Climate Change: Comparison of the Cap-and-Trade Provisions in H.R. 2454 and S. 1733

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Summary

On June 26, 2009, the House passed H.R. 2454, the American Clean Energy and Security Act of 2009. In addition to establishing a cap-and-trade system to regulate greenhouse gas emissions, the bill addresses energy efficiency, renewable energy, and other energy topics. On September 30, 2009, Senator Kerry introduced S. 1733, the Clean Energy Jobs and American Power Act, which was referred to the Senate Committee on Environment and Public Works. The committee held hearings on the bill starting October 27, 2009, and markup of the bill began November 3. On November 5, the committee approved Senator Boxer's "Manager's Amendment" as a substitute, and ordered S. 1733 reported.

Although there are significant differences in some portions of the House and Senate bills, both bills would require major reductions in greenhouse gas emissions from entities comprising roughly 85% of current U.S. greenhouse gas emissions. Covered sectors would include electricity production, natural gas distribution, petroleum refining, and industrial sectors. Both bills would also grant the Environmental Protection Agency (EPA) the authority to set greenhouse gas performance standards for some entities not covered by the cap-and-trade system. Through the cap-and-trade system and other programs, both bills aim to reduce U.S. greenhouse gas emissions to 20% below 2005 levels by 2020 and 83% below 2005 levels by 2050.

This report provides a comparison of the cap-and-trade provisions of these two bills. Most notably, there are six key differences between the bills: (1) the Senate bill has a more stringent emissions cap between 2017 and 2029; (2) the two bills allocate emissions allowances and auction revenue to different recipients at different levels; (3) the bills would treat offsets differently; (4) the House bill would establish extensive carbon market regulation (the Senate bill currently has a placeholder for this topic); (5) the House bill would establish a requirement that importers purchase special emission allowances for certain imports from countries without greenhouse gas controls (the Senate bill currently has a placeholder for this topic); and 6) both bills would limit the Environmental Protection Agency's authority to regulate greenhouse gases under the Clean Air Act, although in different ways. The Appendix contains a section-by-section comparison of the cap-and-trade provisions in the two bills.

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Background

On June 26, 2009, the House passed H.R. 2454, the American Clean Energy and Security Act of 2009.[1] In addition to establishing a cap-and-trade system to regulate greenhouse gas emissions, the bill addresses energy efficiency, renewable energy, and other energy topics. On September 30, 2009, Senator Kerry introduced S. 1733, the Clean Energy Jobs and American Power Act, which was referred to the Senate Committee on Environment and Public Works. The committee held hearings on the bill starting October 27, 2009, and markup of the bill began November 3. On November 5, the committee approved Senator Boxer's "Manager's Amendment"[2] as a substitute, and ordered S. 1733 reported.

Although there are significant differences in some portions of the House and Senate bills, both bills would require major reductions in greenhouse gas emissions from entities comprising roughly 85% of current U.S. greenhouse gas emissions. Covered sectors would include electricity production, natural gas distribution, petroleum refining, and industrial sectors. Both bills would also grant the Environmental Protection Agency (EPA) the authority to set greenhouse gas performance standards for some entities not covered by the cap-and-trade system. Through the cap-and-trade system and other programs, both bills aim to reduce U.S. greenhouse gas emissions to 83% below 2005 levels by 2050.

Key Differences Between the Cap-and-Trade Provisions of H.R. 2454 and S. 1733

There are many differences between the two bills, in both the establishment of their greenhouse gas reductions programs, and in other energy provisions (e.g., renewable energy, transportation). This report focuses on the major differences between the two bills' cap-and-trade systems, while the **Appendix** contains a side-by-side comparison of the cap-and-trade related sections of both bills.

There are six key differences between the two bills, which are discussed below:

- The Senate bill contains a more stringent (i.e., lower) emissions cap between 2017 and 2029;
- Although the two bills allocate allowances and auction revenues to many of the same recipients, the amounts of those allocations are in some cases larger or smaller;
- The bills' treatment of offsets differs significantly;

[1] For a more detailed discussion of H.R. 2454, see CRS Report R40643, *Greenhouse Gas Legislation: Summary and Analysis of H.R. 2454 as Passed by the House of Representatives*, coordinated by Mark Holt and Gene Whitney.

