

CHANGE IS IN THE AIR:

THE FOUNDATIONS OF THE COMING AMERICAN CARBON MARKET

Cate Hight¹ and Gustavo Silva-Chávez²

Since the United States' refusal to ratify the Kyoto Protocol in 2001, the country has been considered a laggard in the international effort to combat climate change. To date, the country has proved unwilling to sign a binding international agreement to reduce its greenhouse gas (GHG) emissions, asserting that it will not do so until growing economies such as China and India also agree to adopt emissions targets. In addition, the Bush administration has remained opposed to binding federal domestic emissions targets or caps and has instead chosen to address GHG emissions through nonbinding intensity targets and other measures.

Despite this lack of federal action, a number of American emissions reduction efforts are being launched outside the federal framework. Private actors, cities and states are each introducing initiatives designed to curb emissions growth and to pressure the federal government to act. This *Climate Report* examines these efforts, and the potential implications they may have for the international carbon market. The authors conclude that, while mandatory federal limits on greenhouse gases remain absent, the US as a whole has been creating the necessary building blocks for a national cap-and-trade system. While some American state and regional trading programs have the potential to impact the carbon market in coming years, their future depends on how soon the US enacts a mandatory and comprehensive federal law imposing GHG limits. The form this law may take is in the hands of the US Congress and the new President to be elected on 4 November, 2008.

¹ **Cate Hight** is a research fellow at Mission Climat of Caisse des Dépôts, where she focuses on emerging carbon markets and opportunities for linking existing cap-and-trade schemes.
cate.hight@caissedesdepots.fr – + 33 1 58 50 98 19

² **Gustavo Silva-Chávez** is a climate change policy analyst in the Climate and Air Program at the Environmental Defense Fund. He works on international climate change issues related to the UNFCCC and the Kyoto Protocol, focusing on deforestation, sectoral approaches and efforts to create a post-2012 global climate regime. He also works with the US Congress in an effort to include deforestation provisions in US federal legislation.
gsilva-chavez@edf.org – + 1 202 572 3384

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CONTENTS

INTRODUCTION	4
I. THE AMERICAN EMISSIONS LANDSCAPE	4
A. Per capita, the largest emitter in the world	4
B. Emissions at home: power and transportation lead the way	5
II. 20 YEARS OF US CLIMATE POLICY	9
III. PRIVATE PLAYERS MOBILIZE	11
A. The Chicago Climate Exchange launches a voluntary carbon market	11
B. The Climate Registry records emissions data from around the country	11
C. The United States Climate Action Partnership calls for a mandatory GHG policy	12
IV. CITIES, STATES AND REGIONS SET THEIR OWN EMISSIONS TARGETS	12
A. City governments commit to Kyoto and launch local climate initiatives	12
B. States respond to climate change with GHG reduction laws	13
C. Regional partnerships will launch the US' first mandatory carbon markets	14
V. THE US SUPREME COURT GETS INVOLVED	17
VI. CONGRESS TAKES UP THE CLIMATE CHANGE POLICY DEBATE	17
A. A decade of discussion results in a new energy law in 2007	17
B. In the Senate, climate change takes center stage for the first time	19
C. The House outlines a future GHG control law	20
VII. PRESIDENTIAL POLICY	20
VIII. WHAT DOES THE FUTURE HOLD?	21
IX. ANNEXES	23
Annex 1 – The world's largest emitters: CO ₂ emissions, population and GDP trends	23
Annex 2 – Map: CO ₂ emissions per state in 2003	24
Annex 3 – Map: State climate change initiatives	25
Annex 4 – Table: Gross domestic product, population and CO ₂ emissions per state in 2003	26
Annex 5 – Participants in regional greenhouse gas trading programs as of 23 September, 2008	27
Annex 6 – The institutional structure of the US Congress	28
Annex 7 – Cap-and-trade proposals introduced in the Senate since January 2007	30
Annex 8 – Primary provisions of the Lieberman-Warner Climate Security Act (S.3036)	31
Annex 9 – Cap-and-trade proposals introduced in the House since January 2007	33
Annex 10 – Primary provisions of the Dingell-Boucher discussion draft	34
Annex 11 – US policy timeline	36
X. REFERENCES	37
RESEARCH PUBLICATIONS OF THE MISSION CLIMAT	39

INTRODUCTION

The United States is one of the largest greenhouse gas emitters in the world. While the US is home to only 5% percent of the Earth's population, it produces approximately 20% of the world's anthropogenic greenhouse gases (GHGs). Per capita, the US produces six times more GHGs than China and twelve times more than India. US emissions have continued to increase over the past decade, as the country continues to rely on coal for 50 percent of its power generation and automobiles for the bulk of its transport.

However, the US is beginning to take steps to reduce its greenhouse gas emissions. Private actors have launched voluntary initiatives to track their emissions and several are lobbying the federal government to implement a mandatory policy to control GHGs. In the absence of such a policy, US cities and states are launching initiatives on their own: the ten northeastern states of the Regional Greenhouse Gas Initiative (RGGI) have auctioned the initial allowances for the US' first mandatory GHG cap-and-trade program, which will start in January 2009, and states in the Midwest and West are poised to follow with their own trading programs in the next few years. California, a state larger than many countries in the world, has passed a law to establish the US's first economy-wide, binding plan to reduce GHG emissions. The accompanying regulations for the implementation of this plan are well underway.

At the federal level, the climate policy debate has gained momentum over the past two years. In April 2007, the US Supreme Court decided *Massachusetts v. EPA*, an environmental case which affirmed the federal government's authority to control greenhouse gas emissions. Climate policy became a major issue in the Democrat-controlled Congress at the end of 2007: the Lieberman-Warner Climate Security Act was the first cap-and-trade legislation to be approved by the Senate committee on Environment in Public Works. While the proposal was blocked by procedural obstacles in the Senate in June 2008, it will likely serve as a reference point for future legislative negotiations, along with the draft proposal introduced by Representatives Dingell and Boucher in the House of Representatives.

In November 2008, the US will elect a new President who will most certainly weigh in on climate policy. Both Presidential candidates, Barack Obama and John McCain, have supported GHG cap-and-trade proposals in the past and have indicated their intent to do so in the future. However, the ability of the next President to enact a comprehensive climate law will depend on the support of Congress.

2009 promises to be an interesting year for observers of carbon markets: RGGI will provide the US with its first practical experience with a mandatory greenhouse gas cap-and-trade program, the new President may launch a GHG reduction effort, and Congress will continue to draft detailed legislative proposals. What remains unclear is the role that a future US cap-and-trade program will play in the international carbon market, or the position that the US will take in international climate negotiations.

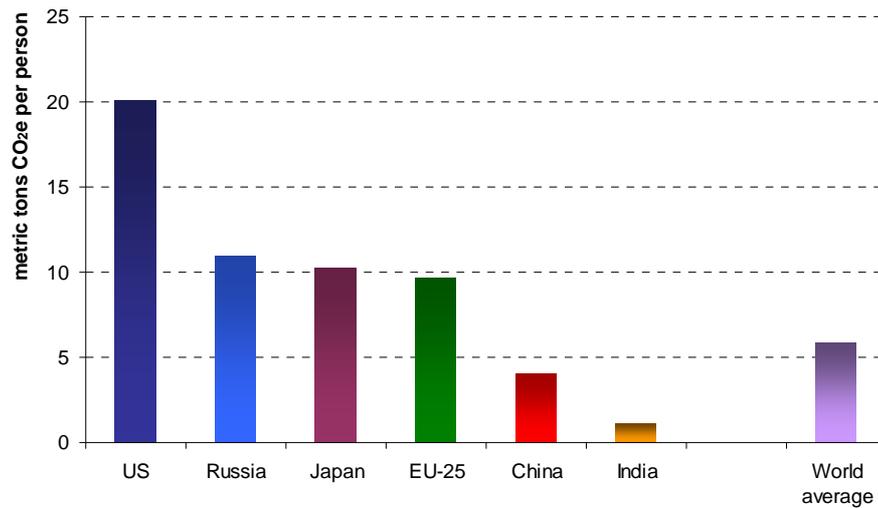
I. THE AMERICAN EMISSIONS LANDSCAPE

A. *Per capita, the largest emitter in the world*

Home to only 5% of the Earth's population, the United States produces approximately 20% of the world's anthropogenic greenhouse gases (GHGs). The US continues to far outpace its competitors in terms of per capita CO₂ emissions. In 2004, the US emitted almost twice as much per person as did Russia, six times as much as China and twelve times as much as India.¹

¹ World Resources Institute, Climate Analysis Indicators Tool (CAIT) Version 5.0, *Total GHG Emissions in 2004* (excluding land use, land use change and forestry due to data unavailability).

Figure 1 – Per capita CO₂ emissions of leading emitters, 2004



Note: emissions from land use, land use change and forestry are excluded due to data unavailability.

Source: World Resources Institute, Climate Analysis Indicators Tool (CAIT) Version 5.0.

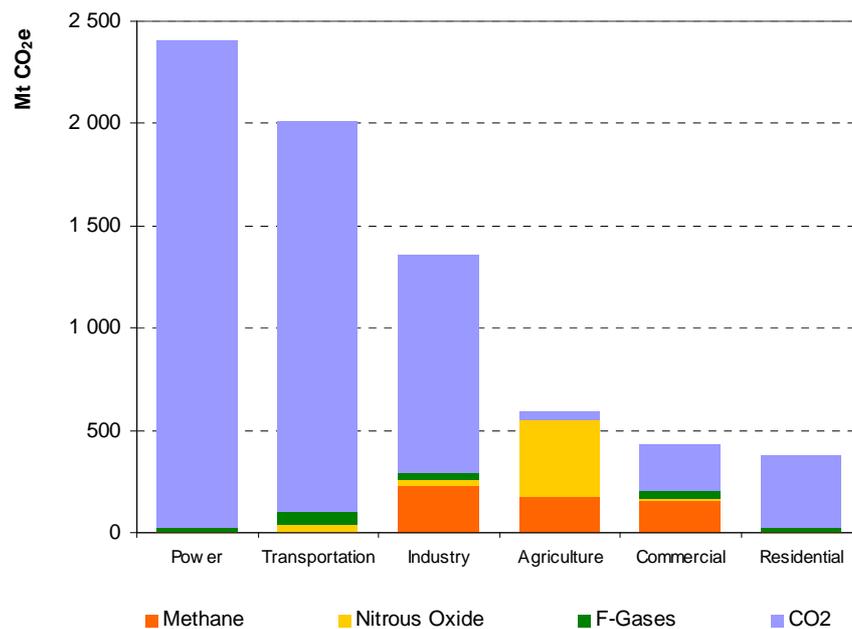
When CO₂ emissions from deforestation are taken into account, the US remains the world's largest per capita emitter. The most recent data including deforestation emissions (year 2000) shows that Indonesia and Brazil are large emitters. Respectively, these countries produced 13.8 and 9.8 metric tons of CO₂ emissions per person in 2000, well below US emissions of 19.1 metric tons per person in that year.

B. Emissions at home: power and transportation lead the way

As in most developed nations, power production, transportation and heavy industry are responsible for the bulk of US GHG emissions. Because these sectors are largely dependent on fossil fuels, the majority of their GHG emissions are in the form of carbon dioxide (CO₂), which accounts for 85% of US GHG emissions.

Figure 2 – Primary US GHG emissions by type and economic sector, 2005

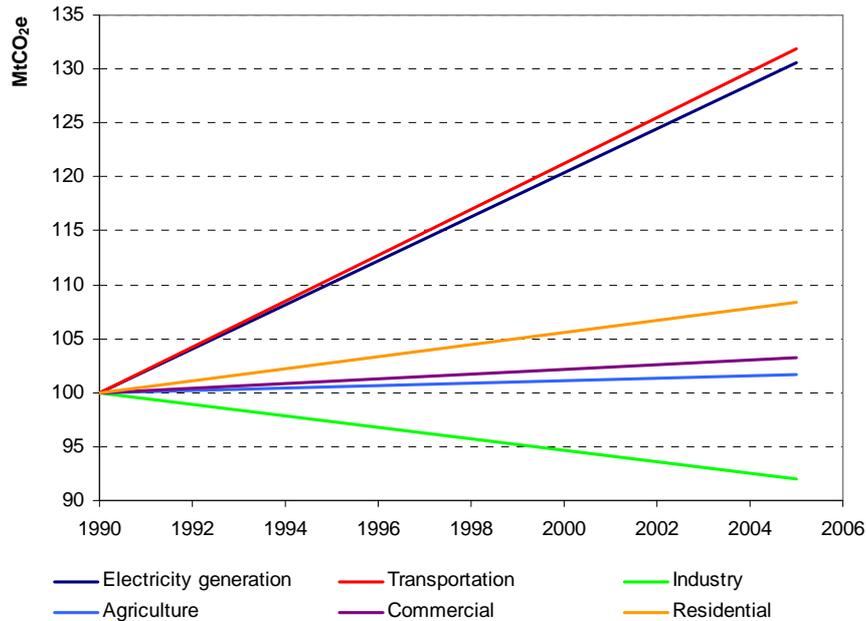
Total = 7260.4 MtCO₂e



Source: US EPA Inventory of GHG Emissions and Sinks: 1990- 2005.

While emissions from heavy industry have declined over the last ten years – due to energy efficiency improvements, fuel switching and a general economic shift from a manufacturing-based to a service-based economy – emissions from power production and transportation continue to grow. From 1990 to 2005, emissions from electricity generation grew by 31%, while transportation emissions increased by 32%. US GHG emissions totaled 7260.4 Mt carbon dioxide equivalent (CO₂e)² in 2005: approximately 15% above 1990 emissions levels and 23% above the country’s 2012 objective set forth in the Kyoto Protocol.

