

CRS Report for Congress

Climate Change: Comparison of S. 2191 as Reported (now S. 3036) with Proposed Boxer Amendment

May 30, 2008

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Prepared for Members and
Committees of Congress

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Summary

On December 7, 2007, the Senate Environment and Public Works (EPW) Committee ordered reported an amended version of S. 2191, the Lieberman-Warner Climate Security Act of 2008 (originally entitled America's Climate Security Act of 2007). On April 10, 2008, an amendment to make the bill revenue-neutral was submitted to CBO for analysis along with the committee version of S. 2191.

On May 20, 2008, S. 2191 was reported by EPW. At the same time, Senator Boxer introduced S. 3036, which is identical to the reported version of S. 2191 except that it contains the proposed budget amendment. Both bills were placed on the Senate legislative calendar. On Thursday, May 22, Senator Reid filed for cloture on the motion to proceed on S. 3036. The cloture vote is scheduled for Monday, June 2 at 5:30 pm, with the preceding hour set for debate.

In addition to S. 3036, Senator Boxer has proposed an amendment in the nature of a substitute, with significant changes from the committee version of S. 2191.

This report provides a comparison of five key differences between S. 2191/S. 3036 and the proposed Boxer Amendment. This report supersedes a CRS Congressional Distribution Memorandum entitled "Comparison of S. 2191 as Reported (now S. 3036) with Proposed Boxer Substitute," dated May 28, 2008.



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S. 2191 (the Lieberman-Warner Climate Security Act of 2008¹), introduced by Senator Lieberman, was reported by the Senate Committee on Environment and Public Works (EPW) on May 20, 2008. The bill would establish a mandatory cap-and-trade system to reduce greenhouse gas emissions from most sectors of the economy.² As reported, S. 2191's emissions cap is estimated by its sponsors to require a 71% reduction from 2005 levels by 2050 from covered entities (the covered entities are estimated by the sponsors to account for 87% of total U.S. greenhouse gas emissions). Overall, the sponsors estimate that S. 2191 would reduce total U.S. greenhouse gas emissions by up to 66% from 2005 levels by 2050. On April 10, 2008, a proposed deficit reduction amendment was announced, aimed at making the bill revenue-neutral.³ A new version of the bill, S. 3036 — identical to S. 2191 but also containing the deficit reduction amendment — was introduced May 20, and a cloture motion was filed on that bill May 22. The Senate may begin discussion of S. 3036 the week of June 2.

On May 21, 2008, Senator Boxer announced a proposed substitute amendment to the Lieberman-Warner bill.⁴ This amendment would make significant changes to the bill. For a detailed discussion of key terms and concepts used in this report, see CRS Report RL34489, *Climate Change: Costs and Benefits of S. 2191*, which provides background and much more detailed analysis of the bill.

CRS has identified five key changes that would be made by the Boxer Amendment. These five do not represent all changes in the amendment. Considering the time constraints these five are discussed in this report; other changes may also be of interest in the debate. The five key changes discussed below are:

¹ Originally entitled America's Climate Security Act of 2007.

² For more a more detailed discussion of S. 2191 (as reported) provisions, see CRS Report RL34489, *Climate Change: Costs and Benefits of S. 2191*, by Larry Parker and Brent Yacobucci. For a comparison with other proposals, see CRS Report RL33846, *Greenhouse Gas Reduction: Cap-and-Trade Bills in the 110th Congress*, by Larry Parker and Brent Yacobucci.

³ Submitted to CBO April 9, 2008. CBO, *S. 2191, America's Climate Security Act, with an Amendment* (April 10, 2008).

⁴ As of May 23, 2008, the substitute amendment was available at the EPW website: [<http://epw.senate.gov/public/>].

- The establishment of a “cost-containment auction” that would expand the number of allowances available in early years;
- Changes to the limits and applicability of domestic offsets, international offsets, and international allowances;
- Elimination of the Climate Change Credit Corporation and the establishment of a Climate Change Technology Board;
- Major changes in the scheme for how allowances are auctioned or distributed at no cost to covered entities and non-covered entities; and
- Establishment of carbon market oversight mechanisms.

