

CRS Report for Congress

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Climate Change Legislation in the 109th Congress

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Summary

Climate change and greenhouse gas (GHG) emissions are an issue in the 109th Congress, as they have been in past Congresses. Bills directly addressing climate change issues range 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 focus 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 vary in their approaches to climate change issues. For example, some bills covering research issues focus solely on modeling the effects of future climate change, whereas others address the development of monitoring technologies. Bills focusing on technology deployment do so through tax incentives and credit-based programs within the United States or by promoting deployment in developing countries. Bills with greenhouse gas registries may be voluntary or mandatory and vary in the entities covered and the gases registered. Bills with emission reduction requirements also vary 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 establishes 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 are 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. This report will be updated as events warrant.

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Climate Change Legislation in the 109th 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.¹ Over the past decade, 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 intensity² 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 have been introduced in Congress to address climate change.

In the 109th Congress, numerous bills have been introduced that directly or indirectly address climate change. Several bills address 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 address climate change, as opposed to those that address other issues but could have ancillary impacts (e.g., energy efficiency and conservation). Topics covered by these bills fall into four major categories: (1) those that would promote research on the effects of climate change and on methods to measure and predict climate change; (2) those that would create incentives for the deployment of emission-reducing technologies in the United States or other countries; (3) those that would establish greenhouse gas (GHG) monitoring systems as a basis for research or for any potential reduction program; and (4) those that would establish market-based programs to directly limit greenhouse gas emissions. These categories are not mutually exclusive, and several bills address more than one of the above categories. The major provisions of these bills are categorized in **Appendix 1** and summarized in **Appendix 2**.

¹ Under the United Nations Framework Convention on Climate Change (UNFCCC), greenhouse gases include carbon dioxide (CO₂, the most ubiquitous and primary greenhouse gas), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluorane (SF₆). Some other greenhouse gases are controlled under the Montreal Protocol on Substances That Deplete the Ozone Layer.

² 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 have 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, H.R. 6). Title XVI establishes 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 H.R. 6, several amendments on climate change were offered. S.Amdt. 817, which inserted a new Title XVI in the bill, incorporates 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 H.R. 6 did not expressly address climate change issues.

Not included in the final bill was Section 1612 of the Senate bill, 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. S.J.Res. 5 similarly urges U.S. action on climate change. This resolution has been 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.³ Further, research is ongoing into technologies to improve efficiency, reduce fossil fuel consumption, and sequester carbon dioxide emissions.

Research Bills. One bill in the 109th Congress, S. 245 (Collins), focuses solely on climate change research.⁴ S. 245 calls 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. In addition to S. 245, several bills include climate change research provisions as part of a broader climate change legislation. Specifically, research in S. 1151, S. 3698, H.R. 759, and H.R. 2828 would focus on abrupt climate change research and new climate change measurement technologies. H.R. 5049 would establish a new Advanced Research Projects Agency within the Department of Energy.

Deployment of Greenhouse Gas Reduction Technology

In the 109th Congress, several bills would promote 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 include 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) would establish 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 establish 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.

In addition to the above bills on technology deployment, §585(b) of the FY2006 Foreign Operations Appropriation Act (P.L. 109-102) requires the President to submit (within 60 days of submitting the FY2007 budget request) a report on federal agency expenditures (foreign and domestic) on climate change activities. The act specifically requires a report on U.S. Agency for International Development funding for climate change activities in developing countries, including technology deployment.

³ For more information on the science and policy of Global Climate Change see CRS Issue Brief IB89005, *Global Climate Change*, by John R. Justus and Susan R. Fletcher.

⁴ 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).

GHG Reporting and Registry Bills

Under the UNFCCC, the United States annually publishes reports on its GHG emissions.⁵ The United States Environmental Protection Agency (EPA) does this reporting using various techniques (e.g., fuel analysis for CO₂). The three dominant sources of GHG emissions are electricity generation (33.1%), transportation (26.9%), and industry (19%).⁶ At the national level, 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.⁷

H.R. 955 (Olver) focuses 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 must report their emissions, except that farms are exempt. Further, manufacturers and importers of automobiles and Department of Energy-listed products⁸ must report the emissions from their products. The purpose of the bill is 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 focuses solely on GHG reporting, several other bills would require 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 require 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 require major emitters of all six greenhouse gases to report their emissions; the bills require reporting from entities that emit more than 10,000 metric tons (11,000 tons) of carbon dioxide equivalent. H.R. 5049 (Udall, T.) would require all fossil fuel suppliers to report the amount of greenhouse gases that will result from combustion of the fuel supplied.

GHG Emission-Reduction Bills

The United States has no federal GHG reduction requirements, though there are proposals to require such reductions. These proposals include “command and control” regulations on emissions, GHG emission taxes, and market-based techniques

⁵ 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.

⁶ 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%).

⁷ For more information, see Pew Center on Global Climate Change, *Climate Change Activities in the United States: 2004 Update*, Arlington, VA, 2004.