Figure 3 – Percent change trend in US GHG emissions by sector, 1990-2005
Index (1990 = 100)



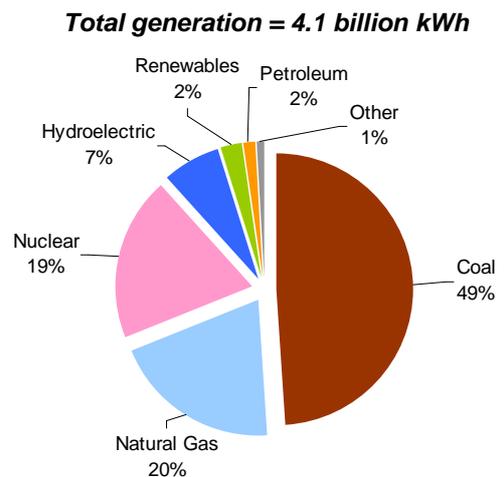
Source: US EPA Inventory of GHG Emissions and Sinks: 1990-2005.

The power sector: coal is king

Because the US power generation sector is heavily reliant on fossil fuels, increased demand for electricity leads to increased GHG emissions. The US relies on fossil fuels for over 70% of its electricity generation.

In 2006, almost half of the US’s electricity was generated from coal, the most carbon-intensive fossil fuel. Coal is an abundant and relatively inexpensive energy resource in the US, making it attractive to power generators who are not currently constrained by limits on CO₂ emissions.

Figure 4 – US electricity generation by energy source, 2006

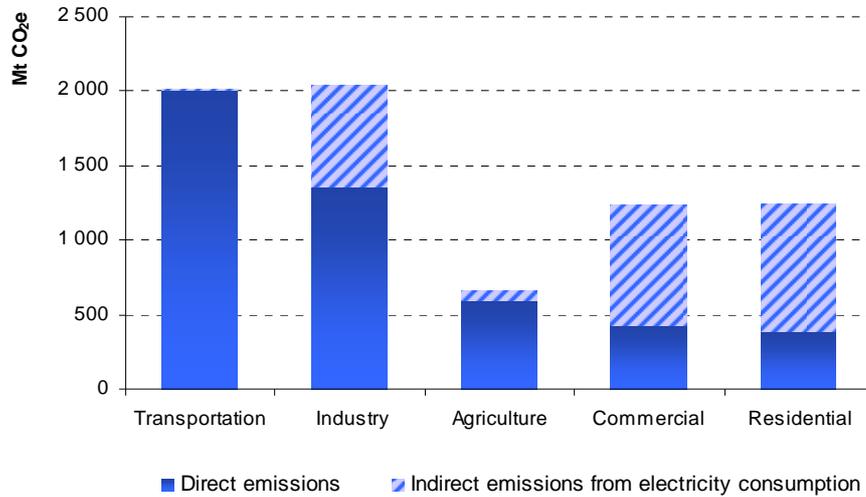


Source: US Department of Energy, EIA Electric Power Annual 2006.

² The OECD defines carbon dioxide equivalent as a measure used to compare the emissions from various greenhouse gases based upon their global warming potential. For example, the global warming potential for methane over 100 years is 21. This means that emissions of one million metric tons of methane are equivalent to emissions of 21 million metric tons of carbon dioxide.

The primary electricity consumers in the US are residential users, followed by the commercial and industrial sectors. Energy efficiency improvements in each of these sectors, coupled with a price for CO₂ emissions, could lead to significant GHG reductions from the US power sector.

Figure 5 – Direct and indirect GHG emissions by sector, 2005



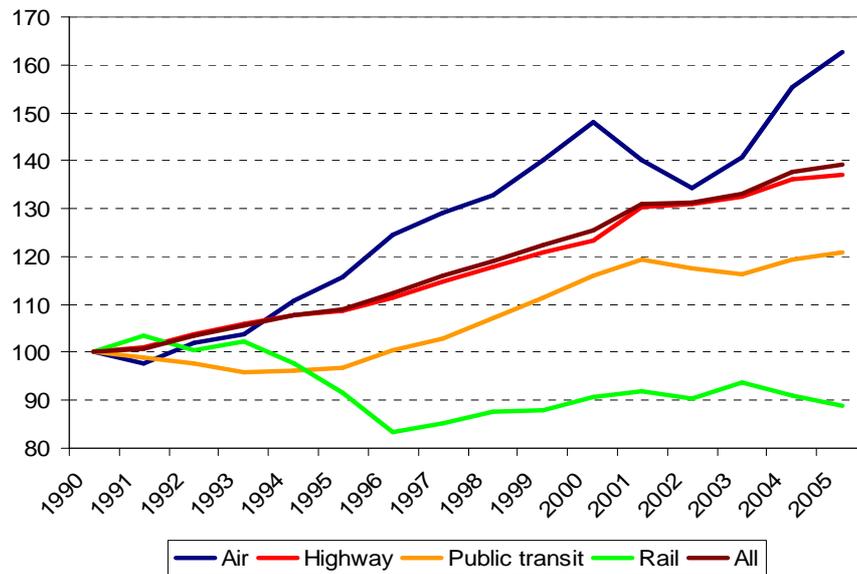
Source: US EPA Inventory of GHG Emissions and Sinks: 1990-2005.

The transportation sector: a love affair with the automobile

GHG emissions from the US transportation sector are also growing, despite technological improvements that have reduced the GHG emissions of individual automobiles in recent years. The US population has grown by over 20% since 1990. Individuals are traveling more, and more and more goods are being moved around the country.

From 1990 to 2005, the total number of passenger miles traveled increased by 39%, to 5523 billion miles. Air travel increased the most (63%), rebounding after a sharp decline following the terrorist attacks on 11 September 2001. Highway and public transit travel also increased significantly, by 37% and 21% respectively. However, passenger rail transport decreased, declining by 11% from 1990 to 2005.

Figure 6 – Percent change in US passenger miles traveled by type of transport, 1990-2005
Index (1990 = 100)

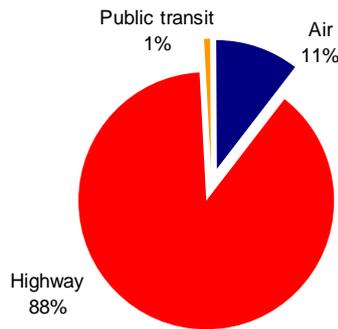


Source: United States Department of Transportation, National Transportation Statistics, December 2007.

Despite the rise in the popularity of air travel, Americans continue to do the majority of their traveling by car. Highway passenger miles traveled in 2005 totaled 4885 billion, eight times the number of miles traveled by air, and 88 times the number of miles traveled by public transit. In 2005, passenger rail transport accounted for only 5 billion (0.09%) of total passenger miles traveled.

While highway travel remains the most popular type of transport in the US, rising gas prices in 2007 and 2008 are pushing Americans to drive less. For example, vehicle miles traveled in May – typically a popular month for highway travel in the US – declined by 3.7% from 2007 to 2008.³ The current economic crisis may also lead to a decline in consumer purchasing power, and thus further decline in gasoline-fueled highway transport.

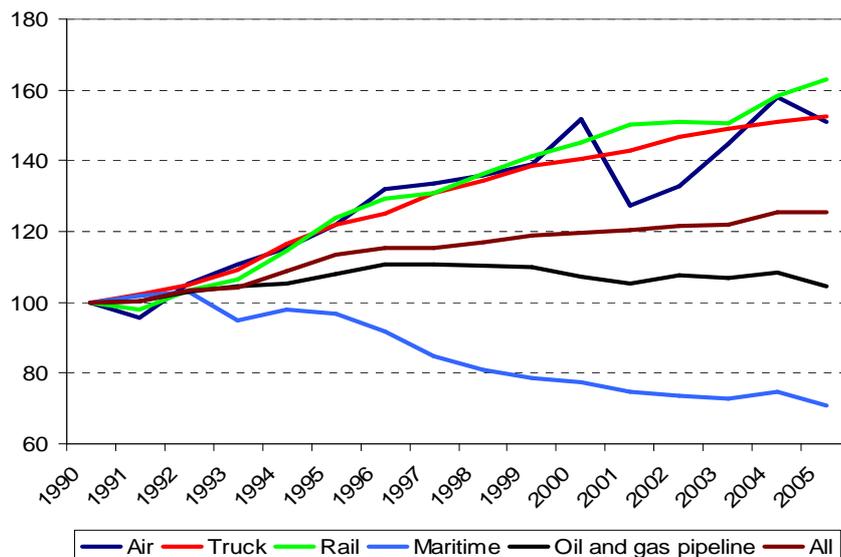
Figure 7 – US passenger miles traveled by type of transport, 2005
Total = 5523 billion



Source: United States Department of Transportation, National Transportation Statistics, December 2007.

Along with an increase in passenger travel, domestic shipping has also increased. From 1990 to 2005, the total number of freight ton-miles traveled increased by 25%, to 4537 billion miles. While the number of freight ton-miles traveled remains less than the number of passenger miles traveled, freight transport is increasing rapidly across several transport types. From 1990 to 2005, rail shipping increased the most (63%), followed by truck shipping (52%), and air freight (51%). Transport of oil and natural gas via pipelines remained relatively static due to infrastructure constraints, increasing by only 5%. Maritime transport decreased during the period, declining by 29% from 1990 to 2005.

Figure 8 – Percent change in US freight ton-miles traveled by type of transport, 1990-2005
Index (1990 = 100)

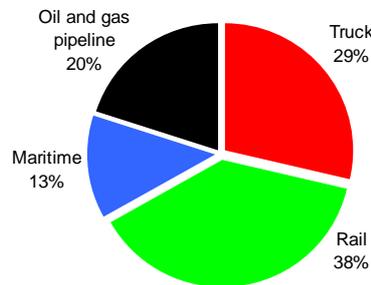


Source: United States Department of Transportation, National Transportation Statistics, July 2007.

³ US Department of Transportation, Federal Highway Administration, *Traffic Volume Trends*, May 2008.

Rail and truck transport accounts for over two thirds of domestic freight transport in the US. Air freight accounted for only 16 billion (0.3%) of the total freight ton-miles travelled in 2005.

Figure 9 – US freight ton-miles traveled by type of transport, 2005
Total = 4537 billion



Source: United States Department of Transportation, National Transportation Statistics, July 2007.

II. 20 YEARS OF US CLIMATE POLICY

While the United States has been reluctant to adopt a mandatory federal policy limiting greenhouse gas emissions, it has been actively engaged in the international climate change dialogue for many decades. The US was heavily involved in climate change research throughout the 1960s and 70s, generously funding scientists to study the issue and disseminate information. Following the successful Montreal negotiations on ozone pollution in the late 1980s, the US proposed the creation of a similar international task force on climate, which in 1988 became the Intergovernmental Panel on Climate Change (IPCC).

The IPCC's first assessment report, published in 1990, served as the basis for the establishment of the United Nations Framework Convention on Climate Change (UNFCCC), which was opened for signature in 1992 at the United Nations Conference on Environment and Development in Rio de Janeiro, Brazil. The UNFCCC committed signatory governments to a "non-binding aim" to reduce atmospheric concentrations of greenhouse gases and recognized that developed (Annex-I) and developing nations would assume "common but differentiated responsibilities" in the effort to reduce global GHG emissions.

The US President during this time period, George H.W. Bush, supported global action on greenhouse gases, and his administration saw cap-and-trade as a viable solution to the climate change problem. Bush submitted the UNFCCC treaty to the US Senate – the sole US body with the constitutional jurisdiction to ratify treaties – for approval. The treaty was approved by two thirds of the Senate and signed by the President in October 1992.

Following the UNFCCC's entry into force in 1994, the parties to the Convention began meeting in a series of annual Conferences of the Parties (COPs) to assess progress in meeting the ultimate objective of the Convention. At the first COP (COP1) in Berlin in 1995, the parties agreed to the "Berlin mandate," which exempted non-Annex I countries from assuming binding emissions obligations. At COP2 in Geneva in 1996, American negotiators agreed to assume "legally binding mid-term [emissions] targets" along with the other Annex I parties.

US Senators considered the agreements brokered at Berlin and Geneva to be well beyond the scope of the UNFCCC they ratified in 1992. In 1997, they unanimously approved the Byrd-Hagel resolution⁴ in an effort to limit the future commitments that could be made by American negotiators in the absence of Senate approval. The resolution asserted that the "'legally binding' emission limitation targets and timetables for Annex I Parties" and the exemption for developing countries was "inconsistent with the need for global action on climate change and . . . environmentally flawed."

⁴ Byrd-Hagel Resolution, S.RES 98, 105th US Congress.

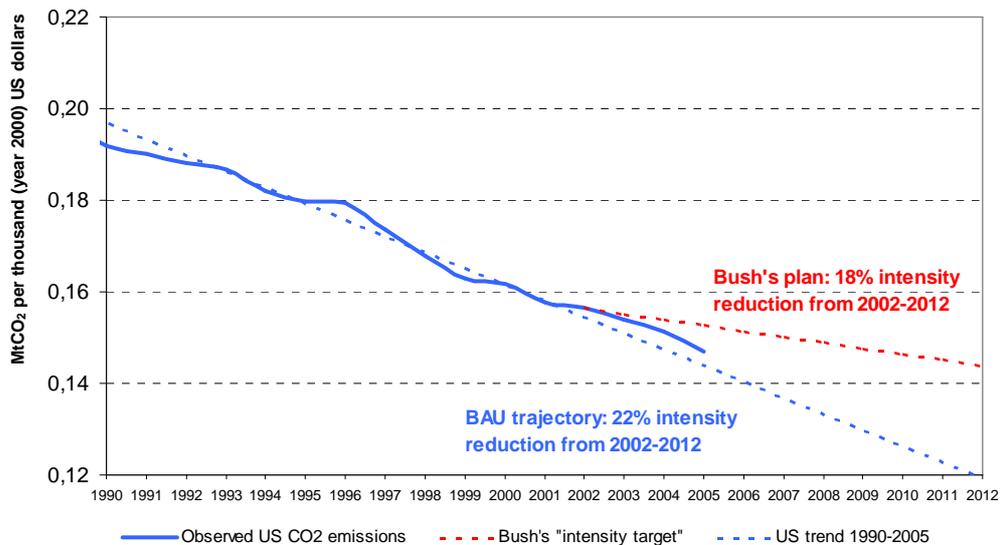
Furthermore, the Senate asserted that it would not ratify any agreement that (1) included binding emissions commitments for industrialized nations but that did not also include similar provisions for developing nations; or (2) would result in “serious harm” to the US economy.

