



## Summary of the Boxer Substitute Amendment To the Lieberman-Warner Climate Security Act

This document summarizes the version of the Lieberman-Warner Climate Security Act of 2008 that is scheduled to be debated by the United States Senate the week of June 2, 2008. The Act, if enacted into law, would establish a market-based cap-and-trade program for greenhouse gas (GHG) emissions in the United States, and establish other measures to reduce GHG emissions. This summary has been prepared by the Pew Center on Global Climate Change.

It is typical for major legislation to be extensively revised and even to change names and designation as it moves through the U.S. Congress, and this has been the case with the Lieberman-Warner Climate Security Act of 2008. A detailed outline of the Act was released by Sen. Joseph I. Lieberman (ID-CT) and Sen. John Warner (R-VA) in August 2007. The Act itself was first introduced in the U.S. Senate as S.2191 in October 2007. It was passed by a subcommittee of the Senate Environment and Public Works (EPW) Committee by a vote of 4 – 3 later in October. (The chairman of the subcommittee, the Subcommittee on Private Sector and Consumer Solutions to Global Warming and Wildlife Protection, is Sen. Lieberman. The subcommittee’s ranking Republican is Sen. Warner.) The Act was passed by the full EPW committee by a vote of 11 – 8 in December 2007. (The EPW committee chairman is Sen. Barbara Boxer (D-CA) and the ranking Republican is Sen. James M. Inhofe (R-OK).) The version of the Act passed by the EPW Committee, plus a measure to ensure that it would be neutral in its effect on the U.S. budget, was introduced in the Senate as S.3036 on May 20, 2008. The version of the Act summarized below is known as the Boxer-Lieberman-Warner substitute amendment to S.3036, the Lieberman-Warner Climate Security Act, and was released on May 27, 2008. It has been extensively revised from the version of the Act passed by the EPW committee.

### Section 1—Short Title

This section states that the Act may be cited as the “Lieberman-Warner Climate Security Act of 2008”.

### Section 4—Definitions

This section, among other things, specifies which entities and greenhouse gases (GHG) are subject to the cap-and-trade program established by the Act. Given these definitions, an estimated 87% of U.S. GHG emissions would be subject to the program.

The section defines “covered entities” as:

- Any entity that uses more than 5000 metric tons of coal annually in the US
- Any natural gas processing plant (except in Alaska)
- Any entity that produces natural gas in Alaska
- Any importer of natural gas
- Any manufacturer or importer of petroleum-based liquid or gaseous fuel, petroleum coke, or coal-based liquid or gaseous fuel
- Any entity that manufactures or imports more than 10,000 metric tons of GHG (measured as carbon dioxide equivalents), aside from hydrofluorocarbons (HFCs)
- Any entity that emits more than 10,000 metric tons CO<sub>2</sub>e of HFCs as a byproduct of the manufacture of hydrochlorofluorocarbons (HCFCs).

The section also divides the GHGs subject to the Act into HFC and “Non-HFC Greenhouse Gas,” defined as: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), sulfur hexafluoride (SF<sub>6</sub>), perfluorocarbon (PFC).

The section also defines “Carbon Dioxide Equivalent,” which is the unit used for GHGs in the Act, as the quantity of any GHG that the EPA determines makes the same contribution to global warming as one metric ton of carbon dioxide.

## **Title I—Immediate Action**

### **Subtitle A—Tracking Greenhouse-Gas Emissions**

Subtitle A creates a greenhouse gas (GHG) registry establishing a robust tracking system to inventory GHG emissions from significant sources across the country.

### **Subtitle B—Early Clean Technology Deployment**

This subtitle directs the EPA to establish an Efficient Buildings Grant Program, and make grants for the construction of new, highly-efficient buildings, and increase the efficiency of existing buildings. The program will be funded from general appropriations, and will end when the Efficient Buildings Allowance Program is established under section 802.

The subtitle also directs the Environmental Protection Agency (EPA) to establish the Super-Efficient Equipment and Appliances Development (SEAD) Program, which will provide grants to retailers and distributors to increase sales of high-efficiency building equipment, consumer electronics, and household appliances.

The subtitle also directs the EPA to provide grants for the purchase of advanced medium- and heavy-duty hybrid commercial vehicles. This program will end when the clean medium- and heavy-duty hybrid fleets program is established under section 1103.

The subtitle also directs the President to create an International Clean Development Technology Board—constituted of the Secretary of State as chair, and the Secretaries of Treasury, Energy, and Commerce, the Administrators of the EPA and USAID, and the

USTR—which will administer a \$2 billion fund from 2009 through 2011. This program ends when the International Clean Energy Technology Program is established under section 1321.

### Subtitle C—Research

This subtitle contains provisions creating programs of research into, among other things, the effects of climate change on drinking water utilities, climate-related impacts of black carbon emissions, and lifecycle GHG reductions associated with recycling of various materials. The subtitle also directs the EPA to establish new requirements for Energy Star certification for retail carbon offsets (which cannot be used for compliance with the cap-and-trade program established under Title II).

## Title II—Capping Greenhouse Gas Emissions

This title establishes the total quantity of emission allowances available for each calendar year from 2012-2050. In 2012 there will be 5,775 million allowances available declining to 1,732 million in 2050. Stated another way, it is estimated that the aggregate of GHG emissions from all covered entities would be capped at:

- 4% below the 2005 level by 2012;
- 19% below the 2005 level by 2020; and
- 71% below the 2005 level by 2050.