Cost-Containment Auction. The Boxer Amendment would establish a “cost-containment auction.” For this auction, the amendment would take a share of allowances from 2031 through 2050 and make them available for auction in the early years of the program (2012 through 2027). At the end of 2012, a maximum of 450 million allowances would be available for sale. In each successive year, the number available would be reduced by 1%. In total, up to 6 billion allowances would be available through these cost-containment auctions.

For the auctions, the amendment would establish a “Cost-Containment Auction Price” — effectively a reserve price for the auction. For 2012, the President would determine the initial reserve price of between \$22 and \$30 per ton. In each successive year, the reserve price would increase by the rate of inflation plus 5%.

This provision would essentially allow the borrowing of a limited number of future allowances at a reduced rate. In general, both the bill and the Boxer Amendment allow borrowing, but require a 10% annual rate of interest on borrowed allowances. Assuming the allowance price for a given year is above the “cost-containment price,” participants in the auction will likely bid up the price to something similar to the current allowance price. On the other hand, if the allowance price on the secondary market is below the “cost-containment price,” there may be limited participation in the cost-containment auction. All other things being equal, having a larger pool of allowances early should lower the price of allowances, but it is difficult to predict the magnitude of that price effect.

Use of Domestic Offsets, International Offsets, and International Allowances. The Boxer Amendment would substantially alter the amount and type of offsets that covered sources could use to comply with the emissions cap. Under the reported version of the bill, a covered entity could only use domestic offsets and/or international allowances. The Boxer Amendment expands the offset opportunities to include international offsets and international forest credits. In the reported version of the bill, an individual covered entity could meet up to 15% of its allowance requirement through the use of domestic offsets and an additional 15% through the use of international allowances. The Boxer Amendment would eliminate the facility-specific limitation and would direct EPA to restrict the available pool of domestic offsets to 15%, international offsets to 5%, and international forest credits to 10% of the aggregate quantity of emission allowances distributed under the cap.

International allowances could be used, if any of the above percentages were not maximized.⁵

Although the Boxer Amendment would increase flexibility by removing the facility-specific limitation for offset use, the amendment would effectively reduce the total number of offsets potentially available in a given year. The example below illustrates this substantial change:

In 2012, both S. 2191 and the Boxer Amendment set the number of allowances available to covered entities at 5,775 million allowances. In the reported version, a covered facility must submit to EPA an allowance, offset, or international allowance for each ton of actual emissions. By allowing facilities to submit offsets and/or international allowances to satisfy up to 30% of their allowance submission (15% from domestic offsets and 15% from international allowances), the total allowance cap (5,775) would essentially represent 70% of actual emissions permitted. For instance, if there was only one covered facility in the United States and it emitted 8,250 million tons of CO₂-e in 2012, the facility could submit 5,775 million allowances and 2,475 million tons in offsets and international allowances.⁶ However, under the Boxer Amendment, the total number of offsets — which would include domestic, international, forestry credits, and international allowances — would be limited to 30% of the aggregate pool of allowances distributed under the cap. Therefore, the hypothetical facility described above could only use 1,733 tons in offsets.⁷

In addition, eliminating restrictions on the use of certified offsets, the expansion of allowable offset types — international offsets and forest credits — may lower the costs of the cap-and-trade program. Under the reported bill, covered entities had only indirect access (by purchasing international allowances) to these lower-cost reduction opportunities. The Boxer Amendment permits direct use of these options. However, there may be some concern that the increased use of international offsets, particularly those in the forestry sector, could flood the market with possibly questionable emission reductions.⁸

Changes in Established Entities. The reported version of S. 2191 would establish a Climate Change Credit Corporation to auction allowances under the program. The corporation would use the proceeds from those auctions to fund various purposes, including technology development and adaptation programs. As reported, S. 2191 states that “the Corporation shall not be considered an agency or establishment of the Federal government.” The Boxer Amendment would eliminate

⁵ An international allowance is an allowance purchased from an approved foreign cap and trade system. In lieu of using or trading the allowance within its own system, a foreign firm could choose to sell the allowance to a U.S. firm, who could use the allowance for compliance with the U.S. program in lieu of an allowance allocated domestically.

⁶ $8,250 \times 0.3 = 2,475$.