The Senate resolution, passed just five months before the Kyoto conference, severely limited the US negotiating position in Kyoto. While US negotiators attempted to insert developing country commitments into the discussion, they were unsuccessful. The resulting Kyoto Protocol contained binding emissions targets for industrialized nations and no quantitative commitments for developing nations. President Clinton chose not to submit the treaty to the US Senate for ratification as he knew it would be rejected.

In 2001, President George W. Bush stated that he would not send the Kyoto Protocol to the Senate for ratification and that the US would not implement the Kyoto targets during his presidency. In that same year, he announced his climate change plan, a voluntary program based on greenhouse gas “intensity targets” and technology development rather than on binding limits on GHG emissions.

The Bush plan seeks to reduce the greenhouse gas intensity⁵ of the American economy by 18% from 2002 to 2012 through voluntary commitments from industry. As observed in Figure 12, this target is less ambitious than the trend of efficiency improvements observed in the US from 1990-2005, which has been about 22%.

**Figure 10 – CO₂ emissions per thousand (year 2000) dollars of Gross Domestic Product
Bush’s “intensity target” vs. business-as-usual emissions**



Source: US Department of Energy, Energy Information Administration.

However, many of the GHG intensity improvements observed in the US over the past 15 years have been the result of initiatives launched by federal agencies. For example, the Energy STAR appliance labeling program, a voluntary partnership launched in 1992 between manufacturers, the US Environmental Protection Agency (US EPA) and the US Department of Energy, has resulted in efficiency improvements that prevented 37 Mt of GHG emissions in 2006. The US Department of Agriculture’s domestic methane program helped reduce methane emissions to 11 percent below 1990 levels by 2005, despite GDP growth of 55% between 1990 and 2005. In addition, the US EPA is working with industry to reduce emissions of high global warming potential (GWP) gases including perfluorocarbons, hydrofluorocarbons and sulfur hexafluoride. This voluntary partnership has helped reduce GWP gas emissions to below 1990 levels.

⁵ Greenhouse gas intensity is the ratio of GHG emissions to economic output expressed in terms of GDP.

III. PRIVATE PLAYERS MOBILIZE

While the US has not yet adopted a mandatory federal policy limiting GHG emissions, several private actors are preparing themselves for future emissions constraints. A number of private initiatives have been launched in recent years that seek to lay the foundations for US GHG markets. The Chicago Climate Exchange and the Climate Registry are voluntary efforts supported by US businesses in the absence of mandatory federal policy. The US Climate Action Partnership is an initiative established by businesses and environmental NGOs to advocate for mandatory federal limits on US GHG emissions.

A. *The Chicago Climate Exchange launches a voluntary carbon market*

The Chicago Climate Exchange (CCX) launched the US's first voluntary GHG cap-and-trade program in 2003. CCX was established as a sort of "pilot program" by which US emitters could gain experience trading GHG in advance of a federal policy limiting emissions. CCX members assume voluntary emissions reduction commitments and pay an entrance fee to access the CCX trading platform. Members agree to cap their emissions in two phases: in Phase I (2003-2006), members committed to reducing their emissions by a minimum of 1% per year, for a total reduction of 4% below baseline levels by 2006. Phase II (2007-2010) requires emitters to reduce emissions by 6% below baseline levels by 2010.⁶

To achieve their emissions reductions goals, CCX members may either trade emissions allowances with one another or purchase offsets generated from qualified projects, which include agricultural, coal mine and landfill methane, agricultural soil carbon, rangeland soil carbon management, forestry, renewable energy, and destruction of ozone depleting substances. In Phase I, a majority of CCX members exceeded their emissions reduction goals: emissions from the group declined by 9% in 2003, 12.1% in 2004, 9.7% in 2005 and 5.9% in 2006, for a total emissions reduction of 128 Mt CO₂e.

In 2007, 23 Mt CO₂e were traded on CCX. Today, the exchange has over 400 members with an aggregate emissions baseline equal to 365 MtCO₂e, or approximately 5% percent of US emissions. However, it is likely that CCX will be pre-empted when a federal cap-and-trade system is adopted in the US. In addition, it is unclear how many of the offset projects allowed by CCX be able to meet the standards set forth in a federal program.

B. *The Climate Registry records emissions data from around the country*

The Climate Registry (TCR) was launched in March 2007 to standardize the way that GHG emissions are measured and verified. It was formed after a number of state and regional CO₂ registries, including the California Climate Action Registry, recognized that they could use their resources and knowledge more efficiently by creating one standard registry for all 50 US states. The goal of TCR is to harmonize GHG reporting guidelines and to form a reliable bank of GHG emissions data that may be used in current and future reporting and GHG mitigation programs. It is based on the Emissions Tracking System currently used by the US Environmental Protection Agency (US EPA) to record SO₂, NO_x, and CO₂ emissions from the utility industry.⁷

Membership in TCR is voluntary. Reporting entities agree to calculate their emissions according to a standardized General Reporting Protocol, a tool that is based largely on the internationally-recognized GHG Protocol standards developed by the World Resources Institute and the World Business Council for Sustainable Development. In addition, reporters must obtain third party verification of their emissions data to ensure accuracy, and they must report their emissions to the registry through a publicly-accessible online Climate Registry Information System (CRIS).

⁶ The CCX Phase I baseline is the average of annual emissions from 1998-2001. The Phase II baseline is the average of annual emissions from 1998-2001 or the single year 2000.

⁷ As required by the Fiscal Year 2008 Consolidated Appropriations Act enacted into law in December 2008, the US EPA must set up a mandatory GHG reporting program by June 2009 that is consistent with that of the Climate Registry.

As of 12 September 2008, 277 reporters from 41 American states, 12 Canadian provinces and territories and 6 Mexican states participate in TCR. The Registry's Board is composed of government representatives from each of the state and provincial members. Funding for the Registry is provided by fees from reporting members as well as by grants and donations from state governments and charitable foundations.

C. *The United States Climate Action Partnership calls for a mandatory GHG policy*

In January 2007, the United States Climate Action Partnership (USCAP) was the first coalition of major US businesses and NGOs to call for binding federal limits on GHG emissions. The 32-member group,⁸ which includes major firms such as Shell, Chrysler and General Electric, and influential NGOs including the Pew Center on Global Climate Change, the Environmental Defense Fund and the National Resource Defense Council, is actively asking Congress to establish a mandatory, comprehensive greenhouse gas cap-and-trade system with a goal of reducing emissions to 60% to 80% below 2007 levels by 2050. USCAP's position indicates that American businesses and NGOs are anticipating GHG controls in the near future, and that they wish to be part of the policy dialogue as Congress develops a mandatory greenhouse gas policy.

IV. CITIES, STATES AND REGIONS SET THEIR OWN EMISSIONS TARGETS

In addition to these voluntary initiatives, several US cities and states are enacting policies to reduce greenhouse gas emissions within their borders. While the ambition of these policies varies widely, with some providing no more than general goals that include little detail on how to actually achieve GHG reductions, the most progressive city and state efforts seek to change regional energy use, transportation networks and infrastructure management. Some states have even signed their emissions reduction goals into law, charging state agencies with developing comprehensive plans to cut emissions from a variety of economic sectors.

A. *City governments commit to Kyoto and launch local climate initiatives*

On February 16, 2005, the day that the Kyoto Protocol entered into force for 141 signatory nations, Mayor Greg Nickels of Seattle, Washington launched the US Mayors' Climate Protection Agreement. The goal of this initiative is to encourage at least 141 US cities to adopt the US' proposed Kyoto target: a GHG emissions reduction of 7% below 1990 emissions levels by the 2008-2012 period. As of 1 October 2008, mayors from 884 cities in 50 states, whose constituents represent over 25% of the US population, have signed the agreement. In addition to assuming GHG reduction targets, member mayors also agree to pressure their state governments and the federal government to pass laws mandating greenhouse gas reductions.

While it appears that few signatories to the Mayors Agreement will achieve the Kyoto target by 2012, the agreement has prompted several cities to launch policy initiatives aimed at reducing municipal greenhouse gas emissions. These initiatives include energy efficiency improvements to city buildings and transportation fleets, expansion of public transportation networks, renewable energy mandates, new building codes with efficiency requirements for residential and commercial structures, urban development plans that discourage vehicle use and seek to establish "walkable" communities, and tax incentives and grants for community groups that take additional steps to reduce their greenhouse gas footprints.

Along with progressive cities including Seattle, Washington and Portland, Oregon, the city of Austin, Texas is an example of an American city that has initiated a comprehensive program to reduce local greenhouse gas emissions. The Austin Climate Protection Plan was launched in February 2007 with the goal of eliminating carbon dioxide emissions from nearly all municipal activities by 2020. The five-part plan seeks to (1) power all city facilities with 100% renewable energy and to make the city transportation fleet carbon neutral by 2020; (2) achieve 700 MW in energy savings through efficiency and conservation

⁸ As of 24 September 2008.

measures and to meet 30% of all Austin energy needs through renewable sources by 2020; (3) increase the energy efficiency of all new single-family homes by 60% and increase the efficiency of all new commercial buildings by 75% by 2015; (4) create a City Climate Action Team to inventory GHG emissions city-wide and to recommend steps to reduce emissions from activities including transportation, land use planning and waste management; and to (5) help individuals and businesses go “carbon neutral” by providing information they can use to track and offset their emissions.

Austin is currently conducting an inventory of its actual emissions so that it can set concrete goals for its emissions reductions. It is also working with other cities and The Climate Registry to standardize the manner in which municipal emissions are monitored and reported. While information on Austin’s current emissions footprint is not yet available, Austin does report its annual power plant emissions to the California Climate Action Registry. These emissions, which totaled 5.5 Mt in 2006,⁹ account for about 80% of city emissions, which can be estimated at about 7 Mt per year.

Changes brought about by the Austin Climate Action Plan may go a long way toward reducing the GHG intensity of the Austin economy. However, the ability of the city – and its counterparts around the country – to reduce its emissions in absolute terms is unclear. As American cities including Austin continue to grow, there will be ever-increasing demand for energy, and CO₂ emissions will continue to rise.

B. States respond to climate change with GHG reduction laws

In addition to city-based efforts, several US states are enacting a variety of policies to reduce GHG emissions within their borders and to prepare for the anticipated impacts of climate change. 39 states have released or are in the process of developing “climate action plans” that outline steps they can take to reduce their contributions to climate change. 20 states have announced GHG-reduction goals, 42 have completed GHG emissions inventories, and 41 have established, or are members of, emissions registries.¹⁰ California (discussed below) is designing an economy-wide GHG cap-and-trade program, and Florida recently announced that it will develop a similar program for electric utilities. In addition, several states are launching comprehensive programs to reduce emissions. These plans include measures to enhance energy efficiency and conservation, promote renewable energy use, improve transportation, land use efficiency and waste management plans, and better manage forests and agricultural lands.

The state of California is developing one of the nation’s most sophisticated state-based climate change mitigation and adaptation plans. California is the world’s eighth largest economy and the fifteenth largest emitter of greenhouse gases, responsible for annual emissions of 469 million MtCO₂e on average from 2002-2004.¹¹ In September 2006, California enacted the first law in the US to make greenhouse gas reductions legally binding. California Assembly Bill 32 (AB 32) requires the state to reduce its GHG emissions to 1990 levels by 2020 and charges the California Air Resources Board (CARB) with developing the regulatory framework for implementing this goal.

AB 32 mandates that the state adopt, by 1 January 2009, a comprehensive plan for achieving the required emissions reductions. In June 2008, CARB released a “Draft Scoping Plan” that proposes a number of measures affecting major sectors of the California economy that will enable the state to reach its emissions reduction goal. Regulatory measures planned to reduce California’s emissions to 1990 levels by 2020 include (1) expanding and strengthening existing energy efficiency programs and building and appliance standards; (2) expanding the Renewables Portfolio Standard to 33%; (3) implementing clean car (“Pavley”) standards and a low carbon fuel standard; and (4) launching a GHG cap-and-trade program covering large emissions sources.

California plans to implement each of these measures no later than 2012. The design details of its cap-and-trade program must be approved by CARB by January 1, 2011. The broadest program under

⁹ As reported to the California Climate Registry in 2006 by Austin Energy.

¹⁰ See Annex 3 for a map illustrating which states have implemented state climate initiatives.

¹¹ California Air Resources Board, *Draft AB 32 Scoping Plan Document*, June 2008, p. 6.