This title also contains a provision that exempts from coverage petroleum-based liquid fuel imported from a NAFTA country, as long as that country has enacted national GHG emissions reduction requirements that are not less stringent than those established for the United States by the bill; and as long as allowances for the GHGs that will be emitted through the use of the fuel were submitted in the producing country.

The title also provides a non-emissive use credit to each entity that uses petroleum- and coal-based products and natural gas as a feedstock.

The title also provides an export credit to those entities exporting products for which they have been required to submit an allowance.

The title also establishes an international flight credit to be distributed to each entity that purchased, in the U.S., fuel for an international flight where the GHGs resulting from the use that of fuel were regulated by another country.

The noncompliance penalty for failure to submit one or more allowances is equal to the greater of \$200 or 3 times the market value of allowances for each allowance not submitted.

## Title III—Reducing Emissions through Offsets and International Allowances

### Subtitle A—Offsets in the United States

This subtitle directs the EPA, in conjunction with the Department of Agriculture, to promulgate regulations authorizing certification and issuance of offset allowances for GHG emission reductions or increases in sequestration up to 15% of the quantity of emission allowances established for the year. If less than the 15% allowed domestic offsets are issued, the difference can be made up with international allowances and international forest carbon credits. Any remaining unused capacity up to the full 15% can be carried forward to the following year.

International forest carbon credit allowances are generated by national-level reductions from deforestation and forest degradation in countries that have established a national forestry baseline (see Title XIII). Forestry projects cannot generate these allowances.

Offsets from the Regional Greenhouse Gas Initiative (RGGI) established by the northeastern states can also be exchanged at a discount rate, to be determined by the EPA, into the national system. The subtitle directs the EPA to determine a quantity of domestic offset allowances to hold back in order to perform exchanges for RGGI offsets “with all those interested.”

The subtitle does not specify how the EPA should distribute the pool of offsets to project developers.

Eligible offset projects could include (subject to revision by the EPA): agricultural and rangeland sequestration and management practices (e.g. altered tillage, winter cover cropping, conversion of cropland to rangeland or grassland, fertilizer reduction); changes in carbon stocks attributed to land use change, forestry activities limited to afforestation or reforestation of lands not forested as of October 18, 2007, and forest management for increased stand volume; as well as manure management and disposal, including waste aeration and methane capture and combustion.

Each sequestration project must certify annually whether there have been any unmitigated reversals in the preceding year; the EPA will render invalid offset allowances in proportion to the degree of reversal. Liability for compensation of a reversal lies with the project developer unless a different party is specified in a legally-binding contract or agreement; compensation is required in the form of submission of an equal number of valid offsets or emission allowances.

The EPA can allow transition into the registry of offset projects and allowances registered under the Climate Registry, the California Action Registry, the GHG Registry, the Chicago Climate Exchange, the GHG Clean Projects Registry, or other programs or registries, if such offsets are deemed to satisfy the requirements of the subtitle.

### Subtitle B—Offsets and Emission Allowances from Other Countries

This subtitle directs the EPA to promulgate rules for registering and issuing offset allowances for emission reduction or sequestration projects in other countries according to the protocols of the United Nations Framework Convention on Climate Change

(UNFCCC) (e.g., the Clean Development Mechanism (CDM)), not to exceed 5% of the cap for that year). If less than the allowed 5% is issued in a year, the balance can be made up using international allowances. Similar to the provision for domestic offsets, a carry-over is allowed into the following year if the sum of international offsets and allowances issued under the section is less than the full 5%.

Foreign facilities which compete directly with a United States facility will not be eligible for CDM-type offsets.

The subtitle also allows the EPA to promulgate regulations, in accordance with the UNFCCC, approving the use in the U.S. of emission allowances issued by countries with mandatory absolute limits on GHG emissions and a program of a comparable stringency.

#### Subtitle C—Agriculture and Forestry Program in the United States

This subtitle allocates 4.25% of total allowances from 2012-2030, and 4.5% of allowances from 2030-2050, to the Secretary of Agriculture to establish a program that rewards entities in agricultural and forestry sectors for achieving real, verifiable, additional, permanent, and enforceable reductions in emissions or increases in sequestration, or for conducting pilot projects or other research. At least 0.5% of these emission allowances on average must be dedicated to reductions in nitrous oxide and methane, and 0.25% must be dedicated to incubating new methodologies and technologies. The Subtitle also sets some requirements for agricultural and forestry GHG management research.

### Title IV Establishing a Greenhouse-Gas Emissions Trading Market

#### Subtitle A—Trading

This subtitle establishes the GHG emissions trading market, which allows holders of GHG allowances to sell, exchange, and trade emissions allowances without restrictions. The market is open to entities that do not have GHG compliance obligations.