⁷ $5,775 \times 0.3 = 1,733$

⁸ See CRS Report RL34436, *The Role of Offsets in a Greenhouse Gas Emissions Cap-and-Trade Program: Potential Benefits and Concerns*, by Jonathan L. Ramseur.

the corporation. Instead, allowances would be auctioned by EPA. The funds from those auctions would be disbursed by a Climate Change Technology Board, explicitly established as an agency of the federal government.

Allocation Scheme. Both S. 2191 and the Boxer Amendment use a detailed scheme for allocating allowances to covered entities, non-covered entities, and auctions. The total number of allowances for all years is equal in S. 2191 and the Boxer Amendment, although the timing of those allocations may be different, as the Boxer Amendment allows for the auction of some allowances early (see “Cost-Containment Auction” above). Further, the reported bill and the Boxer Amendment would distribute those allowances differently. In all years, relative to the reported version, the Boxer Amendment would allocate a larger share of allowances to non-covered entities (e.g., states), and a smaller share for covered entities and for auctions. For example, in 2012, the reported version of S. 2191 would allocate roughly 36% of allowances to covered entities, 33% to non-covered entities, and 31% for auctions. Under the Boxer Amendment, assuming all available cost-containment allowances are purchased, 32% of allowances would go to covered entities, 34% to non-covered entities, and 30% would be auctioned. **Table 1** shows allowance allocations in various years for the reported version of S. 2191, as amended by the proposed deficit reduction amendment (identical to the introduced version of S. 3036), and **Table 2** shows the allocation of auction revenues. **Tables 3 and 4** show allowance allocations in the same years under the Boxer Amendment. For each table, direct allocations to covered sectors are labeled “COV,” direct allocations to non-covered entities are labeled “NC,” and auctions are labeled “AUC.”⁹

Various groups have modeled the economic effects of S. 2191, including projections of allowance prices in each year of the program. Using one of the low-cost scenarios — EPA’s ADAGE-TECH scenario — estimates of the values of the allowance allocations and auction revenues in S. 2191 and the Boxer Amendment are shown in **Tables 5 and 6**.¹⁰ The same allowance price was used in both tables; however, it should be noted that some of the changes made by the Boxer Amendment would likely reduce costs.¹¹ To the extent that allowance prices increase or decrease in one version of the bill relative to another, the value of allocations and the estimated auction revenues would also increase or decrease.

Carbon Market Oversight Mechanisms. The Boxer Amendment would establish a Carbon Markets Working Group including the EPA Administrator, the Secretary of the Treasury, and the Chairmen of the Securities and Exchange Commission, the Commodities Futures Trading Commission, and the Federal Energy Regulatory Commission. The Group must identify “the major issues related to the integrity, efficiency, orderliness, fairness, and competitiveness” of the carbon market,

⁹ In each of the tables, the allocations are presented in the section-by-section order they appear in the bill or amendment.

¹⁰ For a detailed analysis of the assumptions used in EPA’s model, as well as CRS’s assumptions about certain program costs, see CRS Report RL34489, *Climate Change: Costs and Benefits of S. 2191*, by Larry Parker and Brent Yacobucci.

¹¹ The economic effects of the Boxer Amendment had not been modeled as of May 28, 2008.

as well as recommendations for market regulation, policy coordination, contingency planning, and necessary legislative action.¹²



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¹² For more information on carbon market regulation, see CRS Report RL34488, *Regulating a Carbon Market: Issues Raised By the European Carbon and U.S. Sulfur Dioxide Allowance Markets*, by Mark Jickling and Larry Parker.