⁸ 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.

to limit emissions. The latter, market-based programs typically take as their model the Clean Air Act's acid rain program.⁹

In the 109th Congress, bills have been introduced that would establish 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 cap 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 focus on reducing carbon dioxide from electric utilities. Each of these bills would use 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 establish a such a system.

Carbon Dioxide Reduction Bills. As shown in **Table 1**, S. 150, S. 730, H.R. 1451, and H.R. 1873 focus on electric utility emissions. These "multi-pollutant" bills would limit emissions of carbon dioxide, along with other air pollutants.¹⁰ (See **Table 1**.) In all four cases, carbon dioxide emissions limitations would start in 2010.¹¹

Comprehensive GHG Emissions Reductions. Unlike other bills proposed in the 109th 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) focus on achieving market-driven reductions in all six greenhouse gases (see **Table 1**). The legislation applies to entities in the electricity, transportation, industry, and commercial sectors that emit over 10,000

⁹ 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.

¹⁰ 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.

¹¹ For more information on multi-pollutant bills, see CRS Report RL32755, *Air Quality: Multi-Pollutant Legislation in the 109th Congress*, by Larry Parker and John Blodgett.

metric tons (11,000 tons) of greenhouse gases per year. Starting in 2010, the bills would cap total GHG emissions from all these sources at 6.5 billion tons (CO₂ equivalent emissions), reduced by the amount of CO₂ (equivalent emissions) from non-covered entities in the year 2000. The bills would also establish 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 support climate change research and establish a GHG emissions inventory (see above). The bills also include 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) and the Global Warming Pollution Act (S. 3698) would grant EPA broad authority to establish regulations such that total greenhouse gas emissions are reduced to 80% below 1990 levels by 2050. These bills do not designate covered entities or required reduction levels for specific sectors, but leave those decisions to EPA's discretion.

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

Comparison of Emissions Reduction Bills

Table 1. Market-Based Greenhouse Gas Emission Caps

	S. 150 (Jeffords)	S. 1151 (McCain), H.R. 759 (Gilchrest), H.R. 2828 (Inslee)	S. 730 (Leahy)	H.R. 1451 (Waxman)	H.R. 1873 (Bass)	S. 2724 (Carper)
Covered sources	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 ₂ equivalent/year; any refiner or importer of petroleum products for transportation use that when combusted will emit over 10,000 metric tons of CO ₂ equivalent/year; and, any importer or producer of HFCs, PFCs or SF6 that, when used, will emit over 10,000 metric tons of CO ₂ 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.
Covered pollutants	One GHG: carbon dioxide; other Pollutants: sulfur dioxide, nitrogen oxides, and mercury.	All six GHGs.	One GHG: CO ₂ ; other pollutants: sulfur dioxide, nitrogen oxides, and mercury.	One GHG: CO ₂ ; other pollutants: sulfur dioxide, nitrogen oxides, and mercury.	One GHG: CO ₂ ; other pollutants: sulfur dioxide, nitrogen oxides, and mercury.	One GHG: CO ₂ ; other pollutants: sulfur dioxide, nitrogen oxides, and mercury.

	S. 150 (Jeffords)	S. 1151 (McCain), H.R. 759 (Gilchrest), H.R. 2828 (Inslee)	S. 730 (Leahy)	H.R. 1451 (Waxman)	H.R. 1873 (Bass)	S. 2724 (Carper)
Emissions cap	Utility CO ₂ emissions limited to 2.05 billion tons per year ^a beginning in 2010.	6.5 billion tons of CO ₂ equivalent per year beginning in 2010 for all covered entities taken together.	Utility CO ₂ emissions limited to 2.05 billion tons per year beginning in 2010.	Utility CO ₂ 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.
Implementation Strategy	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 ₆ ; 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 ₂ program includes allowance allocations for incremental nuclear capacity and renewable energy.	Tradeable allowance system varies by pollutant. For CO ₂ , allocations based on historic electricity output. CO ₂ program includes allowance allocations for incremental nuclear capacity and renewable energy, along with sequestration and early action provisions.