#### Subtitle B—Market Oversight and Enforcement

This subtitle establishes a Carbon Market Working Group, to be chaired by the Administrator of the EPA and include the Secretary of the Treasury, the Chairman of the SEC, the Chairman of the Commodity Futures Trading Commission, the FERC Chairman, and other officials appointed by the President. This working group will have the power to issue recommendations and promulgate regulations to enhance the integrity, efficiency, orderliness, fairness, and competitiveness of the development of the emissions trading market, based on core principles which include: preventing the concentration of market power within the control of a limited number of individuals or entities; preventing abuse of material, nonpublic information; providing for transparency; and preventing excessive speculation that could cause sudden or unreasonable fluctuations or unwarranted changes in the price of emission allowances.

#### Subtitle C—Carbon Market Efficiency Board

This subtitle establishes the Carbon Market Efficiency Board (CMEB) to provide general market monitoring and reporting to Congress. It can also employ cost relief measures including relaxing restrictions on borrowing or offsets (see the summary below of Title V, subtitle C for further detail).

#### Subtitle D—Climate Change Technology Board

This subtitle establishes a Climate Change Technology Board (CCTB). The CCTB would be a Federal agency, with directors appointed by the President and confirmed by the Senate. The CCTB would distribute technology funding from the Act, but notify the relevant Congressional committees before distributing funds. Congress could cancel the funds within 30 days if it disapproved.

#### Subtitle E—Auction on Consignment

This subtitle allows recipients of GHG emission allowances under this Act to request these allowances to be sold a regular auction and the proceeds of the sale of the allowances be transferred back to the recipient.

### Title V—Federal Program to Prevent Economic Hardship

#### Subtitle A—Banking

This subtitle allows covered entities to bank GHG allowances.

#### Subtitle B—Borrowing

This subtitle allows a covered entity to borrow GHG allowances to cover up to 15% of its compliance obligations. Borrowed allowances must be repaid within five years, at an interest rate of 10%.

#### Subtitle C—Emergency Off-Ramps

This subtitle gives the CMEB the power to carry out, at its discretion, the following cost relief measures: 1) increase the quantity of emission allowances an entity can borrow; 2) expand the period of repayment for borrowed allowances; 3) increase allowances obtained from foreign GHG markets; 4) expand the eligible offset project types.

The subtitle also directs the EPA to conduct a “cost-containment auction” for each calendar year from 2012-2027. Participation in this auction is limited to those entities required to submit allowances for the preceding calendar year, and the purchased allowance must be submitted for compliance within one year of the date of purchase.

At each cost-containment auction, the EPA will offer emission allowances for sale beginning at a minimum price to be called the “cost-containment auction price”. (The cost-containment auction price is defined as the single price at which emission allowances are offered for sale during a cost-containment auction in a particular year.) In 2012, the cost-containment auction price will be not less than \$22 per emission allowance and not more than \$30. The President will establish this price based on economic modeling conducted by EPA and the Energy Information Administration (EIA) with

public input with regard to the modeling. The cost-containment auction price for years 2013-2027 will be the price from the year before adjusted for inflation.

The subtitle also directs the EPA to conduct an annual “regular auction.” There will be a reserve price at each regular auction starting at \$10 per emission allowance in 2012. The reserve price for calendar years 2013-2027 will be the price from the year before adjusted for inflation.

The EPA shall reserve a total of 6,000 million of the emission allowances established for calendar years 2030-2050 for the cost-containment auction pool. Allowances will be removed from these future years using a graduated formula where the amount reserved from each year will be greater than the year before by a constant percentage. The cost-containment auction pool will be supplemented by any allowance not sold at a regular auction “because of the operation of the regular auction reserve price”.

In the cost-containment auction held in year 2012, the limit on the number of allowances sold will be 450 million and this amount will be reduced by 1% for calendar years 2013-2027. The EPA will establish a limit on the number of allowances that can be purchased by any single entity to ensure fair access by all eligible covered entities.

Proceeds from each cost-containment auction will be used to achieve emission reductions from non-covered entities (70%) and additional relief to energy consumers (30%).

The EPA will not sell the allowances in the reserve pool for a calendar year until all allowances available in previous calendar years have been sold. Prior to the cost-containment auctions for calendar years 2022-2027, the EPA shall remove emission allowances from the cost-containment auction pool that have been in the pool for more than 9 years and those that were reserved from a calendar year fewer than 10 years subsequent to the current calendar year.

If the cost-containment auction is exhausted, the EPA shall conduct no further cost-containment auctions. After the final cost-containment auction, the EPA will retire any allowances not sold in the regular auction because of the operation of the regular auction reserve price.

#### **Subtitle D—Transition Assistance for Workers**

This subtitle establishes a Climate Change Worker Training and Assistance Fund in the Treasury, funded by the proceeds of the auction of 1% of all allowances from 2012-2017, 2% from 2018-2027, 3% from 2028-2030, 4% from 2031 to 2038, and holding at 3% from 2039 and each year thereafter through 2050. 30% of these funds will be used for energy efficiency and renewable energy worker training program, 60% for the climate change worker adjustment program, and 10% for workforce training and safety. The bill’s authors calculate the value of the allowances auctioned under this subtitle to be \$190 billion through 2050.

The subtitle also establishes a Multi-Agency Steering Committee (MASC), a National Climate Change Advisory Committee to advise the MASC, and an Office of Climate Change Adjustment Assistance to manage the program. The program benefits include assistance (e.g., climate change readjustment allowance, health care benefit replacement) and training (e.g., skills assessment, employment goal identification, relevant training).