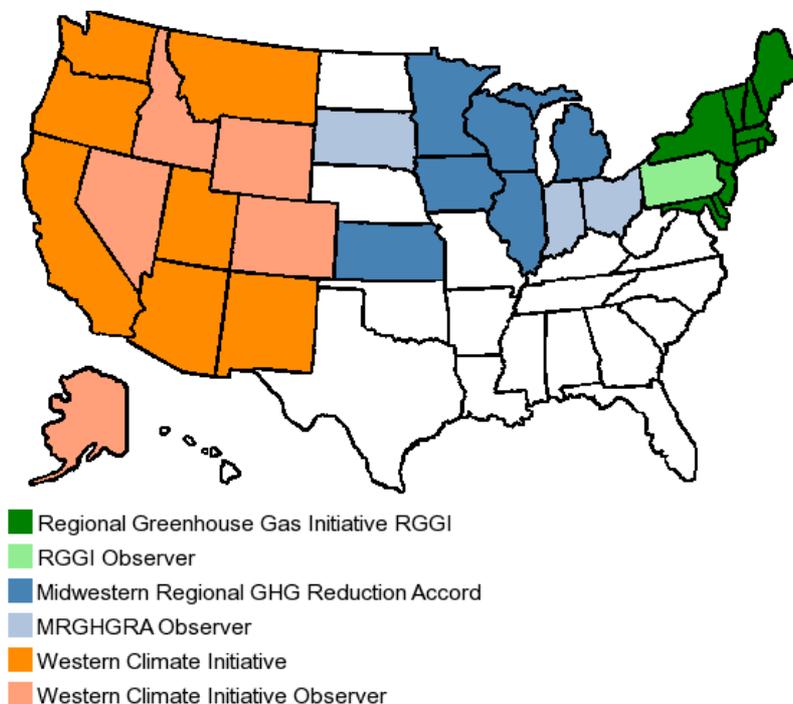
consideration would cap 85% of California's total GHG emissions, with a 2020 cap of 365 MtCO₂e, equal to 147 Mt (29%) below business-as-usual projections for that year. The state will design its cap-and-trade program in cooperation with the other state members of the Western Climate Initiative, a regional carbon trading program (discussed below). California supports the WCI's final recommendations, which would establish a program covering the electricity sector, large stationary combustion sources, fossil fuel production and processing, and emissions from industrial processes and waste management (transportation sector emissions would be added at a later date).

Discussions will continue throughout 2009 and 2010 and will likely include a series of stakeholder meetings to address issues including auctioning, offsets, and the allocation of revenue generated by the program. The importance of California's trading program for the international carbon market will depend on the trading and offset provisions established in the next two years. As required by Western Climate Initiative rules, California must auction at least 10% of its allowances in 2012 and 25% in 2020; no more than 49% of emissions reductions may be achieved through offsets. California regulators, along with their counterparts in some other jurisdictions, support moving to 100% auctioning as soon as possible, and they wish to begin the trading program by auctioning considerably more than 10% of allowances.

C. Regional partnerships will launch the US' first mandatory carbon markets

Several states have also signed on to regional agreements whereby they partner with other states – both within the US and in Canada and Mexico – to achieve common GHG reduction goals. 23 states are full participants, and an additional 9 states (plus the District of Columbia) are observers, in the development of three programs: the Regional Greenhouse Gas Initiative (RGGI) in the northeast, the Western Climate Initiative (WCI) and the Midwest Regional Greenhouse Gas Reduction Accord.¹² Though these agreements differ in their targets and scope, they all seek to achieve emissions reductions through a cap-and-trade framework.

Figure 11 – States participating in regional GHG reduction programs*



*The District of Columbia is a RGGI observer, but does not appear on this map.
Source: Pew Center on Global Climate Change.

¹² See Annex 5 for a complete list of RGGI, WCI and Midwest Accord members.

The Regional Greenhouse Gas Initiative: up and running in 2009

In December 2005, seven northeastern states agreed to establish the United States' first mandatory market for greenhouse gas emissions: the Regional Greenhouse Gas Initiative (RGGI). Three additional states have since joined the initiative.¹³ This cap-and-trade program, which will begin operation in January 2009, limits CO₂ emissions from fossil fuel-fired power plants larger than 25 MW. RGGI seeks to stabilize regional power plant emissions from 2009-2014 at 188 million short tons (170 Mt) per year, and then reduce emissions by 10% from this stabilized level by 2019. Each year, each RGGI state will receive an emissions budget, based on historical and per capita emissions, which it may distribute at will, with a requirement that 25% of allowances be sold at quarterly regional allowance auctions. Several RGGI states have elected to auction 100% of their allowances. The first auction took place on 25 September, 2008.

Electricity generators that own installations covered by RGGI may use domestic carbon offset allowances to meet 3.3% of their emissions obligation during each three-year trading phase. Offsets may be generated from five types of projects: (1) landfill methane capture and destruction; (2) reductions in emissions of sulfur hexafluoride; (3) sequestration of carbon through afforestation; (4) reduction or avoidance of CO₂ emissions from natural gas, oil, or propane end-use combustion through improvements in end-use energy efficiency; and (5) avoided methane emissions from agricultural manure management operations. Offset projects may be located in any RGGI state or in any other state that has agreed to enforce RGGI project standards.

The limit on domestic offset use by RGGI participants rises to 5% in the event of a "stage one trigger event," in which allowance prices exceed \$7/short ton (about €5/metric ton) on average for twelve months. In the case of a "stage two trigger event," in which prices exceed \$10/short ton (about €7/metric ton) on average for twelve months, generators may use offsets to satisfy 10% of their obligations and may purchase international offset credits (namely Kyoto credits). This last provision may offer the first opportunity for the European Union Emissions Trading System to link with a US carbon market.

Some states have implemented cost-containment measures to protect RGGI participants and citizens from high allowance prices. One such program may impact the number of allowances available for sale at each allowance auction: the state of Maryland has adopted a "trigger price" provision that comes into effect if the allowance price exceeds \$7/short ton (about €5/metric ton). If this trigger price is met, Maryland would have the option of setting aside up to 50% of its allowances for purchase by its own electric utilities at a price ceiling of \$7/short ton. If the state chooses to set aside the whole 50%, approximately 2.7 million allowances would be unavailable for purchase by other RGGI members.

Six of the ten member states – Connecticut, Maine, Maryland, Massachusetts, Rhode Island and Vermont – participated in the first quarterly allowance auction on 25 September, 2008. The other four members – Delaware, New Hampshire, New Jersey and New York – did not participate, as they had not yet finalized their regulations for participation in the trading scheme. Nevertheless, all allowances purchased at the first auction may be used for compliance in any of the ten RGGI member states.

12.6 million short tons (11.7 Mt) of 2009 vintage allowances were up for sale at the September auction, an amount equal to 7% of the 188 million short ton (170 Mt) cap for 2009. A minimum bid price of \$1.86/short ton (about €1.46/metric ton) had been announced prior to the auction. Bidding took place in a single-round, uniform price, sealed-bid, internet-based format, and 59 bidders from the energy, financial and environmental sectors participated. All 12.6 million allowances were sold at a clearing price of \$3.07/short ton allowance (about €2.40/metric ton). This low clearing price was generally anticipated by market observers, due to the general impression that the RGGI market will be long in its first several years of operation. The 188 million short ton (170 Mt) annual cap set for the first six years of the scheme was established using historical emissions data and projecting steady emissions growth over time. However, CO₂ emissions growth in the RGGI region declined during 2006 and 2007. In 2007, the collective emissions of RGGI participants were 7% below the cap set for the first compliance year (2009).

¹³ See Annex 5 for a list of RGGI members.

The decline in regional emissions growth during 2006 and 2007 was a result of both mild winters and increased oil prices, which led power producers to switch from oil to lower-emitting natural gas as a source for power production. This trend clearly illustrates the inseparable link between energy and climate policy: when the price of one fuel rises, power producers seek alternatives. If the price of fuel can be linked to its carbon content, power producers will choose alternatives that result in lower CO₂ emissions

The Midwestern Regional Greenhouse Gas Reduction Accord: set to launch in 2010

In November 2007, a group of six Midwestern states and one Canadian province¹⁴ signed the Midwestern Regional Greenhouse Gas Reduction Accord, the US's newest regional greenhouse gas initiative. Under the Accord, members agreed to establish a regional, multi-sector greenhouse gas cap-and-trade program with a long-term goal of reducing emissions to 60-80% below 2007 levels by 2050. The Accord is part of a broader energy platform that calls for changes in the region's agricultural and manufacturing economy through focused incentives that would encourage "green" energy development, such as wind power, biofuel, and "clean" coal technology. While the Midwest Accord is still in its early stages, state representatives launched work on the program in January 2008, with goals of releasing near-term GHG reduction targets by July 2008, releasing draft recommendations for the market design by November 2008 and implementing this program by May 2010. However, it is unclear whether these targets will be met. Program designers recently announced that the market design will not be finalized until March 2009.

The Western Climate Initiative: by 2012, America's largest carbon market

In February 2007, five western states launched the Western Climate Initiative (WCI), a collaborative effort to develop regional strategies to address climate change. Two additional states and four Canadian provinces have since joined the initiative,¹⁵ and the group has committed to launching by January 2012 a multi-sector cap-and-trade system to reduce regional emissions of all greenhouse gases by 15% below 2005 levels by 2020. An additional six US states, two Canadian provinces and six Mexican states are official "observers" in the scheme. Today, WCI claims to represent approximately 73% of Canada's economy and 20% of America's economy. Annual GHG emissions from WCI partners exceed 1 billion metric tons CO₂e.

In September 2008, WCI members released their final design recommendations for the cap-and-trade program. The design would establish a program with three-year compliance periods. Starting on 1 January 2012, WCI would cap downstream emissions of six types of GHGs¹⁶ from facilities with annual emissions of 25,000 metric tons CO₂e or greater. Covered facilities would include (1) electricity generators, including those located outside the WCI jurisdiction that export electricity to WCI states; (2) combustion at industrial and commercial facilities; and (3) industrial processes, including oil and gas processing.

From 2015 onward, the scheme would also cover, via an upstream framework, emissions from (4) fuel combustion at residential, commercial and industrial facilities which emit less than 25,000 metric tons CO₂e annually; and (5) transportation fuel combustion. Emissions from both of these sectors would be regulated at the point where the "fuels enter commerce".

WCI partner states would set their own annual emissions budgets, which together would equal the regional cap. The WCI design document recommends that offsets could be used to satisfy up to 49% of the emissions reductions required by the plan in any particular year; in other words, the number of offsets that could be used would equal approximately 1% of the overall cap in 2013, increasing to 7.35% of the cap by 2020. Both domestic offsets and credits generated in developing countries through the Clean Development Mechanism (CDM) of the Kyoto protocol could be used for compliance.

¹⁴ See Annex 5 for a list of Midwestern Accord members.

¹⁵ See Annex 5 for a list of WCI members.

¹⁶ Carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

The WCI design recommendations will be considered by state and provincial legislatures, which must pass binding legislation to assure their state or province's participation in the WCI. Each state will then adopt implementing regulations to govern their participation in the market from 2012 onward.

V. THE US SUPREME COURT GETS INVOLVED

In April 2007 the US Supreme Court decided *Massachusetts v. EPA*, an environmental case that affirmed the federal government's authority to control greenhouse gas emissions. Specifically, the case upheld the US Environmental Protection Agency's (EPA) authority under the US Clean Air Act to regulate GHG emissions from automobiles and asserted that the EPA can decline to regulate only if it can prove that GHGs do not contribute to climate change. *Massachusetts v. EPA* was the first case considered by the US Supreme Court that dealt directly with the issue of climate change.

This case resulted from a lawsuit filed by the state of Massachusetts, along with several other states and environmental groups, against the EPA following a 2003 Agency announcement that it would not regulate GHG emissions from automobiles due to lack of authority under the Clean Air Act and uncertainty over the causal link between GHGs and global warming. The Court's decision was seen as a major victory for the environmental movement, and the EPA announced shortly thereafter that it would develop regulations for controlling GHG emissions from automobiles.

In July 2008, the EPA published its response to the Court's decision, releasing an Advanced Notice of Proposed Rulemaking (ANPR) that made no regulatory recommendations but instead proposed a variety of options, including cap-and-trade for regulating emissions from both mobile and stationary emissions sources. In the cover letter accompanying the ANPR, EPA Administrator Stephen Johnson asserted that the Clean Air Act is not the appropriate policy tool for regulating GHG emissions and that instead Congress should implement a new law controlling GHGs.

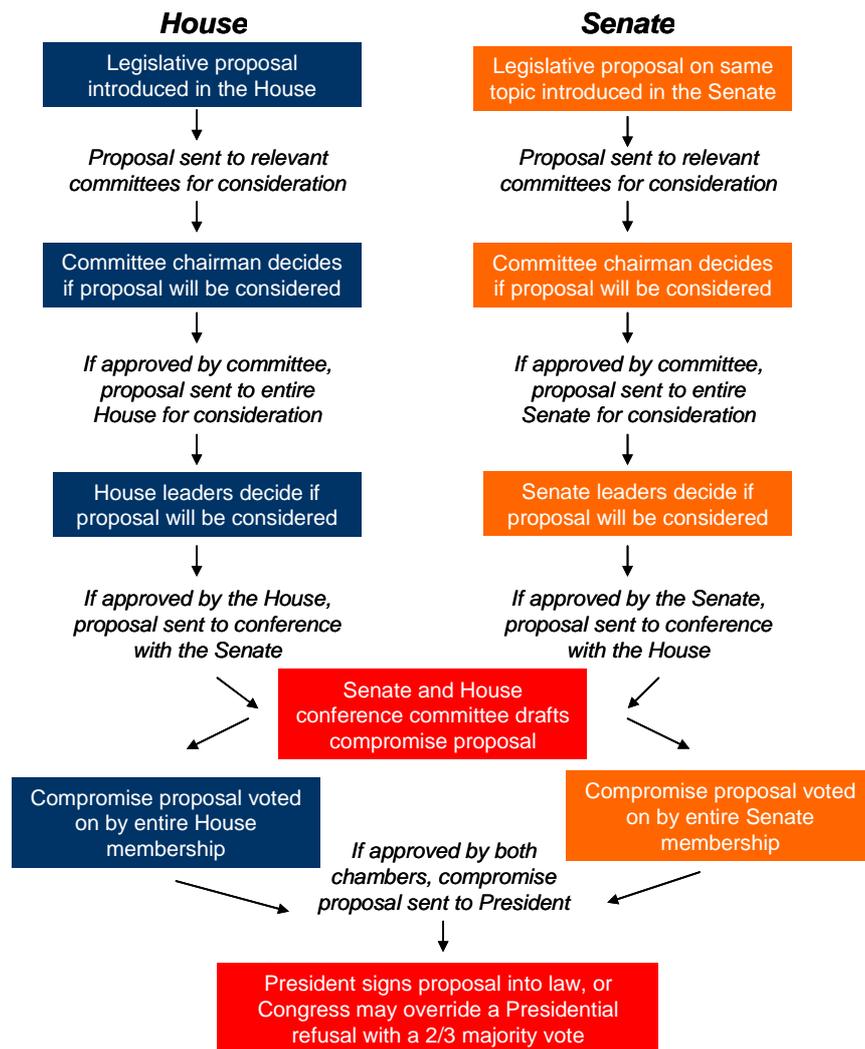
VI. CONGRESS TAKES UP THE CLIMATE CHANGE POLICY DEBATE

Faced with the Supreme Court decision, as well as a growing number of voluntary, local and state initiatives aimed at reducing GHG emissions, the US Congress is facing mounting pressure to enact a comprehensive climate change law. Changing public opinion has added to the momentum, and the Congressional elections of 2006 shifted the balance of power to the Democrats, who positioned global warming at the top of their political and legislative agenda. Today, the US Congress is engaged in its first serious discussion of climate change policy and is considering several proposals to establish mandatory limits on greenhouse gas emissions. The most ambitious of these proposals would reduce US GHG emissions to slightly below 1990 levels by 2020.