Table 1. Estimated Allowances (millions) Allocated Under S. 3036 (S. 2191 as Reported plus Amendment)

			2012	2020	2030	2040	2050
Total Allowances		Sec. 3101 (as amended)	5,775	4,924	3,860	2,796	1,732
Remainder Allowances		Sec. 1201	5,423	4,510	3,303	2,349	1,455
Deficit Reduction Fund	AUC	Sec. 3101 (as amended)	352	414	557	447	277
Early Auction	AUC	Sec. 3101	271	0	0	0	0
Auction	AUC	Sec. 3102	1,166	1,646	2,073	1,632	1,011
Early Action	NC	Sec. 3201	271	0	0	0	0
States							
Energy Savings	NC	Sec. 3301(a)	108	90	66	47	29
Building Efficiency	NC	Sec. 3301(b)	54	45	33	23	15
Programs that Exceed Fed. Targets	NC	Sec. 3302	108	90	66	47	29
General Allocation - by LIHEAP Share	NC	Sec. 3303(b)(1)	81	68	50	35	22
General Allocation - by Population Share	NC	Sec. 3303(b)(2)	81	68	50	35	22
General Allocation - by Fossil Production CO2	NC	Sec. 3303(b)(3)	81	68	50	35	22
Mass Transit	NC	Sec. 3304	54	45	33	23	15
State Subtotal			569	474	347	247	153
Tribal Communities	NC	Sec. 3303(d)	27	23	17	12	7
Low/Middle-Class Electricity Consumers	NC	Sec. 3401	488	406	297	211	131
Low/Middle-Class Natural Gas Consumers	NC	Sec. 3501	108	90	66	47	29
CCS Bonus Allowances	COV	Sec. 3601	217	180	132	0	0
Domestic Agriculture and Forestry	NC	Sec. 3701	271	226	165	117	73
International Forest Protection	NC	Sec. 3803	136	113	83	59	36
Fossil Fueled Electric Plants	COV	Sec. 3901	1,030	722	33	0	0
Rural Electric Cooperatives	COV	Sec. 3901	54	45	33	0	0
Special Allocation to VA and MT	COV	Sec. 3903(a)(2)	8	7	0	0	0
Energy-Intensive Manufacturing Facilities	COV	Sec. 3901	542	361	8	0	0
Petroleum Production/Import Facilities	COV	Sec. 3901	108	90	8	0	0
HFC Producers/Importers	COV	Sec. 3901	108	90	8	0	0
Landfill and Coal Mine Methane Reduction	NC	Sec. 3907	54	45	33	23	15

Source: CRS Analysis of S. 2191 as reported by the Senate Committee on Environment and Public Works and as amended by proposed revenue-neutral amendment.

Table 2. Allocation of Revenues from Auctions of Remainder Allowances Under S. 3036(percentage of “remainder allowance” auction revenues after “Off-the-Top”^a [designated “ss”] distributions are made)

		2012	2020	2030	2040	2050
Off-the-Top Allocation of Auction Proceeds						
BLM Emergency Firefighting Fund	Sec. 4302(b)(1)	ss	ss	ss	ss	ss
Forest Service Emergency Firefighting Fund	Sec. 4302(b)(2)	ss	ss	ss	ss	ss
CSA Management Fund	Sec. 4302(b)(3)	ss	ss	ss	ss	ss
Percentage of Remaining Proceeds						
Technology Deployment	Sec. 4302(b)(4)(B)	52%	52%	52%	52%	52%
Zero- or Low- Carbon Energy Technology	Sec. 4401(1)	16.6%	16.6%	16.6%	16.6%	16.6%
Advanced Coal and Sequestration Technology	Sec. 4401(2)	13.0%	13.0%	13.0%	13.0%	13.0%
Fuel from Cellulosic Biomass	Sec. 4401(3)	3.1%	3.1%	3.1%	3.1%	3.1%
Advanced Technology Vehicles Manufacturing Incentives	Sec. 4401(4)	6.2%	6.2%	6.2%	6.2%	6.2%
Sustainable Energy Program	Sec. 4401(5)	13.0%	13.0%	13.0%	13.0%	13.0%
Energy Independence Acceleration Fund	Sec. 4302(b)(4)(C)	2%	2%	2%	2%	2%
Energy Assistance Fund	Sec. 4302(b)(4)(D)	18%	18%	18%	18%	18%
LIHEAP	Sec. 4501(1)	9.0%	9.0%	9.0%	9.0%	9.0%
Weatherization	Sec. 4501(2)	4.5%	4.5%	4.5%	4.5%	4.5%
Rural Energy Assistance	Sec. 4501(2)	4.5%	4.5%	4.5%	4.5%	4.5%
Climate Change Worker Training Fund	Sec. 4302(b)(4)(E)	5%	5%	5%	5%	5%
DOE University Programs	Sec. 4606(a)	1.25%	1.25%	1.25%	1.25%	1.25%
Adaptation Fund	Sec. 4302(b)(4)(F)	18%	18%	18%	18%	18%
DOI - Wildlife Conservation and Restoration	Sec. 4702(b)(1)	6.3%	6.3%	6.3%	6.3%	6.3%
DOI - Adaptation Activities	Sec. 4702(b)(2)	3.42%	3.42%	3.42%	3.42%	3.42%
DOI - Cooperative Grant Programs	Sec. 4702(b)(3)	0.9%	0.9%	0.9%	0.9%	0.9%
DOI - Tribal Wildlife Grants	Sec. 4702(b)(4)	0.2%	0.2%	0.2%	0.2%	0.2%
Land and Water Conservation Fund	Sec. 4702(c)	1.8%	1.8%	1.8%	1.8%	1.8%
Forest Service Adaptation Activities	Sec. 4702(d)	0.9%	0.9%	0.9%	0.9%	0.9%
EPA Adaptation Activities	Sec. 4702(e)	0.9%	0.9%	0.9%	0.9%	0.9%
Army Corps of Engineers Adaptation Activities	Sec. 4702(f)	1.8%	1.8%	1.8%	1.8%	1.8%
Department of Commerce Adaptation Activities	Sec. 4702(g)	1.8%	1.8%	1.8%	1.8%	1.8%
Climate Change and National Security Fund	Sec. 4302(b)(4)(G)	5%	5%	5%	5%	5%