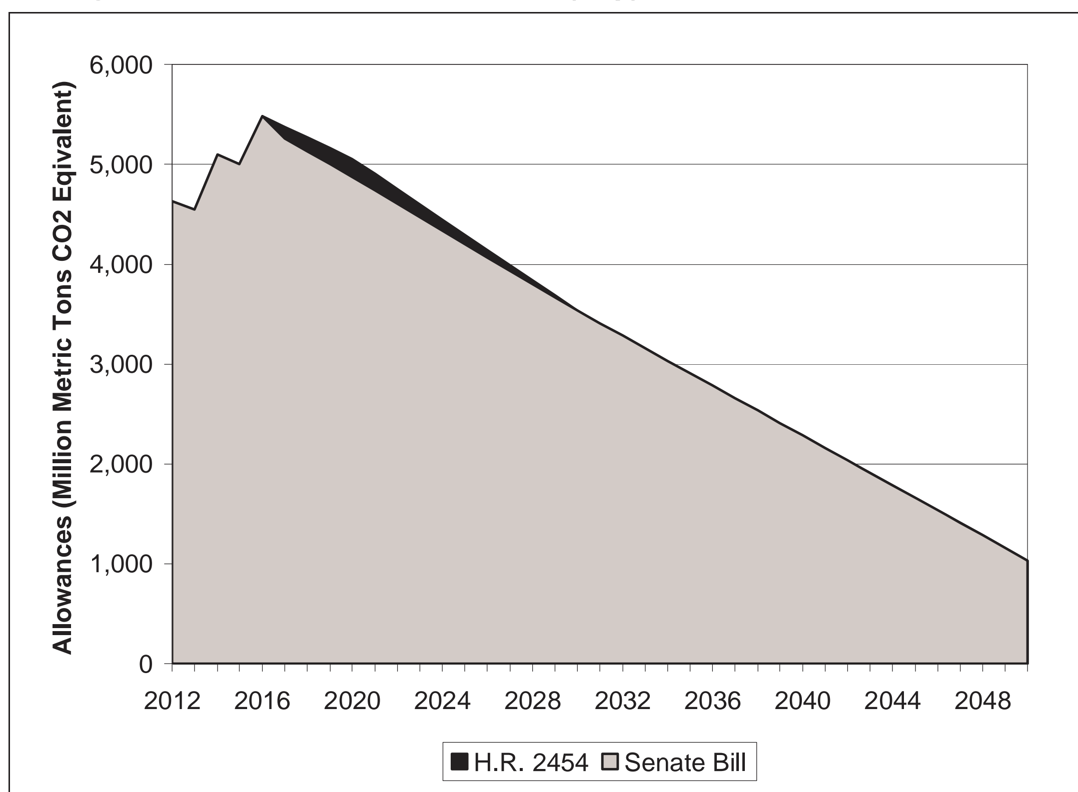
[2] For this report, S. 1733 refers to the bill as amended by the Manager's Amendment released by Senator Boxer on October 30, 2009, and available on the website of the Senate Committee on Environment and Public Works. http://epw.senate.gov/public/index.cfm?FuseAction=Files.View&FileStore_id=1d1bc826-beed-4eb3-933b-d7559bc61d4b.

- The House bill contains substantial provisions on regulating the carbon market. The Senate bill currently has a placeholder awaiting action by other Senate committees.
- The House bill contains provisions imposing a border measure (an international reserve allowance scheme) on countries with inadequate carbon reduction policies. The Senate bill currently has a placeholder awaiting action by other Senate committees.
- Both bills have provisions exempting various entities from certain provisions of the Clean Air Act with respect to greenhouse gas emissions. However, there are substantive differences with respect to some of those exemptions.

Emissions Cap

For most years, the two bills have identical emissions caps and cover the same sources. The key exception is that between 2017 and 2029, S. 1733 has a more stringent cap (i.e., a lower number of emissions allowances). Between 2017 and 2025, the Senate bill's cap is between 2% and 4% lower than the cap under H.R. 2454. From 2026 through 2029 that gap narrows, and from 2030 onward both bills have the same cap on emissions. That slight difference can be seen in **Figure 1**.

Figure 1. Total Emissions Allowances (Cap) Under H.R. 2454 and S. 1733



Source: CRS Analysis of the American Clean Energy and Security Act (H.R. 2454) as passed by the House and the Clean Energy Jobs and American Power Act as provided by the Senate Committee on Environment and Public Works on its website October 30, 2009. http://epw.senate.gov/public/index.cfm?FuseAction=Files.View&FileStore_id=1d1bc826-beed-4eb3-933b-d7559bc61d4b.

Allowance Allocation

An allowance under a cap-and-trade system is effectively a permit to emit—in the case of the two bills, a permit to emit one ton of carbon dioxide or its equivalent. These allowances represent significant value either in terms of a wealth transfer in the case of directly allocated allowances or government revenue in the case of auctioned allowances.