#### **Subtitle E—Transition Assistance for Carbon-Intensive Manufacturers**

This subtitle directs the EPA to distribute allowances to carbon-intensive manufacturing facilities from 2012-2030. 11% of all allowances will be allocated from 2012 through 2021, 10% will be allocated in 2022, and the allocation will decline by 1% each year thereafter until 2030, when the allocations will represent 1% of all allowances. The bill's authors calculate the value of the allowances distributed under this subtitle to be \$213 billion.

Eligible manufacturing facilities include iron, steel, pulp, paper, cement, rubber, chemicals, glass, ceramics, sulfur hexafluoride, or aluminum and other ferrous metals. The EPA may distribute no more than 10% of the allowances in this subtitle to U.S. manufacturers of petroleum-based liquid or gaseous fuel.

#### **Subtitle F—Transition Assistance for Fossil Fuel-Fired Electricity Generators**

This subtitle directs the EPA to distribute allowances to owners and operators of fossil fuel-fired electricity generators from 2012-2030. 18% of all allowances will be allocated from 2012 through 2015, declining to 2.75% of all allowances by 2030. The bill's authors calculate the value of the allowances distributed under this subtitle to be \$307 billion.

The EPA can distribute up to 5% of the allowances available in this subtitle to Rural Electric Cooperatives, 15% of which should be distributed as part of a pilot program to Virginia and Montana to determine the benefits realized by rate-payers and the use of low GHG technologies.

#### **Subtitle G—Transition Assistance for Refiners of Petroleum-Based Fuel**

This subtitle directs the EPA to distribute 2% of all allowances to owners and operators of petroleum-based fuel refineries from 2012-2017, and 1% of all allowances from 2018 through 2030. The bill's authors calculate the value of the allowances distributed under this subtitle to be \$34 billion.

#### **Subtitle H—Transition Assistance for Natural-Gas Processors**

This subtitle directs the EPA to distribute 0.75% of all allowances to owners and operators of natural gas processing plants, as well as natural gas producers in Alaska and the Outer Continental Shelf, from 2012-2030. The bill's authors calculate the value of the allowances distributed under this subtitle to be \$20 billion.

#### **Subtitle I—Financial Relief for Consumers**

This subtitle establishes a Climate Change Consumer Assistance Fund (CCCAF) in the Treasury. The CCCAF will be funded by auctioning 3.5% of all allowances in 2012,

increasing to 15% in 2034 and each year thereafter through 2050. No disbursements from this fund will be made except by an appropriations act. The subtitle includes a Sense of the Senate statement that the CCCAF should be used to fund a tax initiative to protect consumers, especially consumers in greatest need, from increases in energy costs and other costs. The bill’s authors calculate the value of the allowances auctioned under this subtitle to be nearly \$800 billion through 2050.

## **Title VI—Partnerships with States, Localities and Indian Tribes**

### **Subtitle A—Partnerships with State Governments to Prevent Economic Hardship While Promoting Efficiency**

This subtitle allocates emissions allowances to local distribution companies (LDCs) for the purpose of reducing energy prices for low- and middle-income residential energy consumers and small business commercial consumers. In 2012, the bill allocates 9.5% of all allowances to electricity LDCs, and 3.25% of all allowances to natural gas LDCs. From 2013 through 2025, the bill allocates 9.75% of all allowances to electricity LDCs, and 3.25% of all allowances to natural gas LDCs. From 2026 through 2050, the bill allocates 10% of all allowances to electricity LDCs, and 3.5% of all allowances to natural gas LDCs. Distribution of allowances to individual LDCs is based on the quantity of electricity or natural gas delivered over a rolling 3-year baseline, adjusted upward for electricity or natural gas not delivered as a result of demand-reduction programs. The bill’s authors calculate the value of these allocations to be \$911 billion through 2050.

This subtitle also allocates emissions allowances to states whose economies rely heavily on manufacturing and coal, beginning with 3% of all allocations in 2012, and increasing to 4% of all allocations by 2031 and each year thereafter until 2050. The bill’s authors calculate the value of these allocations to be \$254 billion through 2050.

### **Subtitle B—Partnerships with States, Localities, and Indian Tribes to Reduce Emissions**

This subtitle establishes a Transportation Sector Emission Reduction Fund within the Treasury. This fund will disburse grants for the construction of new or the improvement of existing mass transit projects, including transportation alternatives and travel demand reduction projects. The fund will be funded by revenues from quarterly auctions of fixed percentages of allowances: 1% of all allowances in 2012, increasing to 2.75% of all allowances in 2022 and each year thereafter until 2050. The bill’s authors calculate the value of these allocations to be \$171 billion through 2050.

The subtitle also directs the Secretary of Energy to “support updating the national model building energy codes and standards not later than 3 years after enactment,” and not less than 3 years thereafter, to achieve 50% greater energy savings than the 2006 IECC standards for residential buildings and 2004 ASHRAE Standards for commercial buildings by 2020. The bill directs the Secretary to determine that such standards will meet energy savings goals or establish a modified code or standard that does meet the goals and to provide technical support and incentives to states.

The subtitle also directs the EPA to fund the Energy Efficiency and Conservation Block Grant program established in the recent energy bill (H.R. 6, the Energy Independence and Security Act of 2007) with auctions of 2% of each year's allowances from 2012 through 2050. The bill's authors calculate the value of these allocations to be \$136 billion through 2050.