A. A decade of discussion results in a new energy law in 2007

Members of the US Congress have been considering federal limits on GHG emissions since 1997, when they introduced a number of proposals to control CO₂ emissions from power plants. In 1998, Senators John Chafee (R-Rhode Island), Connie Mack (R-Florida) and Joseph Lieberman (D-Connecticut) proposed the first plan to provide marketable credits for GHG reductions. Their plan sought to provide businesses with tradable credits in return for GHG reductions made in advance of a comprehensive GHG control law.

Figure 12 – How federal laws are made¹⁷



The two chambers of the US Congress work in parallel to develop, debate and pass new laws. Hundreds of legislative proposals are introduced in the Senate and House each year, but only a few become a federal law. A proposal must overcome several procedural hurdles before it can be sent to the President's desk for signature into law.

Source : Mission Climat of Caisse des Dépôts.

The first legislative proposal to establish an economy-wide cap-and-trade program to regulate GHG emissions was the Climate Stewardship Act of 2003, introduced by Senators Joseph Lieberman (D-Connecticut) and John McCain (R-Arizona).¹⁸ This proposal sought to reduce GHG emissions to 2000 levels by 2010 by capping emissions from the electricity, transportation, industrial, and commercial sectors and by allowing installations to trade emissions credits. The Climate Stewardship Act did not go through the committee process and was instead introduced directly to the full Senate membership for a vote in October 2003. While the Senate rejected the proposal by a vote of 43-55, the great number of senators who voted in favor of the proposal demonstrated openness in the Senate toward setting mandatory limits on US greenhouse gas emissions independent of a global climate change treaty. This vote contrasted starkly with the 95-0 vote in favor of the 1997 Byrd-Hagel resolution, which asserted that

¹⁷ See Annex 6 for a closer look at the institutional structure of the US Congress and a detailed description of how federal laws are made.

¹⁸ The Clean Power Act of 2001 (introduced by Sen. Jeffords, D-Vermont) and the Clean Air Planning Act (Sen. Carper, D-Delaware) preceded the Climate Stewardship Act, but would have capped carbon dioxide emissions from the power sector only.

the Senate would not accept binding emissions limits for the US if developing nations did not also assume similar commitments.¹⁹

The 2003 vote on the Climate Stewardship Act forced many Senators to take a public stance on GHG emissions controls for the first time. It also defined several issues around which Congressional climate discussions would center in the future: many of its key provisions – including cap-and-trade, banking, and the use of offsets to lower compliance costs – became building blocks for future legislative proposals.

In 2007, Congress made global warming an important part of its legislative agenda, due in part to the shift in the control of Congress from Republican to Democratic hands, and in part to the tremendous amount of news coverage that global warming received during the year. At the end of 2007, Congress passed, and President Bush signed, the Energy Independence and Security Act of 2007. This law calls for a number of energy improvements in the US economy, including new efficiency and environmental standards for cars (the first increase in fuel economy standards since the 1970s), appliances and fuel sources. By 2020, the legislation will increase fuel efficiency standards for cars and trucks by 40%, from 25 to 35 miles per gallon. By 2022, it will increase the amount of biofuel that must be incorporated into the nation's gasoline supply by fivefold, to 36 billion gallons. The US Energy Information Administration estimates that the Energy Act's provisions will reduce US GHG emissions by 500 million metric tons in 2030, as compared to a business-as-usual scenario.²⁰

In addition to passing this comprehensive new energy policy, members of the Senate and House introduced in 2007 and 2008 a number of legislative proposals to directly address GHG emissions from the US economy.

B. In the Senate, climate change takes center stage for the first time

Since January 2007, Senators have introduced nine legislative proposals that would require reductions of greenhouse gas emissions.²¹ Each of these proposals mandates or allows the EPA to establish a cap-and-trade program to limit GHG emissions, and they share a number of common elements. Most notably, these proposals would all establish mandatory emissions caps that decrease over time, with penalties for non-compliance, and they rely on cap-and-trade as the key policy mechanism to achieve greenhouse gas reductions.

At the same time, there are also major differences in the details of these proposals. Some proposals cover all major emitting sectors, while others cover the power sector only. Some allow partial compliance via domestic and international offsets while others greatly restrict or remain silent on offsets as a compliance option. Some call for an immediate and full auction of emission allowances while others provide for a gradual auctioning approach. Some proposals contain incentives for other countries to assume emissions caps, and the penalties for countries that fail to do so vary greatly. Lastly, one bill – the Low Carbon Economy Act introduced by Senators Bingaman (D-New Mexico) and Specter (R-Pennsylvania) – has a “safety valve” provision that would permit installations to purchase additional allowances (beyond the cap) if the price of allowances reaches a ceiling price, which would be set at \$12/tCO₂e (about €9.5/t) in 2012.

The most widely discussed climate proposal in the US Senate to date is the Climate Security Act (CSA) introduced by Senators Joseph Lieberman and John Warner in October 2007. The latest version of this cap-and-trade proposal seeks to reduce covered US GHG emissions by approximately 19% below 2005 levels by 2020 and 71% below 2005 levels by 2050.²² The proposal would set the first cap at 5775 MtCO₂e in 2012, a level which the bill's sponsors claim is 4% below business-as-usual emissions projections for covered sources in that year.

¹⁹ See page 9 for further discussion of the Byrd-Hagel resolution.

²⁰ Testimony of Guy Caruso, Administrator of the US Energy Information Administration, before the US Senate Committee on Energy and Natural Resources, 4 March 2008.

²¹ See Annex 7 for a list of Senate climate proposals and their major provisions.

²² See Annex 8 for a description of the provisions of the Lieberman-Warner proposal.

In December 2007, the CSA was the first cap-and-trade proposal ever to follow the regular order of legislation and pass out of the Senate committee of primary jurisdiction over climate change legislation, the Committee on Environment and Public Works (EPW). During 2008, Senator Barbara Boxer, Chair of EPW, made changes to the proposal that was approved by the committee and introduced a revised proposal to the Senate as a whole for consideration in June 2008. It was hoped that an extensive debate on the proposal, and eventually a full vote, would reveal senators' positions on mandatory approaches to cap-and-trade legislation. However, the bill did not have enough support to overcome procedural obstacles, and thus no substantive debate or vote ensued.²³

C. The House outlines a future GHG control law

The House of Representatives is also developing its own climate change legislation. Four main proposals have been formally introduced in the House since the beginning of 2007,²⁴ though none has passed through the House Energy and Commerce Committee, the House committee with primary jurisdiction over climate policy.

However, in October 2008, Energy and Commerce Committee Chairman John Dingell and Energy and Air Quality Subcommittee Chairman Rick Boucher released a "discussion draft" of climate change legislation.²⁵ While the draft has not been formally introduced in the House for a vote, it will likely serve as a departure point for discussions in 2009. The proposal would establish a GHG cap-and-trade program that would cover an estimated 88% of US GHG emissions. It would reduce emissions from covered facilities to 6% below 2005 levels by 2020, 44% below 2005 levels by 2030 and 80% below 2005 levels by 2050.

The House Select Committee on Energy Independence and Global Warming, established by House Speaker Nancy Pelosi (D-California) at the beginning of 2007 and chaired by Representative Ed Markey (D-Massachusetts), is also working to build support for climate policy in the House. While the committee does not serve a legislative function, it has held a number of hearings on climate change science and policy in an effort to raise awareness about the issue among House members. This function is useful in the House, where Representatives serve two-year terms and thus spend a great deal of time attending to local issues in their districts.

Following the failure of the Senate to engage in a substantive debate regarding the Climate Security Act, it remains unlikely that the House will vote on a major climate proposal in 2008. House members are more likely to spend the remainder of 2008 working with their colleagues in the Senate to prepare similar House and Senate proposals for early introduction in 2009, following the election of a new US President.

VII. PRESIDENTIAL POLICY

The two candidates in the November 2008 Presidential election, Senator John McCain and Senator Barack Obama, have each indicated their intent, if elected, to engage actively in the UNFCCC process and to introduce a mandatory domestic cap-and-trade program for greenhouse gases. McCain cosponsored in 2003 the first legislative proposal in the Senate calling for mandatory GHG reductions – the McCain-Lieberman Climate Stewardship Act – and has introduced a number of proposals since. Obama seeks to include cap-and-trade as a major component of a new American energy package, which will also include a federal renewable energy mandate, new building efficiency standards, and major investment in updating the national utility grid.

²³ Senators opposed to the proposal refused to end the introductory debate and to allow the proposal to continue to the amendment stage in which the substance of the bill would be discussed. 60 out of 100 Senators were required to vote in favor of ending introductory debate. However, only 48 Senators voted to move the legislation forward (6 additional Senators who were not present stated that they would have voted in favor of ending debate as well).

²⁴ See Annex 9 list of House climate proposals and their major provisions.

²⁵ See Annex 10 for a description of the provisions of the Dingell-Boucher discussion draft.

Table 1 outlines the primary provisions of McCain and Obama’s cap-and-trade platforms. While McCain’s platform is more detailed than that of Obama, there is one clear difference between the two: McCain would distribute allowances to installations for free at the outset of a cap-and-trade program, while Obama would sell all allowances at an auction. McCain would also allow installations to use offsets – from both domestic and international sources – to meet 100% of their initial emissions reduction obligations.

Table 1 – The primary provisions of McCain and Obama’s cap-and-trade platforms

	McCain	Obama
Targets and timetables	2012: 2005 levels 2020: 1990 levels 2030: 22% below 1990 levels 2050: 60% below 1990 levels	2050: 80% below 1990 levels
Sectors covered	Electric power Transportation fuels Commercial business Industrial business	Not defined.
Allowance distribution	Early allocation of some permits. Permits will eventually be auctioned. Auction proceeds to be used for energy R&D, green investment, and to reduce economic impacts on low-income families.	100% auction. Auction proceeds to be used for R&D, green investment, and to reduce economic impacts on low-income families.
Offsets	Installations may use offsets (domestic or international) to meet 100% of their initial emissions reduction obligations.	Not defined.
Cost controls	Banking and borrowing. Unlimited offsets. Strategic carbon reserve: national source of permits during economic hardship.	Not defined.
Nuclear power	US should embrace nuclear power. Some auction proceeds to go to nuclear R&D	Before expanding nuclear power, must address waste security, storage and proliferation issues.

Source: Presidential candidate websites.

VIII. WHAT DOES THE FUTURE HOLD?

With the current American and global financial crises, in addition to other major issues like the wars in Iraq and Afghanistan, it is unclear how much political capital the next US President will use to address global climate change. Given that the Presidential candidates and the Congress have indicated their intent to address the problem, American federal climate policy has a good chance of moving forward in 2009, should the new US President choose to make greenhouse gas cap-and-trade a priority of his administration. The 1990 amendments to the US Clean Air act, which established the Acid Rain Program for trading SO₂ allowances and are arguably some of the most effective environmental regulations ever implemented in the US, were pushed forward by the George H.W. Bush administration during his early days in office. Should the next President choose to do the same with greenhouse gas regulations, the US could pass a law limiting GHG emissions as early as 2010.

However, it is uncertain how the development of a new US climate policy will fit in with international efforts to address climate change. The US signed the Bali Action Plan at the end of 2007, in which it committed to work with other nations to adopt a new international climate change agreement by the end of 2009. The next President’s administration will have to hit the ground running in order to be prepared for tough negotiations at the December 2009 Copenhagen conference. In addition, the European Union is currently finalizing the regulations for its own emissions trading scheme from 2013 onward. How will an American cap-and-trade program link with the European carbon market, as well as the markets being developed in New Zealand and Australia?

While the political landscape is shrouded in the uncertainty, one constant remains: the US already has in place many of the building blocks to support a robust, comprehensive and mandatory carbon market. States and private actors have already begun to lay the foundations for US GHG markets and will continue to encourage the federal government to act. Today, the question no longer appears to be *if* the US will adopt a federal climate change policy, but *when*.