Source: CRS Analysis of S. 2191 as reported by the Senate Committee on Environment and Public Works and as amended by proposed revenue-neutral amendment.

a. Auction revenues must first be allocated to these accounts. However, necessary amounts are not specified in the bill, as they depend on a given year’s expenditures from that account. For a more detailed discussion, see CRS Report RL34489, *Climate Change: Costs and Benefits of S. 2191*.

Table 3. Estimated Allowances Allocated Under Boxer Amendment, Part I (millions)

Year	Section	2012	2020	2030	2040	2050	
Total Allowances (millions)	Sec. 201	5,775	4,924	3,860	2,796	1,732	
Cost Containment Pool	Sec. 535	6,000	2,524	0	0	0	
Cost Containment Allowances Auctioned	Sec. 536	450	415	0	0	0	
Cost Containment Allowances Borrowed	Sec. 535	0	0	0	295	395	
Remaining Allowances		5,775	4,924	3,860	2,501	1,337	
Total Available Allowances		6,225	5,339	3,860	2,501	1,337	
Allowance Accounts							
Agriculture and Forestry Program	NC	Sec. 331	245	209	164	113	60
New Technology Incubator		Sec. 332(b)	14	12	10	6	3
Transition Assistance for Workers	AUC	Sec. 542(b)	58	98	116	75	40
Transition Assistance for Carbon-Intensive Manufacturers	COV	Sec. 551(b)	635	542	39	0	0
Currently Operating Facilities	COV	Sec. 552(b)	610	520	37	0	0
New Entrant Facilities	COV	Sec. 522(f)	25	22	2	0	0
Petroleum Refiners (Discretionary)	COV	Sec. 522(h)	64	54	4	0	0
Transition Assistance for Fossil Fuel Electric Generators	COV	Sec. 561(b)	1,040	739	106	0	0
Rural Electric Cooperatives (Maximum)	COV	Sec. 562(c)	52	37	5	0	0
Pilot Program for MT and VA	COV	Sec. 562(c)(2)(a)	8	6	1	0	0
Transition Assistance for Petroleum Fuel Refiners	COV	Sec. 571	116	49	39	0	0
Transition Assistance for Natural Gas Processors	COV	Sec. 581	43	37	29	0	0
Federal Program for Consumers	AUC	Sec. 592(b)	202	295	463	375	201
Partnerships with State Governments							
Customer Assistance Through LDCs							
Electricity	NC	Sec. 611(a)	549	480	386	250	134
Natural Gas	NC	Sec. 611(a)	188	160	135	88	47
Assistance to States with Heavy Reliance on Manuf. and Coal	NC	Sec. 612(a)	173	160	135	100	53
Manufacturing	NC	Sec. 612(b)	87	80	68	50	27
Coal	NC						

Source: CRS Analysis of proposed Boxer Amendment.