The subtitle also directs the EPA to allocate allowances to states that, "as determined by the Administrator, are leaders in the effort of the United States to reduce GHG emissions and improve energy efficiency." 4% of all allowances will be allocated for this purpose in 2012, increasing to 10% in 2032 and each year thereafter through 2050. The bill's authors calculate the value of these allocations to be \$566 billion through 2050. Allowances under this provision shall be distributed to, among others, states that transition their state or regional cap-and-trade programs into the national system established by this Act.

### Subtitle C—Partnerships with States and Indian Tribes to Adapt to Climate Change

This subtitle directs the EPA to allocate allowances for distribution among states and Indian tribes for "activities carried out in response to the impacts of global climate change." 3% of all allowances will be allocated for this purpose in 2012, increasing to 4% in 2031 and each year thereafter through 2050. 40% of these allowances will be allocated to coastal states, excluding Alaska, to plan for and address the impacts of climate change within the coastal watershed. 25% of these allowances will be allocated to states with the earliest and most severe impacts on freshwater supply and agriculture. 20% will be allocated to the state of Alaska. 15% of auctioned allowance proceeds will go toward Indian tribes in a new Tribal Climate Change Assistance Fund. The bill's authors calculate the value of the allowances allocated under this subtitle to be \$253 billion through 2050.

### Subtitle D—Partnerships with States, Localities, and Indian Tribes to Protect Natural Resources

This subtitle establishes a State Wildlife Adaptation Fund in the Treasury, which will be funded by the proceeds of the auction of 2% of all allowances in 2012, increasing to 4% in 2027 and each year thereafter through 2050. 78% of these funds will be provided to the Pittman-Robertson Wildlife Conservation and Restoration Account, and 22% to the Land and Water Conservation Fund for the acquisition of land and land interests. State receipt of funds under this Subtitle are dependent upon the completion and approval of a comprehensive State adaptation strategy, and agreement to 10% cost sharing of funds spent. The bill's authors calculate the value of the allowances auctioned under this subtitle to be \$237 billion through 2050.

## Title VII—Recognizing Early Action by Companies

This title directs the EPA to establish the Early Action Program for distributing allowances to entities in recognition of GHG emission reductions that resulted from actions taken between 1994 and the date of enactment. Distributions of allowances will

be made to companies within 4 years of enactment; however this pool of allowances will be drawn from a range of years: 5% of all allowances in 2012, decreasing to 1% in 2018 through 2025. Entities that are located in the U.S. and hold allowances issued by California and the Regional Greenhouse Gas Initiative as of December 31, 2011 will receive sufficient allowances to compensate them for obtaining and holding those allowances. In addition, power plants that repowered pursuant to consent decrees before January 1, 2005 and eligible carbon capture and sequestration projects can receive a limited number of allowances under this Title. The bill's authors calculate the value of the allowances allocated under this subtitle to be \$30.7 billion.

## **Title VIII—Efficiency and Renewable Energy**

### **Subtitle A—Efficient Buildings**

This subtitle directs the Climate Change Technology Board (CCTB) to establish the Efficient Buildings Allowance Program, which will distribute allowances to owners of buildings as a reward for constructing highly efficient buildings and increasing the efficiency of existing buildings. It directs the EPA to allocate 0.75% of total emission allowances each year from 2012-2050 to the CCTB for the program. The bill's authors calculate the value of the allowances allocated under this subtitle to be \$51 billion.

### **Subtitle B—Efficient Equipment and Appliances**

This subtitle directs the EPA to allocate 0.75% of total emission allowances each year from 2012-2050 to the CCTB for the purpose of conducting the Super Efficient Equipment and Appliances Development Program (SEAD). Allowances will be distributed to retailers and distributors of high-efficiency building equipment, consumer electronics, and household appliances as a reward for increasing sales through marketing strategies such as consumer rebates. The bill's authors calculate the value of the allowances allocated under this subtitle to be \$51 billion.

### **Subtitle C—Efficient Manufacturing**

This subtitle directs the CCTB to establish the Efficient Manufacturing Program, which will distribute allowances to owners and operators of manufacturing facilities as a reward for achieving high levels of efficiency in their operations. It directs the EPA to allocate 0.75% of total emission allowances each year from 2012-2050 to the CCTB for the program. The bill's authors calculate the value of the allowances allocated under this subtitle to be \$51 billion.

### **Subtitle D—Renewable Energy**

This subtitle directs the EPA to allocate 4% of total allowances to the CCTB from 2012-2030, and 1% of total allowances to the CCTB from 2031-2050 for renewable energy projects. Allowances will be distributed to owners, operators, and developers of facilities (including distributed energy and transmission systems) that harness a renewable energy source as a reward for the start-up, expansion, and operation of the facilities. A project may not receive an allowance distribution if it receives an award under subtitle A of title IX or is supported under subtitle A or subtitle C of title III. Allowance rewards

supporting work under this section are subject to Davis-Bacon wage requirements. The bill's authors calculate the value of the allowances allocated under this subtitle to be \$150 billion.