IX. ANNEXES

Annex 1 – The world's largest emitters: CO₂ emissions, population and GDP trends

Country	CO ₂ Emissions Category	1990	1995	2000	2004
United States of America	Emissions excluding LULUCF	4 910	5 215	5 791	5 889
	LULUCF	-403	-403	-403	-
	Intl Bunkers	130	137	146	128
European Union (25)	Emissions excluding LULUCF	3 954	3 821	3 843	4 017
	LULUCF	-34	-23	-21	-
	Intl Bunkers	180	201	256	283
China	Emissions excluding LULUCF	2 484	3 203	3 400	5 205
	LULUCF	224	114	-47	-
	Intl Bunkers	5	8	14	30
Russian Federation	Emissions excluding LULUCF	2 193	1 601	1 533	1 575
	LULUCF	57	57	54	-
	Intl Bunkers		29	28	30
Indonesia	Emissions excluding LULUCF	163	238	291	368
	LULUCF	2 146	2 538	2 563	-
	Intl Bunkers	3	3	2	5
Japan	Emissions excluding LULUCF	1 125	1 218	1 266	1 304
	LULUCF	12	4	4	-
	Intl Bunkers	30	35	36	38
Brazil	Emissions excluding LULUCF	218	267	337	346
	LULUCF	1 956	1 507	1 372	-
	Intl Bunkers	3	6	11	13
Canada	Emissions excluding LULUCF	433	461	520	549
	LULUCF	83	71	65	-
	Intl Bunkers	6	6	6	5
Ukraine	Emissions excluding LULUCF	638	413	314	330
	LULUCF	-	-	-	-
	Intl Bunkers		0,5	0,6	1,1
India	Emissions excluding LULUCF	634	838	1 034	1 199
	LULUCF	-34	-40	-40	-
	Intl Bunkers	6	7	7	9
Mexico	Emissions excluding LULUCF	310	327	383	415
	LULUCF	138	106	97	-
	Intl Bunkers	8	9	12	10
Australia	Emissions excluding LULUCF	265	282	335	351
	LULUCF	8	4	4	-
	Intl Bunkers	6	8	10	10

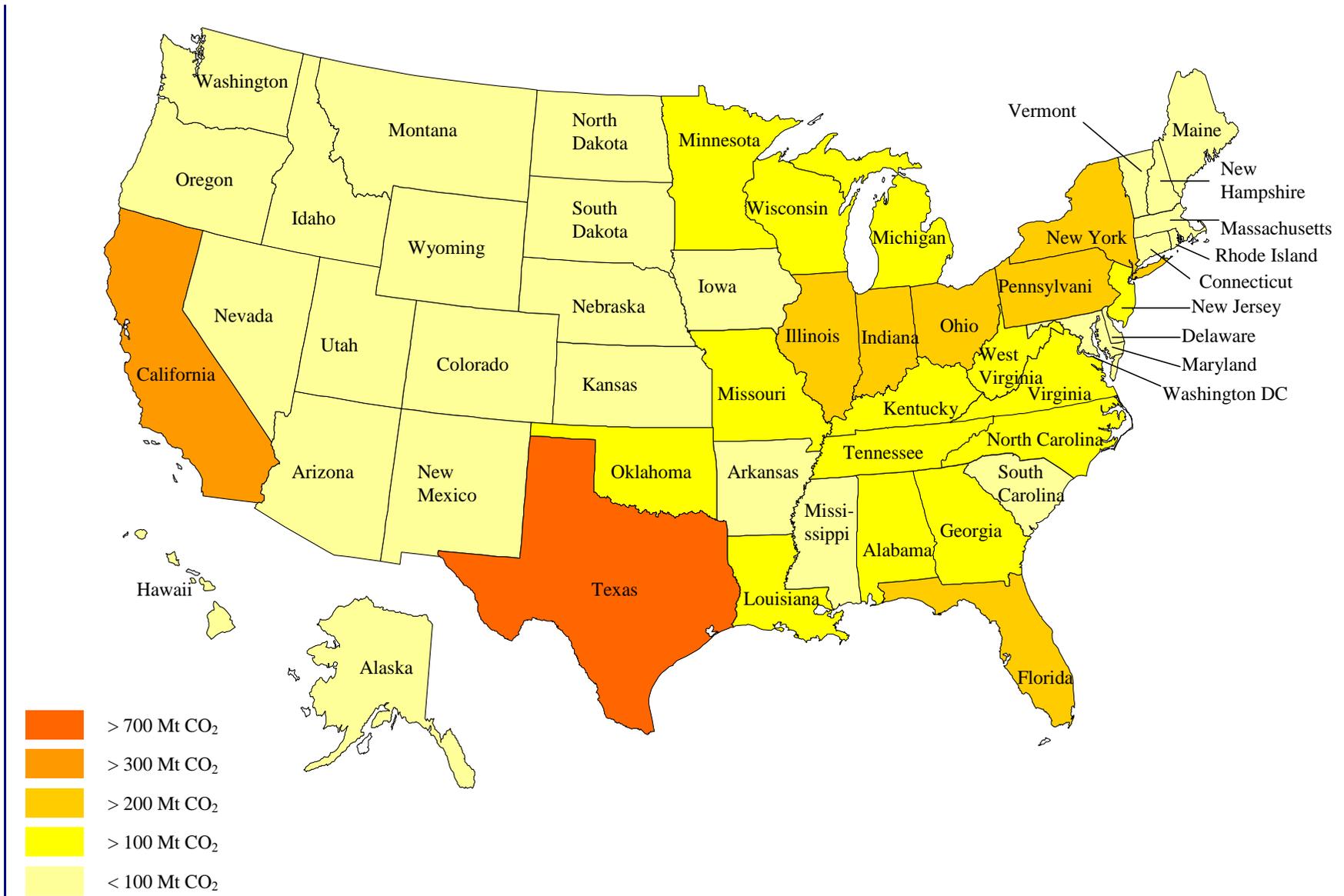
Source: World Resources Institute, Climate Analysis Indicators Tool (CAIT) Version 5.0.

Country	Population (millions)				Country	Gross domestic product (billions)*			
	1990	1995	2000	2005		1990	1995	2000	2005
China	1 148	1 216	1 269	1 306	United States	5 803	7 398	9 817	12 434
India	838	918	1 004	1 094	EU25	5 850	7 232	9 028	11 128
EU25	403	410	414	417	China	910	1 832	3 007	5 333
United States	250	267	282	296	Japan	2 310	2 812	3 206	3 873
Indonesia	182	198	214	229	India	721	1 039	1 520	2 354
Brazil	151	164	176	189	Russia	-	953	1 121	1 698
Russia	148	148	147	143	Brazil	782	1 026	1 231	1 585
Japan	124	125	127	128	Mexico	553	673	953	1 174
Mexico	85	93	100	106	Canada	542	667	886	1 133
Ukraine	52	51	49	47	Indonesia	277	442	500	705
Canada	28	30	31	32	Australia	299	385	515	672
Australia	17	18	19	20	Ukraine	-	165	161	263

Source: U.S. Census Bureau, International Data Base.

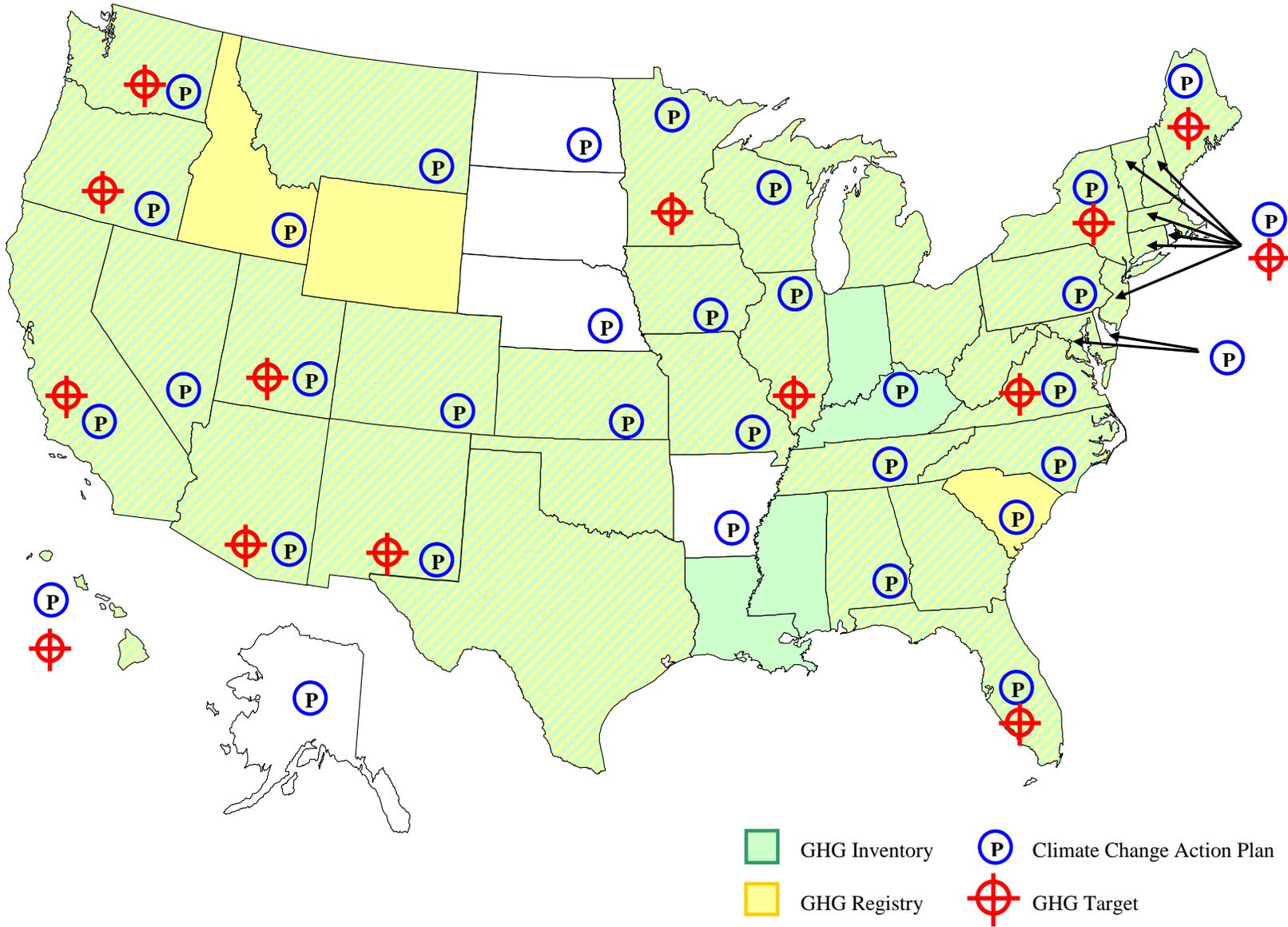
*2008 dollars based on purchasing-power-parity
Source: International Monetary Fund, World Economic Outlook Database, April 2008.

Annex 2 – Map: CO₂ emissions per state in 2003*



**Excluding land use, land use change and forestry (LULUCF). State LULUCF emissions are listed in Annex 4. Source: World Resources Institute, Climate Analysis Indicators Tool (CAIT) Version 5.0.*

Annex 3 – Map: State climate change initiatives



Source: Pew Center on Global Climate Change. Figures as of 18 June, 2008.

Annex 4 – Table: Gross domestic product, population and CO₂ emissions per state in 2003

State	Gross Domestic Product (Millions) (Year 2000 US dollars)	Population (Thousands)	CO ₂ emissions excluding LULUCF* (Mt)	CO ₂ emissions from LULUCF* (Mt)
Alabama	121 998	4 495	144	-39,7
Alaska	27 713	648	45	30
Arizona	174 693	5 582	90	-3,8
Arkansas	70 737	2 724	66	-24,2
California	1 340 162	35 466	395	-104,3
Colorado	177 945	4 546	91	-32,9
Connecticut	159 751	3 482	43	5,8
Delaware	44 655	817	18	-1,9
District of Columbia	64 271	577	4	0
Florida	518 753	16 982	248	-35,4
Georgia	299 504	8 751	170	-58,6
Hawaii	42 575	1 246	21	-0,3
Idaho	36 792	1 367	15	1,4
Illinois	478 391	12 651	238	-5,8
Indiana	204 837	6 192	250	-34,8
Iowa	95 562	2 942	80	-23
Kansas	86 361	2 727	81	-13,2
Kentucky	118 246	4 114	147	-6,5
Louisiana	131 625	4 481	199	-14,4
Maine	37 426	1 307	24	-0,4
Maryland	199 143	5 507	82	2,2
Massachusetts	282 375	6 441	87	-14,1
Michigan	344 942	10 068	192	9,7
Minnesota	198 041	5 059	101	11,2
Mississippi	66 914	2 874	66	-43,9
Missouri	183 501	5 712	141	-46,7
Montana	23 287	917	34	-38,7
Nebraska	60 089	1 737	44	-7,5
Nevada	82 771	2 241	44	-8,5
New Hampshire	46 063	1 286	21	-5,8
New Jersey	366 325	8 633	127	-1,6
New Mexico	53 681	1 878	58	-16,2
New York	802 823	19 238	218	-29,4
North Carolina	288 561	8 416	147	-4,5
North Dakota	19 905	633	48	-2,9
Ohio	379 439	11 438	276	-21,1
Oklahoma	94 781	3 504	106	-25
Oregon	116 894	3 561	42	-29,4
Pennsylvania	410 364	12 351	278	-20,5
Rhode Island	36 439	1 075	12	-0,5
South Carolina	119 337	4 142	84	-3,6
South Dakota	25 722	764	14	-0,4
Tennessee	189 752	5 834	128	-2,5
Texas	771 082	22 134	719	-27,7
Utah	70 945	2 356	63	-38,6
Vermont	19 606	619	7	7,4
Virginia	281 083	7 376	125	-73,1
Washington	224 443	6 131	82	-34,4
West Virginia	42 881	1 809	117	-8,8
Wisconsin	184 777	5 467	106	-4,5
Wyoming	18 985	501	66	-26,4

* LULUCF: land use, land use change and forestry.

Source: World Resources Institute, Climate Analysis Indicators Tool (CAIT) Version 5.0.