	S. 150 (Jeffords)	S. 1151 (McCain), H.R. 759 (Gilchrest), H.R. 2828 (Inslee)	S. 730 (Leahy)	H.R. 1451 (Waxman)	H.R. 1873 (Bass)	S. 2724 (Carper)
Percentage change in CO₂ emissions v. business as usual by 2010^b	-7.5%	-5%	-7.5%	-9.5%	-0.8%	-0.8%
Percentage change in CO₂ emissions v. 1990 levels (UNFCCC baseline year)^b	+24.2%	+27.7%	+24.2%	+21.7%	+32.2%	+32.2%
Penalties for noncompliance	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 109th 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
ENACTED LAW					
H.R. 6, P.L. 109-58 <i>Energy Policy Act of 2005</i>		X			
SENATE BILLS					
S. 150 (Jeffords) <i>The Clean Power Act of 2005</i>			X	X	
S. 245 (Collins) <i>Abrupt Climate Change Research Act of 2005</i>	X				
S. 730 (Leahy) <i>Mercury Emission Act of 2005</i>			X	X	
S. 745 (Byrd) <i>International Clean Energy Deployment and Global Energy Markets Investment Act of 2005</i>		X			
S. 883 (Hagel) <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
S. 887 (Hagel) <i>Climate Change Technology Deployment and Infrastructure Credit Act of 2005</i>		X			
S. 1151 (McCain) <i>Climate Stewardship and Innovation Act of 2005</i>	X	X	X		X
S. 1203 (Hagel) <i>Climate Change Technology Tax Incentives Act of 2005</i>		X			
S. 2724 (Carper) <i>Clean Air Planning Act of 2006</i>			X	X	
S. 3698 (Jeffords) <i>Global Warming Pollution Reduction Act</i>	X	X	X		X
S. 342* (McCain) <i>Climate Stewardship Act of 2005</i>	X		X		X
S. 386* (Hagel) <i>Climate Change Technology Deployment in Developing Countries Act of 2005</i>		X			
S. 387* (Hagel) <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
S. 388* (Hagel) <i>Climate Change Technology Deployment and Infrastructure Credit Act of 2005</i>		X	X		
* Superseded by newer version					
HOUSE BILLS					
H.R. 759 (Gilchrest) <i>Climate Stewardship Act of 2005</i>	X		X		X
H.R. 955 (Olver) <i>National Greenhouse Gas Emissions Inventory Act of 2005</i>			X		
H.R. 1451 (Waxman) <i>Clean Smokestacks Act of 2005</i>			X	X	
H.R. 1873 (Bass) <i>Clean Air Planning Act of 2005</i>			X	X	
H.R. 2828 (Inslee) <i>New Apollo Energy Act of 2005</i>	X	X	X		X
H.R. 5049 (Udall, T.) <i>Keep America Competitive Global Warming Policy Act of 2006</i>	X		X		X
H.R. 5642 (Waxman) <i>Safe Climate Act of 2006</i>			X		X

Appendix 2. Key Provisions of Climate Change Legislation in the 109th Congress

Bill No.	Sponsor	Major Actions	Key Provisions
ENACTED LAW			
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)
SENATE BILLS			
S. 150	Jeffords	Introduced January 25, 2005; referred to Senate Environment and Public Works.	Amends 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.	Establishes 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.	Amends 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.	Establishes 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)	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.
S. 887	Hagel	Introduced April 21, 2005; referred to Senate Energy and Natural Resources — see also H.R. 6 (Senate Version)	Establishes 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.	Requires any entity that emits more than 10,000 metric tons of greenhouse gases (CO ₂ equivalent) to reduce emissions to year 2000 levels by 2010. Allows: tradeable credits for reductions beyond those required, reductions from non-covered entities, increases in carbon sequestration, and emissions reductions in other countries. Promotes innovation on mitigation technologies and establishes incentives for technology deployment.
S. 1203	Hagel	Introduced June 8, 2005; referred to Senate Finance.	Establishes 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.	Amends 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.	Amends 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; establishes efficiency and/or emissions standards for various sectors; promotes research and development

Bill No.	Sponsor	Major Actions	Key Provisions
S. 342*	McCain	Introduced February 10, 2005; referred to Senate Environment and Public Works.	Requires any entity that emits more than 10,000 metric tons of greenhouse gases (CO ₂ equivalent) to reduce emissions to year 2000 levels by 2010. Allows: 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.	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.
S. 387*	Hagel	Introduced February 15, 2005; referred to Senate Finance.	Establishes tax credits for investment in technologies to reduce greenhouse gas intensity; also provides tax incentives for clean coal and nuclear technologies.
S. 388*	Hagel	Introduced February 15, 2005; referred to Senate Energy and Natural Resources.	Establishes a loans, loan guarantees, etc. to deploy technology for greenhouse gas intensity reduction; establishes a voluntary national greenhouse gas registry.
*Superseded by newer version			
HOUSE BILLS			
H.R. 759	Gilchrest	Introduced February 10, 2005; referred to House Science, and House Energy and Commerce.	Requires any entity that emits more than 10,000 metric tons of greenhouse gases (CO ₂ equivalent) to reduce emissions to year 2000 levels by 2010. Allows: 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.	Requires EPA to establish a GHG emissions information system to collect information submitted regarding an entity's GHG emissions. Establishes mandatory registry for entities that emit more than 10,000 metric tons of carbon dioxide equivalent.

Bill No.	Sponsor	Major Actions	Key Provisions
H.R. 1451	Waxman	Introduced March 17, 2005; referred to House Energy and Commerce.	Amends 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.	Amends 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, requires any entity that emits more than 10,000 metric tons of greenhouse gases (CO ₂ equivalent) to reduce emissions to year 2000 levels by 2010. Allows: tradeable credits for reductions beyond those required, reductions from non-covered entities, increases in carbon sequestration, and emissions reductions in other countries.
H.R. 5049	Udall, T.	Introduced May 24, 2006; referred to House Energy and Commerce, among other committees.	Establishes 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. Establishes an Advanced Research Projects Agency within the Department of Energy.
H.R. 5642	Waxman	Introduced June 20, 2006; House Energy and Commerce, among other committees.	Amends 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.