## **TITLE IX—Low-Carbon Electricity and Advanced Research**

### **Subtitle A—Low- and Zero-Carbon Electricity Technology Fund**

This subtitle establishes a Low- and Zero-Carbon Electricity Technology Fund in the Treasury to be funded by the proceeds of the auction of 1.75% of all allowances from 2012-2021, 2% of all allowances from 2022-2030, and 1% of all allowances from 2031-2050. These funds will be made available without further appropriation or fiscal year limitation to the CCTB, which will competitively award financial incentives for the production of electricity from new zero- and low-carbon generation and manufacturers and component suppliers of zero- or low-carbon technology. Funds will be disbursed through a reverse auction from eligible producers and manufacturers, and awards will be given to lowest bidder that meets the requirements set forth. Funds supporting work under this section are subject to Davis-Bacon wage requirements. The bill's authors calculate the value of the allowances auctioned under this subtitle to be \$92 billion.

### **Subtitle B—Advanced Research**

This subtitle mandates the auction of 0.25% of all allowances from 2012-2030 to be used for an energy transformation acceleration fund in the Treasury that is administered by the Advanced Research Projects Agency - Energy (ARPA-E). No funds will be disbursed except through an appropriation Act. The bill's authors calculate the value of the allowances auctioned under this subtitle to be \$17 billion.

## **Title X—Future of Coal**

### **Subtitle A—Kick-Start for Carbon Capture and Sequestration**

This subtitle establishes a Carbon Capture and Sequestration Technology Fund (CCSTF) in the Treasury. Beginning 120 days after enactment and every year through 2022, the EPA will auction 1% of the total emission allowances established for the calendar year occurring three years after the auction. Proceeds of the auction will be deposited in the CCSTF. Necessary funds will be made available to the Climate Change Technology Board for the Kick-Start Program without further appropriation or fiscal year limitation. The goal of the program is to rapidly bring into operation 5-10 commercial coal-burning electricity facilities using geological carbon capture and sequestration (CCS). The program will ensure that a range of coal types are supported. Funds supporting work under this section are subject to Davis-Bacon wages. The bill's authors calculate the value of the allowances auctioned under this subtitle to be \$15.7 billion.

### **Subtitle B—Long-Term Carbon Capture and Sequestration Incentives**

This subtitle establishes a Bonus Allowance Account for carbon capture and sequestration projects and allocates emission allowances for calendar years 2012-2050 to this account: 3% of all allowances will be allocated from 2012-2025, 4% from 2026-

2030, and 1% from 2031-2050. If the number of bonus allowances is insufficient to meet demand in a calendar year the Administrator shall distribute remaining bonus allowances only to projects qualifying in the preceding calendar year, distribute the remaining bonus allowances to qualifying projects on a pro rata basis, and discontinue the program as of the date on which the Bonus Allowance Account is projected to be fully used based on projects already in operation.

### Subtitle C—Legal Framework

This subtitle amends the Safe Drinking Water Act to direct the EPA to establish permitting standards for commercial-scale underground carbon dioxide injection. It directs the EPA to coordinate with DOE, state geological surveys, and others to develop an assessment of the capacity for carbon dioxide storage in the U.S.

The subtitle also directs the DOE, EPA, FERC, DOT, and DOI, and various stakeholders to conduct a study to assess the feasibility of constructing pipelines to transport carbon dioxide, and geological carbon dioxide sequestration facilities.

In addition, the subtitle directs the EPA to establish a task force to consider procedures for the certification and approval of geological storage sites and projects, existing statutory authority, and successorship of closed sites (including possible transfer of title and liabilities from the private to the public sector).

## Title XI—Future of Transportation

### Subtitle A—Kick-Start for Clean Commercial Fleets

This subtitle directs the EPA to create a program which rewards, with 0.5% of all allowances, purchasers of advanced medium- and heavy-duty hybrid commercial vehicles from 2012-2017. The bill's authors calculate the value of the allowances allocated under this subtitle to be \$4 billion.

### Subtitle B—Advanced Vehicle Manufacturers

This subtitle establishes a Climate Change Transportation Energy Technology Fund in the Treasury, to be funded by the proceeds of an auction of 1% of all allowances each year from 2012-2050. All funds will be made available to the CCTB to disburse as awards to manufacturers which are converting or building facilities to build advanced technology vehicles or component parts. The bill's authors calculate the value of the allowances auctioned under this subtitle to be \$68 billion.

### Subtitle C—Cellulosic Biofuel

This subtitle directs the EPA to create a program which rewards, with allowances, producers of fuel from cellulosic biomass grown in the U.S. 1% of all allowances are allocated for this purpose from 2012-2013, 0.75% from 2014-2017, and 1% from 2018-2030. The bill's authors calculate the value of the allowances allocated under this subtitle to be \$26 billion.

### Subtitle D—Low-Carbon Fuel Standard

This subtitle amends the Clean Air Act to direct the EPA to, no later than 2010, establish a methodology for determining the lifecycle GHG emissions per unit energy of all transportation fuels for which such a determination does not already exist. The EPA will establish a fuel emission baseline, and require transportation fuel providers to reduce, on an annual average basis, the average lifecycle GHG emissions of those fuels, resulting in a reduction of at least 10% from the baseline by 2028. The performance standard used to determine the baseline will be revised in 2033 and every 5 years thereafter. The EPA will set up a market for credits, through which producers who achieve greater lifecycle emission reductions than the baseline may earn credits to trade or sell to other producers, or bank for future use.