Annex 5 – Participants in regional greenhouse gas trading programs as of 23 September, 2008

Midwest Regional Greenhouse Gas Reduction Accord	
Members	Observers
United States	United States
Illinois	Indiana
Iowa	Ohio
Kansas*	South Dakota
Michigan	
Minnesota	Canada
Wisconsin	Ontario
Canada	
Manitoba	

Regional Greenhouse Gas Initiative (RGGI)	
Members	Observers
United States	United States
Connecticut	District of Columbia
Delaware	Pennsylvania
Maine	
Maryland	Canada
Massachusetts	New Brunswick
New Hampshire	Newfoundland and Labrador
New Jersey	Nova Scotia
New York	Prince Edward Island
Rhode Island	Quebec
Vermont	

Western Climate Initiative (WCI)			
Members		Observers	
United States	Canada	United States	Canada
Arizona	British Columbia	Alaska	Saskatchewan
California	Manitoba	Colorado	
Montana	Quebec	Idaho	Mexico
New Mexico	Ontario	Kansas*	Baja California
Oregon		Nevada	Chihuahua
Utah		Wyoming	Coahuila
Washington			Nuevo Leon
			Sonora
			Tamaulipas

* Kansas is a member of the Midwest Accord as well as a WCI observer.

Source: Regional program websites.

Annex 6 – The institutional structure of the US Congress

The US Congress and the Presidency are coequal branches of government that share responsibility for enacting and implementing legislation, and are often controlled by different parties. The US Congress is divided into two chambers, the 100-member Senate and the 435-member House of Representatives. These chambers, vested with the sole power to pass federal laws in the United States, work in parallel to develop, debate and enact US law.

The House of Representatives

The House of Representatives is the larger of the two legislative chambers, with 435 members apportioned among the US states roughly according to population. Representatives are elected for 2-year terms by “districts” within a state. As a result, their positions on issues are often driven by local concerns. In addition, because the House is so large, its members are elected for short terms and the length of debate in the House chamber is controlled by the majority party, House members typically vote along party lines.

The House’s agenda is controlled by leaders of the majority party, currently the Democrats. Members of the majority party chair all House committees, and the House Speaker and Majority Leader decide which legislative proposals will be considered in the House chamber. House membership is currently 233 Democrats and 202 Republicans, and Democratic dominance is anticipated to increase after the November 2008 elections. The current Speaker is Nancy Pelosi from California. The current House Majority Leader is Steny Hoyer from Maryland.

The Senate

The US Senate is comprised of 100 Senators, two from each American state. Senators are elected for 6-year terms by all residents of a state. The Senate is traditionally a less partisan body and more consensus-driven chamber than the House. Because there are fewer Senators, they are elected for longer terms, and there are no restrictions on the length of debate in the Senate chamber, Senators often work out legislative compromises in private or in committees before a proposal is voted on by the Senate as a whole.

The Senate Majority Leader, traditionally from the majority party, establishes the order by which proposals will be considered in the Senate. However, any proposal can be brought to the floor whenever a majority of the Senate chooses. Senate membership is currently 49 Democrats, 49 Republicans, and 2 Independents who typically vote with the Democrats. Observers anticipate that Democrats will assume the majority after the November 2008 elections. The current Senate Majority Leader is Harry Reid, a Democrat from Nevada.

How a legislative proposal becomes law

The Senate and the House of Representatives work in parallel to develop legislative proposals. In either chamber, any legislator may submit a legislative proposal on any issue. Legislators may submit proposals that they and their staffs have developed, or they may submit proposals on behalf of parties outside the legislature, including the President, businesses and activist groups.

After a proposal is submitted, it is referred to one or more committees with jurisdiction over the bill’s subject. There are more than 200 Congressional committees, each of which has expertise in a particular subject area. The major committees with jurisdiction over climate change policy are the Environment and Public Works Committee in the Senate and the Energy and Commerce Committee in the House.

The chairs of the relevant committees, who are always members of the majority party, decide whether or not the committee will consider the proposal. If a committee chooses not to consider a proposal, it “dies” in committee and goes no further in the legislative process. However, if the committee chooses to consider a proposal, it begins gathering information that will enable it to decide whether to approve or reject the proposal. The committee does this both by holding public hearings, to which it invites experts to

share their views, and by meeting in private with stakeholder groups. Lobbyist groups, both from business and the not-for-profit sector, are in constant contact with committees as they consider proposals.

If a committee approves a legislative proposal – which it may do with or without changes – the proposal is sent to the full Senate or House membership for consideration. The House and Senate leadership decide whether or not a proposal will be considered. Some proposals that have been passed out of committee may never be considered at all – they may “die” at this step of the legislative process.

Those proposals that are considered in the House and Senate are debated according to different institutional rules. When a proposal is considered in the House chamber, debate is limited by rules established by the majority-led Rules Committee. These rules dictate who can speak and for how long. In the Senate, debate can continue for as long as Senators wish to discuss a proposal or until 3/5 of the Senate membership votes to end debate. If this does not occur, a single Senator can block a proposal by “talking it to death,” a move referred to as a “filibuster”.

If and when a proposal is passed by one chamber, the same proposal must also be approved by the second chamber for it to advance. This can happen in two ways. First, one chamber can pass a proposal and then send it to the other chamber for its approval. If the second chamber approves the proposal with no changes, the proposal advances. Second, both chambers can simultaneously pass proposals on the same issue. If these proposals differ, representatives of the two chambers must come together in “conference committee” to negotiate a compromise proposal that both chambers can accept. The compromise proposal must be approved by both chambers before it can advance.

Once the House and Senate have agreed on a proposal, it is submitted to the President for his review. The President may take a variety of actions. First, he may sign the proposal into law. Second, he may “veto” the bill by refusing to sign it. If this occurs, Congress may override the President’s veto and pass a proposal into law if 2/3 of each chamber votes in favor of the proposal. Third, the President may choose to neither sign nor veto a proposal. If the President does not act on a proposal within ten days, it automatically becomes law. However, if Congress adjourns during this ten day period, the proposal does not become law and the adjourned Congress cannot override the President’s action. This is known as a “pocket veto”.

The meetings of Congress are divided into two year periods which correspond with the two-year election cycle in the House of Representatives. The current Congress is the 110th Congress, which began in January 2007 and will conclude in December 2008. A proposal that is introduced during one two-year Congress cannot be carried over to a subsequent Congress; it must be re-introduced when the new Congress convenes.

Annex 7 – Cap-and-trade proposals introduced in the Senate since January 2007

Title and sponsors	Reduction target and timeframe	Important attributes
Climate Security Act Originally S.2191; S.3036 as amended and debated in the Senate Lieberman (I-CT) and Warner (R-VA), Boxer (D-CA)	1990 levels by 2020, 70% below 2005 levels by 2050.	Economy-wide caps. "Carbon Market Efficiency Board" oversees market to prevent volatility. 18% of allowances auctioned in 2012, increasing to 73% in 2036 and thereafter. 20% of auction proceeds reserved for low-income consumers. Tariffs on goods from high-emitting countries.
Low Carbon Economy Act S.1766 Bingaman (D-NM) and Specter (R-PA)	2006 levels by 2020 and 1990 levels by 2030.	Economy-wide caps. Limits cost of allowances to \$12 per MtCO ₂ e in 2012 ("safety valve"), rising by 5% above inflation each year after that. Allowance allocation through 2017: 53% free, 24% auctioned, rest reserved for certain sectors, projects. Tariffs on goods from high emitting countries.
Climate Stewardship and Innovation Act S.280 Lieberman (I-CT) and McCain (R-AZ)	2004 levels by 2012, 1990 levels by 2020, 22% below 1990 levels by 2030, and 60% below 1990 levels by 2050.	Economy-wide caps. Includes provisions for Clean Development Mechanism (CDM) credits and expansion of nuclear power.
Global Warming Pollution Reduction Act S.309 Sanders (I-VT) and Boxer (D-CA)	1990 levels by 2020 and 80% below 1990 levels by 2050. Stabilize global greenhouse gas concentrations below 450 parts per million.	Economy-wide caps. Similar to H.R.1590 introduced by Rep. Waxman in the House. National renewable energy quotas and energy efficiency goals with credit trading programs.
Global Warming Reduction Act S.485 Kerry (D-MA) and Snowe (R-ME)	60% below 1990 levels by 2050, through increasing annual reductions starting at 1.5% a year for the first ten years.	Economy-wide caps. Nationwide renewable fuels standard. National renewable energy quota of 20% by 2020.
Electric Utility Cap-and-Trade Act S.317 Feinstein (D-CA) and Carper (D-DE)	2006 levels by 2011; annual reduction of 1% from 2016-2019.	Power sector only. Auctioning of credits, use of offsets. Independent scientific panel to make recommendations to the EPA every four years on the reduction rate required.
Clean Air Planning Act S.1177 Carper (D-DE)	CO ₂ emissions only. 2006 levels from 2012-2014; 2001 levels by 2015; annual reduction of 1% from 2016-2019. Thereafter, annual reductions to achieve levels 25% below 1990 by 2050.	Power sector only. Offsets allowed, output-based allocation, includes a new entrant reserve.
Clean Air/Climate Change Act of 2007 S.1168 Alexander (R-TN) and Lieberman (I-CT)	CO ₂ emissions only. Capped at 2.3 billion tonnes (2006 levels) in 2011, at 2.1 billion in 2015, 1.8 billion (1990 levels) in 2020, and 1.5 billion tonnes in 2025 and beyond (~17% below 1990 level).	Power sector only. Allows offsets, includes new entrant reserve of no more than 5% of the year's allowances, includes emissions performance standard for plants built after 2015 (no more than 1100 lbs. CO ₂ /MWh).
Clean Power Act S.1201 Sanders (I-VT)	Same as S.1168 for CO ₂ , with addition that if no economy-wide greenhouse gas bill has been passed by 2012, then CO ₂ emissions from power plants must be decreased each year by 3%.	Power sector only. CO ₂ performance standards for new plants, renewable energy quota: 20% by 2020. Energy efficiency targets with credit trading system: gradual reduction of peak demand and overall electricity use.

Sources: Point Carbon and Mission Climat of Caisse des Dépôts.

Annex 8 – Primary provisions of the Lieberman-Warner Climate Security Act (S.3036)

Coverage and caps

Sectoral coverage. The CSA would regulate GHG emissions released by large coal consumers, natural gas and petroleum processors, producers and importers, and producers of hydrochlorofluorocarbon refrigerants. The proposal's authors estimate that emissions from these sectors represent approximately 80% of US GHG emissions.

Emissions caps. The proposal would cap GHG emissions from covered sources between 2012 and 2050, reducing them by about 2% per year from 2005 levels. The proposal will reduce emissions from covered facilities to 19% below 2005 levels by 2020, and to 71% below 2005 levels by 2050. It is estimated that the proposal would reduce total US emissions (from all sources, capped and non-capped) by up to 66% by 2050. The proposal would set the first cap at 5775 MtCO₂e in 2012, a level which the bill's sponsors claim is 4% below business-as-usual emissions projections for covered sources in that year.

Allocation

A portion of the allowances would be given away for free, and a portion would be auctioned each year.

Free allocation. From 2012-2030, 19% of the allowance account would be allocated for free to electric power generators, 10% to manufacturers, 2% to fuel producers or importers and 1% to rural electric cooperatives. From 2012-2017, 5% of allowances would be allocated to early actors, and 4% allocated to carbon capture and sequestration activities from 2012-2030. Roughly 30.5% of allowances would be set aside from 2012-2050 for other entities, including states, load-serving entities and others.

Auction. Starting in 2012, 21.5% of allowances would be auctioned, increasing to 69.5% by 2031 and onward. Proceeds from these auctions would be used for energy technology development, assistance for low- and middle-income energy consumers, climate change adaptation efforts in the US and programs to support energy independence and national security. The proposal would also establish a minimum reserve price for allowances to be sold each year in the auction. In 2012, the minimum reserve price would be \$10 and would increase each year by 5% above the annual inflation rate.

Cost containment measures

Trading, banking and borrowing. Trading would be unrestricted and banked allowances would not diminish in value over time. Allowance borrowing would be limited to 15% of an installation's compliance obligation for each calendar year, and allowances could be borrowed from compliance years no further than 5 years in the future. In addition, a 10% annual interest rate would be applied when borrowed allowances are repaid.

Carbon Market Efficiency Board. The proposal would establish a Carbon Market Efficiency Board (CMEB) to provide general market monitoring and reporting to Congress. The board could also employ cost relief measures, including (1) increasing the quantity of emissions allowances an entity can borrow; (2) expanding the period of repayment for borrowed allowances; (3) increasing the number of allowances that may be obtained from foreign GHG markets; and (4) expanding the eligible offset project types.

Cost containment auction. In addition to the cost containment measures available to the Climate Change Efficiency Board, the proposal would also establish an annual "cost containment auction." Allowances, borrowed from the emissions caps of 2030 through 2050, would be available for purchase at this auction at a predetermined "cost containment auction price." In 2012, this price would be no lower than \$22 and no higher than \$30; for each year thereafter, the price would rise at 5% above the annual inflation rate.

The proposal would also limit the total number of allowances that could be sold in any given year under the cost containment auction; this limit would start at 450 million (8% of the total allowance pool) in 2012, and decrease by 1% from each previous year's limit. Beginning in 2022, unused allowances in the cost

containment auction pool would be returned to the general allowance account for sale under the Regular Auction.

70% of the proceeds from the cost containment auction would be used to achieve emission reductions in uncapped sectors; the remaining 30% would be deposited into the Climate Change Consumer Assistance Fund to help low- and middle-income energy consumers.

Offsets

Installations would be able to use the following types of offsets to meet up to 30% of their annual emissions obligations:

Offsets in the United States. The proposal would establish a program to encourage farmers and foresters to generate income through the creation of certified domestic offset credits (for activities such as planting trees or engaging in farming practices that increase soil carbon). Installations could use such domestic credits to meet up to 15% of their annual commitment. If the quantity of domestic offsets available is less than 15%, the EPA Administrator could then allow installations to make up the difference with international emission allowances from countries with mandatory programs and international forest carbon credits. If the 15% limit is not reached, an installation could carry over its unused domestic allowance quota into the next calendar year.

