dioxide and pollutants from certain electric generation facilities by 2010.
H.R. 1873	Bass	Introduced April 27, 2005; referred to House Energy and Commerce.	Would have amended the Clean Air Act to require the Administrator of the Environmental Protection Agency to promulgate regulations to achieve specified reductions in emissions carbon dioxide and pollutants from certain electric generation facilities by 2010 (2009 for nitrogen oxides).
H.R. 2828	Inslee	Introduced June 8, 2005; referred to House Energy and Commerce, among other committees.	Omnibus energy bill addressing various climate- and non-climate related topics. Among other provisions, would have required any entity that emits more than 10,000 metric tons of greenhouse gases (CO <sub>2</sub> equivalent) to reduce emissions to year 2000 levels by 2010. Would have allowed tradeable credits for reductions beyond those required, reductions from non-covered entities, increases in carbon sequestration, and emissions reductions in other countries.

Bill No.	Sponsor	Major Actions	Key Provisions
H.R. 5049	Udall, T.	Introduced May 24, 2006; referred to House Energy and Commerce, among other committees.	Would have established a system of tradeable allowances for greenhouse gas emissions from fossil fuel supply and combustion, with a maximum “safety valve” price of \$25 per ton of carbon, adjusted for inflation. Would have established an Advanced Research Projects Agency within the Department of Energy.
H.R. 5642	Waxman	Introduced June 20, 2006; referred to House Energy and Commerce, among other committees.	Would have amended the Clean Air Act to require the Administrator of the Environmental Protection Agency to promulgate regulations to achieve an 80% reduction in greenhouse gas emissions below 1990 levels by 2050.
H.R. 6417	Meehan	Introduced December 7, 2006; referred to House Ways and Means	Among other provisions, would have established a tax credit for investment in technologies to reduce greenhouse gas intensity.