## Title XII—Federal Program to Protect Natural Resources

This title establishes a Bureau of Land Management Emergency Firefighting Fund, a Forest Service Emergency Firefighting Fund, and a National Wildlife Adaptation Fund. The EPA will auction 3% of all allowances in 2012, 2.5% from 2013-2022, and increasing to 5% by 2032 and every year thereafter through 2050 to fund these programs. The bill's authors calculate the value of the allowances auctioned under this title to be \$288 billion through 2050.

The Bureau of Land Management Fund will receive \$300 million annually, the Forest Service Fund will receive \$800 million annually, and the remaining proceeds will be deposited in the National Wildlife Adaptation Fund. The National Wildlife Adaptation Fund will be used to carry out various activities (including research and education) to assist fish, wildlife, plants, aquatic and terrestrial ecosystems, and associated ecological processes in adapting to the impacts of climate change and ocean acidification. Funding is predicated on the development of and adherence to a National Wildlife Adaptation Strategy created by the President with relevant federal agencies, local governments, scientists and other interested stakeholders. The title also establishes a Science Advisory Board and a Climate Change and Natural Resource Science Center within the Department of Interior.

## Title XIII—International Partnerships to Reduce Emissions and Adapt to Climate Change

### Subtitle A—Promoting Fairness While Reducing Emissions

This subtitle states that it is the policy of the United States to work under the UNFCCC and other appropriate forums to establish binding agreements committing all major GHG-emitting nations to contribute equitably to the reduction of global GHG emissions.

This subtitle also establishes a system requiring that importers of primary goods (iron, steel, aluminum, cement, glass, pulp, paper, chemicals, and industrial ceramics) and, potentially, manufactured goods—from countries not taking “comparable” action to reduce GHG emissions must purchase special international reserve allowances to cover

the GHG emissions associated with the manufacture of that good. The international reserve allowance pool is established separate from the general allowance pool, and international reserve allowances may not be used for general compliance.

This subtitle mandates the creation of the International Climate Change Commission, to be appointed by the President. The Commission will determine which countries are taking comparable action (as defined in the subtitle) and which are not, and which manufactured goods are covered under the program. The subtitle excludes goods from the least-developed countries, and those countries that are responsible for less than 0.5% of global GHG emissions, from the program.

”Comparable” action is defined as (1) action taken by a foreign country resulting in GHG emission reductions during the relevant period equal to or greater than the percentage change in U.S. GHG emissions during the period, or (2) as determined by the Commission, taking into account the extent to which a country has deployed state-of-the-art technologies or implemented regulatory programs or other measures to limit GHG emissions.

The price of the international reserve allowances will be the average of the previous day’s clearing price of allowances from the general allowance pool. The subtitle directs the EPA to establish, by regulation, a method for calculating the required number of international reserve allowances that United States importer is required to submit for each category of covered goods of each covered foreign country.

Importers from countries not found to have comparable programs will be required to submit international reserve allowances from January 1, 2014. Proceeds from the sale of international reserve allowances will be used to mitigate, in coordination with the Secretary of State, the negative impacts of global climate change on disadvantaged communities in foreign countries.

### **Subtitle B—International Partnerships to Reduce Deforestation and Forest Degradation**

This subtitle allows for the registry of offsets from international reduced deforestation and forest degradation at quantities up to 10% of the annual domestic cap, and with excess capacity allowed to be taken up by international allowances from foreign countries with comparable cap-and-trade systems. The subtitle also dedicates 1% of domestic allowances for capacity building and for projects to reduce deforestation and forest degradation.

International forest carbon offsets are only allowed from eligible countries that have: demonstrated capacity to participate (historical data, technical capacity to measure and monitor fluxes, institutional capacity to reduce emissions); capped GHG emissions or otherwise established a national baseline “consistent with nationally appropriate mitigation commitments or actions” and “projected to result in zero-net deforestation by not later than 2050”; and implemented an emission reduction program for the forest sector and demonstrated reductions using remote sensing. These offsets can only be

generated by national programs, not projects within the country. The subtitle also allows the EPA to discount the allowances if, 10 years after enactment, countries that in the aggregate account for more than 0.5% of global GHG emissions have not capped emissions, established reference scenarios, or otherwise reduced total forest emissions.

### Subtitle C—International Partnerships to Deploy Clean Energy Technology

This subtitle establishes the International Clean Energy Deployment Fund with 0.5% of allowances from 2012 to 2017 to carry out the International Clean Energy Deployment Program established in section 114 of the bill. It establishes eligible countries as those which are not in the OECD, and have either made a binding commitment in an international agreement to carry out “actions to produce measurable, reportable, and verifiable GHG emission mitigations,” or have in force binding national policies to do so.

### Subtitle D—International Partnerships to Adapt to Climate Change and Protect National Security

Subtitle D establishes the “International Climate Change Adaptation and National Security Fund” with funds raised by auctioning a percent of emission allowances starting at 1 percent in 2012, increasing to 1.25 percent in 2014, to 2 percent in 2018, 3 percent in 2022, 4 percent in 2026, 6 percent in 2031, and 7 percent in 2039. These funds go to a similarly named program whose purpose is to address climate change impacts through adaptation in the “most vulnerable developing countries” especially as these impacts might affect US national security. Some of these funds can be channeled through international funds with the same goals. The bill’s authors calculate the value of the allowances allocated under this subtitle to be \$342 billion.