Table 4. Estimated Allowances Allocated Under Boxer Amendment, Part II (millions)

Year		Section	2012	2020	2030	2040	2050	
Partnerships with States, Tribes, and Localities to Reduce Emissions								
	Transportation Sector	AUC	Sec. 621(c)	58	98	106	69	37
	Efficiency and Conservation Block Grant Program	AUC	Sec. 624(a)	116	98	77	50	27
	States that Have Led in Reducing Emissions	NC	Sec. 625(a)	231	246	309	250	134
Partnerships with States and Tribes to Adapt to Climate Change								
	Coastal States	NC	Sec. 632(b)	69	64	54	40	21
	Freshwater and Agriculture	NC	Sec. 633(a)	43	40	34	25	13
	Alaska	NC	Sec. 634(a)	35	32	27	20	11
	Indian Tribes	AUC	Sec. 635(d)	26	24	20	15	8
Partnerships with States, Tribes, and Localities to Protect Nat. Resources (Wildlife Adaptation)								
	Early Action Program	NC	Sec. 702	289	49	0	0	0
	Efficient Buildings	NC	Sec. 811	43	37	29	19	10
	Efficient Equipment and Appliances (SEAD Program)	NC	Sec. 821	43	37	29	19	10
	Efficient Manufacturing	NC	Sec. 831	43	37	29	19	10
	Renewable Energy	NC	Sec. 841	231	197	154	25	13
	Low- and Zero-Carbon Electricity Technology	AUC	Sec. 913	101	86	77	25	13
	Advanced Research (ARPA-E)	AUC	Sec. 921	14	12	10	6	3
	Carbon Capture and Sequestration (CCS) Technology Fund	AUC	Sec. 1012	58	49	0	0	0
	CCS Bonus Allowances	COV	Sec. 1021	173	148	154	25	13
	Clean Medium- and Heavy-Duty Hybrid Fleets	NC	Sec. 1112	29	0	0	0	0
	Advanced Vehicle Manufacturers	AUC	Sec. 1122	58	49	39	25	13
	Cellulosic Biofuel	NC	Sec. 1131	58	49	39	0	0
	Federal Program to Protect Nat. Res. (Firefighting and Wildlife Adapt.)	AUC	Sec. 1212(b)	173	123	154	125	67
	International Forestry	NC	Sec. 1323	58	49	39	25	13
	International Technology Deployment	AUC	Sec.1334	29	0	0	0	0
	International Adaptation	AUC	Sec. 1342(b)	58	98	154	175	94
	Deficit Reduction Fund	AUC	Sec. 1402(b)	332	394	531	419	224
	Climate Security Act Administrative Fund	AUC	Sec. 1712	43	37	39	25	13

Source: CRS Analysis of proposed Boxer Amendment.