Offsets and emission allowances from other nations. In addition to the domestic offset provision, the proposal also allows covered facilities to use international offset credits and international emission allowances for compliance purposes. The quantity of international offset credits (i.e. those generated through the Clean Development Mechanism and Joint Implementation provisions of the Kyoto Protocol) that an installation could use for compliance each year would be limited to 5% of the installation's emissions cap for that year. If the quantity of international offset credits available is less than 5%, the EPA Administrator could then allow installations to make up the difference with international emission allowances from countries with mandatory GHG programs. If the 5% limit is not reached, an installation may carry over its unused international allowance quota into the next calendar year.

International forest carbon provision. The proposal also contains a program to create offset credits for reductions in international deforestation. To be eligible, a country must adopt a national commitment to reduce deforestation, and emissions accounting must be done at a national level. Installations would be able to use international forest carbon credits generated by these types of national programs to meet 10% of their annual commitments.

International trade provision

Beginning in 2014, importers of primary goods from countries that do not have “comparable GHG controls” to the US would be required to purchase special “international reserve allowances” to compensate for the GHG emissions associated with the production of the products they export to the US. These allowances would be separate from and additional to the annual allowance cap. International allowances from acceptable carbon markets in other countries or approved international offset credits could also be accepted in lieu of international reserve allowances.

Annex 9 – Cap-and-trade proposals introduced in the House since January 2007

Title and sponsors	Reduction target and timeframe	Important attributes
<p>Climate Market, Auction, Trust & Trade Emissions Reductions Systems Act H.R.6316 Doggett (D-TX)</p>	<p>4% below 1990 levels by 2020 and 80% below 1990 levels by 2050</p>	<p>Economy-wide caps. Auction begins at 85% and increases to 100% in 2020. 15% of the auction proceeds used for deficit reduction, the rest for consumer assistance, worker training, adaptation and other programs. Primary jurisdiction given to Ways and Means Committee.</p>
<p>Investing in Climate Action and Protection Act H.R.6186 Markey (D-MA)</p>	<p>20% below 2005 levels by 2020 and 85% below 2005 levels by 2050.</p>	<p>Economy-wide caps. 94% of allowances would be auctioned at program outset in 2012.</p>
<p>Climate Stewardship Act H.R.620 Olver (D-MA) and Gilchrest (R-MD)</p>	<p>Emissions stabilize at current levels from 2012 to 2019, then are reduced by 15% by 2020, by 38% in 2030, and by 75% by 2050 (equivalent to 70% below 1990 levels).</p>	<p>Economy-wide caps. Same as S.280 introduced by Lieberman and McCain in the Senate, except offset credits may account for only 15% of emissions reductions, and “early action” credits limited to 20% of cap. Does not contain the Senate version’s nuclear provisions.</p>
<p>Safe Climate Act H.R.1590 Waxman (D-CA)</p>	<p>Stabilize emissions at 2009 levels in 2010. Beginning in 2011, emissions are cut ~ 2% per year, falling to 1990 levels by 2020. Beginning in 2021, annual cuts of ~5%, falling to 80% below 1990 levels by 2050.</p>	<p>Economy-wide caps. Similar to S.309 introduced by Boxer and Sanders in the Senate. National renewable energy quota: 20% by 2020. Energy efficiency targets: increase gradually from 0.25% of electricity sales in 2010 to 1% of sales in 2012 and in each subsequent year through 2020.</p>

Sources: Point Carbon and Mission Climat of Caisse des Dépôts.

Annex 10 – Primary provisions of the Dingell-Boucher discussion draft

Coverage and caps

Sectoral coverage. The Dingell-Boucher discussion draft would regulate GHG emissions from sources that release more than 25,000 tons of GHGs per year. The cap-and-trade program would cover power plants, producers and importers of petroleum-based or coal-based liquid fuels, fluorinated gas producers and importers, geologic sequestration sites, combustion at industrial facilities, production at industrial facilities (from 2014 onward), and local natural gas distribution companies (from 2017 onward). The draft’s authors estimate that emissions from these sectors represent approximately 88% of US GHG emissions.

Emissions caps. The draft proposal would cap GHG emissions from covered sources between 2012 and 2050. It would reduce emissions from covered facilities to 6% below 2005 levels by 2020, 44% below 2005 levels by 2030 and 80% below 2005 levels by 2050.

In addition, coal-fired power plants built after January 1, 2009 would be required to sequester 60% of their CO₂ emissions by 2025.

Allocation

The discussion draft presents four different options for allowance allocation – A, B, C, and D – that differ primarily in how they would allocate allowances to the power and industrial sectors. Options A, B and C would allocate varying percentages of allowances to users for free during the trading periods. Option D would require these sectors to purchase 100% of their allowances at auction from the program’s outset in 2012.

Electricity sector: percentage of allowances distributed for free

	2012-2013	2014-2016	2017-2020	2021-2025
Option A	44.25	38.0	38.0	38.0
Option B	44.25	21.0	14.0	7.0
Option C	43.0	18.0	14.0	5.0
Option D	0	0	0	0

Industrial sector: percentage of allowances distributed for free*

	2012-2013	2014-2016	2017-2020	2021-2025
Option A	0.5	14.75	14.75	14.75
Option B	0.5	26.75	26.75	26.75
Option C	0.5	22.5	18.5	16.5
Option D	0	0	0	0

* The industrial sector would be included in the cap from 2014 onward.

Auction proceeds would be used to finance a variety of programs, including adaptation initiatives, clean energy technologies, energy efficiency programs, consumer rebates, “green jobs” training and other projects. Under all four options, if Congress does not reauthorize the legislation before 2026, all allowances would be auctioned and proceeds returned to households on a per capita basis.

Cost containment measures

Trading, banking and borrowing. Trading would be unrestricted and banked allowances would not diminish in value over time. Allowance borrowing would be limited to 15% of an installation’s compliance obligation for each calendar year, and allowances could be borrowed from compliance years no further than 5 years in the future. Entities must pay interest on borrowed allowances, with an exception that no interest would be charged on allowances borrowed from the year immediately following that in which the borrowed allowances are used for compliance.

Strategic reserve. 5% to 10% of the emission allowances established for each calendar year would be auctioned in quarterly “strategic reserve” auctions. The minimum auction price per allowance would be set at USD \$20 to \$30 in 2012, and from 2015 onward, at 30% to 100% above the average daily spot allowance price for the previous 36 months. An installation would be able to use allowances purchased in the strategic reserve auctions to meet no more than 10% of its compliance obligation each year.

Allowance market oversight. Responsibility for oversight and management of the carbon allowance market would be given to the Federal Energy Regulatory Commission.

Offsets

Installations could use an increasing number of offsets for compliance over time:

From 2013-2017: domestic or international offset credits could be used to collectively satisfy up to 5% of an installation’s compliance obligation.

From 2018-2020: domestic or international offset credits could be used to collectively satisfy up to 15% of an installation’s compliance obligation.

From 2021-2024: domestic offset credits could be used to satisfy up to 15% of an installation’s compliance obligation; international offset credits could be used to satisfy up to an additional 15%.

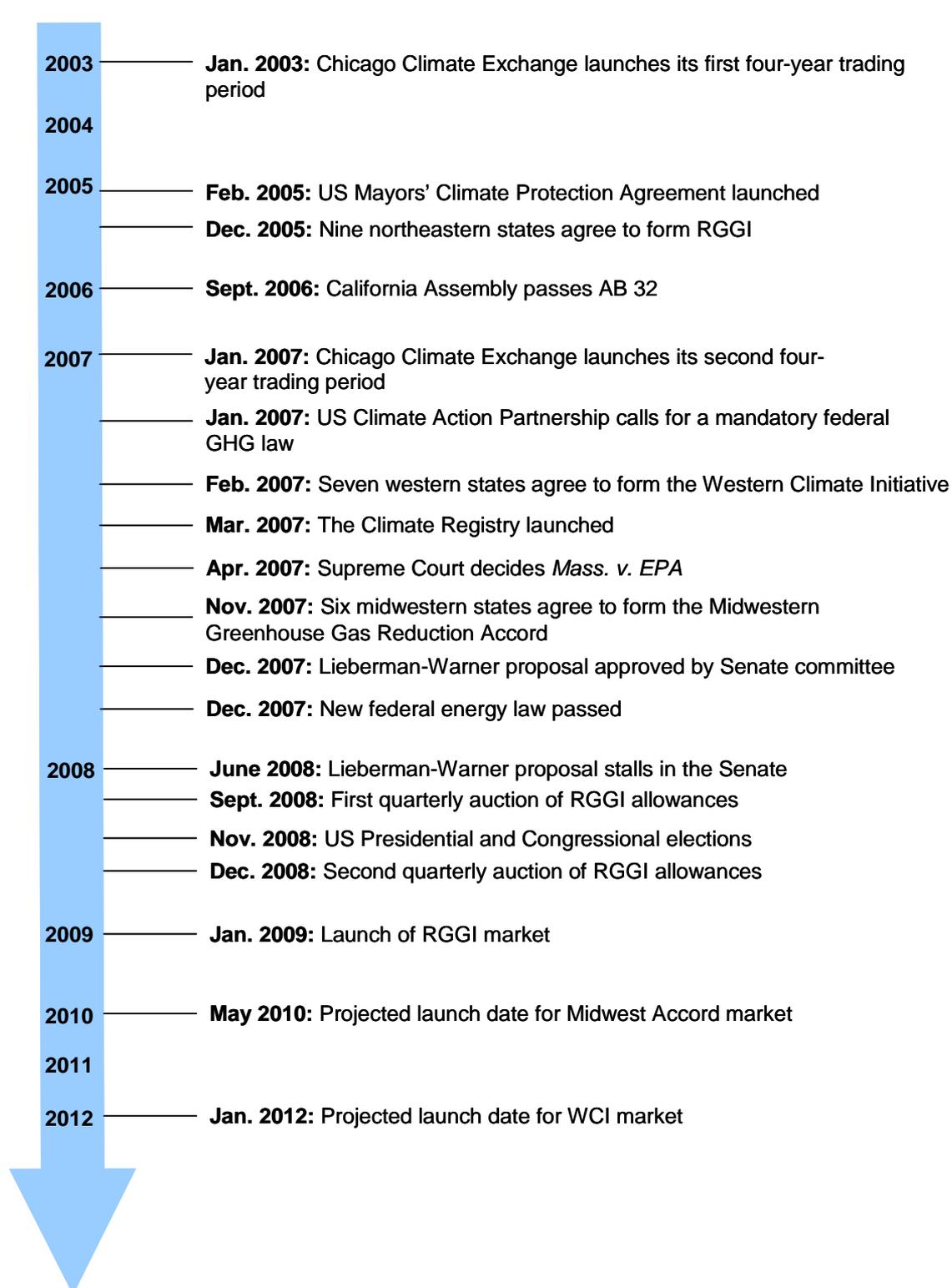
From 2025 onward: domestic offset credits could be used to satisfy up to 20% of an installation’s compliance obligation; international offset credits could be used without limitation.

Offset credits for international forest carbon activities. Similar to the Lieberman-Warner proposal in the Senate, the House draft proposal also contains a provision that would standardize the types of international forestry offsets that installations may use for compliance.

International trade provision

The draft proposes the creation of an International Climate Change Commission that would assess, by 1 July, 2013, which of the US’ trading partners have “taken comparable action to limit [their] greenhouse gas emissions”. “Covered” countries that have not taken comparable action would be required to submit “international reserve allowances” to compensate for the GHG emissions associated with the production of the products they export to the US. Countries defined by the United Nations as among the “least-developed” developing countries, and countries that emit less than 0.5 percent of total global GHG emissions, would be exempted from this requirement.

Annex 11 – US policy timeline



Source: Mission Climat of Caisse des Dépôts.

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Publication Director:

CHRISTIAN DE PERTHUIS +33 1 58 50 22 62
christian.deperthuis@caissedesdepots.fr

Mission Climat Contacts:

EMILIE ALBEROLA +33 1 58 50 41 76
emilie.alberola@caissedesdepots.fr

MAY ARMSTRONG +33 1 58 50 76 27
may.armstrong@caissedesdepots.fr

VALENTIN BELLASSEN +33 1 58 50 19 75
valentin.bellassen@caissedesdepots.fr

CECILE BORDIER +33 1 58 50 85 20
cecile.bordier@caissedesdepots.fr

MALIKA BOUMAZA +33 1 58 50 37 38
malika.boumaza@caissedesdepots.fr

HENRI CASELLA +33 1 58 50 98 20
henri.casella @caissedesdepots.fr

IAN COCHRAN +33 1 58 50 41 77
ian.cochran@caissedesdepots.fr

ANAÏS DELBOSC +33 1 58 50 99 28
anais.delbosc@caissedesdepots.fr

ANITA DROUET +33 1 58 50 85 19
anita.drouet@caissedesdepots.fr

CHAOLING FENG +33 1 58 50 85 18
chaoling.feng@caissedesdepots.fr

MORGAN HERVÉ-MIGNUCCI +33 1 58 50 99 77
morgan.herve-mignucci@caissedesdepots.fr

CATE HIGHT +33 1 58 50 98 19
cate.hight@caissedesdepots.fr

AUDREY HOLM +33 1 58 50 74 89
audrey.holm@caissedesdepots.fr

BENOÎT LEGUET +33 1 58 50 98 18
benoit.leguet@caissedesdepots.fr

ALEXIA LESEUR +33 1 58 50 41 30
alexia.leseur@caissedesdepots.fr

MARIA MANSANET-BATALLER +33 1 58 50 85 22
maria.mansanet@caissedesdepots.fr

CAROL SIMON +33 1 58 50 98 20
carol.simon@caissedesdepots.fr

RAPHAËL TROTIGNON +33 1 58 50 96 04
raphaël.trotignon@caissedesdepots.fr



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