## Title XIV—Reducing the Deficit

This title establishes a Deficit Reduction Fund in the Treasury, to be funded by auctions of allowances each year from 2012-2050. 5.75% of all allowances will be auctioned from this purpose in 2012, increasing to 19.75% in 2031, and then decreasing to 16.75% by 2034 and for all subsequent years through 2050. No disbursements may be made from the Deficit Reduction Fund except by appropriations act.

## Title XV—Capping Hydrofluorocarbon Emissions

This title requires the EPA to establish a separate trading system for hydrofluorocarbons (HFCs). The system must be based on, and parallel the major regulatory structure of, the trading system for all other GHGs established in this Act. The system must require the submission of HFC allowances for any HFC produced or imported – including those in products or equipment. The compliance obligation under the program cannot be satisfied by any emissions or offset allowances purchased in the non-HFC trading market (established by the bill’s other provisions).

The title requires that not more than 10% of HFC allowances will be auctioned in 2012, but that the percentage of HFC allowances auctioned will increase each year—at a rate to

be determined by the EPA—until 2030. From 2031-2050, all HFC allowances will be auctioned. Auction proceeds are dedicated to research into HFC alternatives; recovery, reclamation, and destruction of HFCs; assistance for transition to lower GWP products; and promotion of efficient products that contain lower GWP gases.

Manufacturers or importers of HFCs may reduce their compliance obligation by destroying HFCs; the EPA will establish and distribute HFC allowances, on a discounted basis, to entities for the destruction of chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs).

The quantity of HFC emissions permitted will be not more than 289 million carbon dioxide equivalents (CO<sub>2</sub>e) of HFCs in 2012. From 2013 to 2019, that quantity will diminish each year as determined by the EPA, reaching a reduction of 15% below 2012 levels in 2020. The quantity of HFC emissions permitted from 2021 through 2029 will again decrease at a rate to be determined by the EPA, reaching a reduction of 45% below 2012 levels in 2030. The quantity of HFC emissions permitted from 2031 through 2036 will again decrease each year, with the quantity of HFC emissions permitted from 2037-2039 less than or equal to the preceding year. From 2040-2050, the quantity of HFC emissions will be less than or equal to 86,700,000 CO<sub>2</sub>e, or 70% below 2012 levels.

## **Title XVI—Periodic Reports and Recommendations**

This title directs the EPA to enter into an arrangement with the National Academy of Sciences under which the Academy shall, not later than January 1, 2012, and every 3 years thereafter, produce a report that will include assessments of recent scientific reports on climate change, trends and projections for the U.S. and total worldwide GHG emissions; and current and projected atmospheric concentrations of GHGs; global average temperature; climate change impacts on humans, wildlife, and natural resources; and trends and projections for the health of the oceans and ocean ecosystems. The report will also assess the performance of this Act on a range of criteria, including to what extent it will prevent a dangerous increase in global average temperatures.

The title requires the EPA to make recommendations based on these regular reviews, and directs the President to deliver legislation updating the Act in response to the EPA and NAS reports by 2020.

## **Title XVII—Miscellaneous**

### **Subtitle A—Climate Security Act Administrative Fund**

This subtitle establishes the Climate Security Act Administrative Fund within the Treasury, to be funded by proceeds of allowance auctions from 120 days after enactment until 2050. From enactment until 2027, 0.75% of all allowances will be auctioned for this purpose increasing to 1% in 2031 and each year thereafter until 2050. Funds may not be disbursed without an appropriations act, and will be made available to pay the administrative costs of carrying out this Act.

### Subtitle B—Presidential Emergency Declarations and Proclamations

This subtitle gives the President the authority to make an emergency declaration to modify any requirement of this Act in the event the President determines that a national security, energy security, or economic security emergency exists, and it is in the paramount interest of the United States to make such a modification. The President may not delegate this authority to any other person.

### Subtitle C—Administrative Procedure and Judicial Review

This subtitle provides for rulemaking and judicial review procedures.

### Subtitle D—Retention of State Authority

This subtitle clarifies that nothing in this Act precludes the right of any state to enact measures that would regulate GHG emissions, so long as those measures are no less stringent than those of this Act.

### Subtitle E—Tribal Authority

This section allows the EPA to treat any federally recognized Indian tribe as a state.

### Subtitle F—Clean Air Act

This subtitle directs the President to submit a report to Congress describing any direct regulation of CO<sub>2</sub> emissions that has occurred or may occur under the Clean Air Act. The report shall include recommendations to ensure efficiency and certainty in the regulation of CO<sub>2</sub> by the Federal Government.

### Subtitle G—Study on State-Federal Interaction

This subtitle creates a National Academy of Sciences study to examine the benefits and costs of state cap-and-trade programs, state programs to reduce emissions other than cap-and-trade—including efficiency standards for vehicles, buildings, and appliances; renewable electricity standards; land use planning and transportation policy; and fuel carbon intensity standards—and their interaction with the Federal program, including the reasonably foreseeable effect on allowance prices and price volatility, and other aspects of the economy.

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