**Table 5. Estimated Allowance Values and Auction Revenues
Under S. 3036 (million 2005\$)**

Year	2012	2020	2030	2040	2050
Total Allowances (millions)	5775	4924	3860	2796	1732
Allowance Price (2005\$/ton)	\$18.54	\$28.30	\$46.00	\$74.60	\$120.80
Deficit Reduction Fund	\$6,531	\$11,705	\$25,622	\$33,352	\$33,455
Early Auction	\$5,027	\$0	\$0	\$0	\$0
Auction	\$21,616	\$46,590	\$95,341	\$121,784	\$122,160
Early Action	\$5,027	\$0	\$0	\$0	\$0
States					
Energy Savings	\$2,011	\$2,553	\$3,039	\$3,505	\$3,515
Building Efficiency	\$1,005	\$1,276	\$1,519	\$1,752	\$1,758
Programs that Exceed Fed. Targets	\$2,011	\$2,553	\$3,039	\$3,505	\$3,515
General Allocation - by LIHEAP Share	\$1,508	\$1,915	\$2,279	\$2,628	\$2,637
General Allocation - by Population Share	\$1,508	\$1,915	\$2,279	\$2,628	\$2,637
General Allocation - by Fossil Production CO2 Share	\$1,508	\$1,915	\$2,279	\$2,628	\$2,637
Mass Transit	\$1,005	\$1,276	\$1,519	\$1,752	\$1,758
State Subtotal	\$10,556	\$13,403	\$15,953	\$18,399	\$18,456
Tribal Communities	\$503	\$638	\$760	\$876	\$879
Low/Middle-Class Electricity Consumers	\$9,048	\$11,488	\$13,674	\$15,771	\$15,819
Low/Middle-Class Natural Gas Consumers	\$2,011	\$2,553	\$3,039	\$3,505	\$3,515
CCS Bonus Allowances	\$4,021	\$5,106	\$6,078	\$0	\$0
Domestic Agriculture and Forestry	\$5,027	\$6,382	\$7,597	\$8,761	\$8,789
International Forest Protection	\$2,513	\$3,191	\$3,798	\$4,381	\$4,394
Transition Assistance					
Fossil Fueled Electric Plants	\$19,102	\$20,423	\$1,519	\$0	\$0
Rural Electric Cooperatives	\$1,005	\$1,276	\$1,519	\$0	\$0
Pilot Projects in VA and MT	\$151	\$191	\$0	\$0	\$0
Energy-Intensive Manufacturing Facilities	\$10,054	\$10,212	\$380	\$0	\$0
Petroleum Production/Import Facilities	\$2,011	\$2,553	\$380	\$0	\$0
HFC Producers/Importers	\$2,011	\$2,553	\$380	\$0	\$0
Landfill and Coal Mine Methane Reduction	\$1,005	\$1,276	\$1,519	\$1,752	\$1,758
BLM Emergency Firefighting Fund	\$150	\$150	\$150	\$150	\$150
Forest Service Emergency Firefighting Fund	\$430	\$430	\$430	\$430	\$430
CSA Management Fund	\$1,071	\$1,393	\$1,776	\$2,086	\$2,092
Technology Deployment	\$10,382	\$23,201	\$48,352	\$61,942	\$62,134
Zero- or Low- Carbon Energy Technology	\$3,322	\$7,424	\$15,473	\$19,821	\$19,883
Advanced Coal and Sequestration Technology	\$2,595	\$5,800	\$12,088	\$15,485	\$15,533
Fuel from Cellulosic Biomass	\$623	\$1,392	\$2,901	\$3,717	\$3,728
Adv. Tech. Vehicles Manufacturing Incentives	\$1,246	\$2,784	\$5,802	\$7,433	\$7,456
Sustainable Energy Program	\$2,595	\$5,800	\$12,088	\$15,485	\$15,533
Energy Independence Acceleration Fund	\$399	\$892	\$1,860	\$2,382	\$2,390
Energy Assistance Fund	\$3,594	\$8,031	\$16,737	\$21,441	\$21,508
LIHEAP	\$1,797	\$4,015	\$8,369	\$10,721	\$10,754
Weatherization	\$898	\$2,008	\$4,184	\$5,360	\$5,377
Rural Energy Assistance	\$898	\$2,008	\$4,184	\$5,360	\$5,377
Climate Change Worker Training Fund	\$998	\$2,231	\$4,649	\$5,956	\$5,974
Adaptation Fund	\$3,594	\$8,031	\$16,737	\$21,441	\$21,508
Climate Change and National Security Fund	\$998	\$2,231	\$4,649	\$5,956	\$5,974

Source: CRS Analysis of S. 3036.

Table 6. Estimated Allowance Values and Auction Revenues Under Boxer Amendment (million 2005\$)

Year	2012	2020	2030	2040	2050
Total Allowances (millions)	5775	4924	3860	2796	1732
Allowance Price (2005\$)	\$18.54	\$28.30	\$46.00	\$74.60	\$120.80
Agriculture and Forestry Program	\$4,550	\$5,922	\$7,546	\$8,396	\$7,268
New Technology Incubator	\$268	\$348	\$444	\$466	\$404
Transition Assistance for Workers	\$1,071	\$2,787	\$5,327	\$5,597	\$4,845
Transition Assistance for Carbon-Intensive Manufacturers	\$11,778	\$15,328	\$1,776	\$0	\$0
Currently Operating Facilities	\$11,306	\$14,715	\$1,705	\$0	\$0
New Entrant Facilities	\$471	\$613	\$71	\$0	\$0
Petroleum Refiners (Discretionary)	\$1,178	\$1,533	\$178	\$0	\$0
Transition Assistance for Fossil Fuel Electric Generators	\$19,272	\$20,902	\$4,883	\$0	\$0
Rural Electric Cooperatives (Maximum)	\$964	\$1,045	\$244	\$0	\$0
Pilot Program for MT and VA	\$145	\$157	\$37	\$0	\$0
Transition Assistance for Petroleum Fuel Refiners	\$2,141	\$1,393	\$1,776	\$0	\$0
Transition Assistance for Natural Gas Processors	\$803	\$1,045	\$1,332	\$0	\$0
Federal Program for Consumers	\$3,747	\$8,361	\$21,307	\$27,986	\$24,226
Partnerships with State Governments					
Electricity LDCs	\$10,172	\$13,587	\$17,756	\$18,657	\$16,151
Natural Gas LDCs	\$3,480	\$4,529	\$6,215	\$6,530	\$5,653
Assistance to States with Manuf. and Coal	\$3,212	\$4,529	\$6,215	\$7,463	\$6,460
Partnerships with States, Tribes, and Localities					
Transportation Sector	\$1,071	\$2,787	\$4,883	\$5,131	\$4,442
Efficiency and Conservation Block Grant Program	\$2,141	\$2,787	\$3,551	\$3,731	\$3,230
States that Have Led in Reducing Emissions	\$4,283	\$6,967	\$14,205	\$18,657	\$16,151
Partnerships with States and Tribes to Adapt to Climate Change	\$3,212	\$4,529	\$6,215	\$7,463	\$6,460
Coastal States	\$1,285	\$1,812	\$2,486	\$2,985	\$2,584
Freshwater and Agriculture	\$803	\$1,132	\$1,554	\$1,866	\$1,615
Alaska	\$642	\$906	\$1,243	\$1,493	\$1,292
Indian Tribes	\$482	\$679	\$932	\$1,119	\$969
Partnerships with States, Tribes, and Localities - Wildlife	\$2,141	\$2,787	\$7,102	\$7,463	\$6,460
Early Action Program	\$5,353	\$1,393	\$0	\$0	\$0
Efficient Buildings	\$803	\$1,045	\$1,332	\$1,399	\$1,211
Efficient Equipment and Appliances (SEAD Program)	\$803	\$1,045	\$1,332	\$1,399	\$1,211
Efficient Manufacturing	\$803	\$1,045	\$1,332	\$1,399	\$1,211
Renewable Energy	\$4,283	\$5,574	\$7,102	\$1,866	\$1,615
Low- and Zero-Carbon Electricity Technology	\$1,874	\$2,439	\$3,551	\$1,866	\$1,615
Advanced Research (ARPA-E)	\$268	\$348	\$444	\$466	\$404
Carbon Capture and Sequestration (CCS) Technolgy Fund	\$1,071	\$1,393	\$0	\$0	\$0
CCS Bonus Allowances	\$3,212	\$4,180	\$7,102	\$1,866	\$1,615
Clean Medium- and Heavy-Duty Hybrid Fleets	\$535	\$0	\$0	\$0	\$0
Advanced Vehicle Manufacturers	\$1,071	\$1,393	\$1,776	\$1,866	\$1,615
Cellulosic Biofuel	\$1,071	\$1,393	\$1,776	\$0	\$0
Federal Program on Firefighting and Wildlife Adaptation	\$3,212	\$3,484	\$7,102	\$9,329	\$8,075
International Forestry	\$1,071	\$1,393	\$1,776	\$1,866	\$1,615
International Technology Deployment	\$535	\$0	\$0	\$0	\$0
International Adaptation	\$1,071	\$2,787	\$7,102	\$13,060	\$11,306
Deficit Reduction Fund	\$6,156	\$11,148	\$24,415	\$31,251	\$27,053
Climate Security Act Administrative Fund	\$803	\$1,045	\$1,776	\$1,866	\$1,615

Source: CRS Analysis of proposed Boxer Amendment