Both bills allocate allowances or auction revenue to support various purposes. Recipients of direct allocations include entities covered by the cap-and-trade program, such as petroleum refineries, and entities not covered by the program, such as states and electric and natural gas local distribution companies (LDCs). In the case of non-covered entities, those entities may only use the value generated from the sale of their allowances for specific purposes. For example, LDCs must use the value to mitigate the energy cost impacts of the cap-and-trade program on their customers (either through rebates or through investment in energy efficiency), while states must use the funds for energy efficiency, renewable energy, or other projects.

Over time, both bills reduce the share of allowances directly allocated in favor of auctions. Over the life of the Senate bill, a larger share of allowances is auctioned, as the Senate bill takes a portion of allowances off-the-top to be auctioned or directly allocated. The largest share of those off-the-top allowances is used for deficit reduction. In the early years of the program, 10% of

allowances are auctioned off-the-top for deficit reduction under S. 1733. In later years, that percentage increases to 25%.[3] In 2016 (the first year of full implementation of the program in both bills), H.R. 2454 would auction roughly 16% of allowances (see **Figure 2**), with most of those revenues directed at assisting low-income consumers, while the Senate bill would auction roughly 32%, with about one third of those directed to low-income consumers and one third directed at deficit reduction (see **Figure 3**). The remainder of auctioned allowances in both cases is directed at worker assistance, public health, adaptation programs, and other policy objectives. By 2030, roughly 65% of allowances are auctioned under H.R. 2454 (see **Figure 4**), while roughly 75% are auctioned under the Senate bill (**Figure 5**).

Under both bills, a portion of allowances is taken off the top for the use in a strategic reserve.[4] The aim of the strategic reserve is to provide an "emergency supply" of allowances in the event that allowance markets become highly volatile. These reserve allowances would be auctioned separately from the standard quarterly auctions for all other auctioned allowances. The allocations in the figures represent the share of allowances for each purpose after the strategic reserve allowances have been removed.

In addition to the larger share of allowances directed to deficit reduction under S. 1733, S. 1733 also allocates allowances/auction revenue for state programs to reduce greenhouse gas emissions from the transportation sector, for mid-sized refiners,[5] and for nuclear worker training.

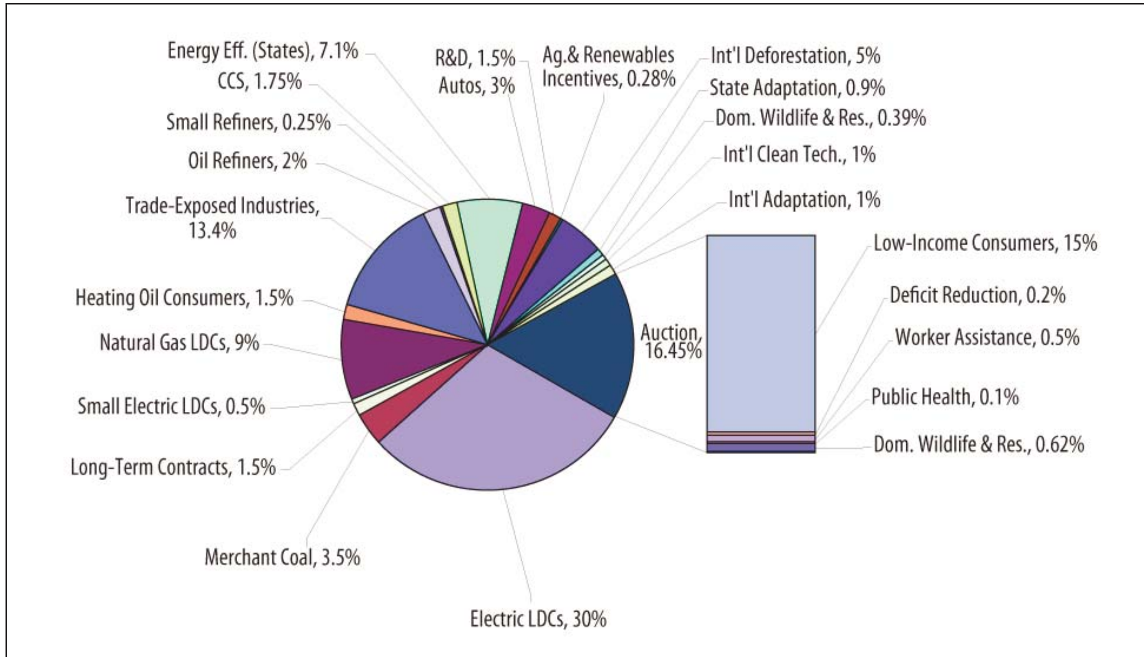
It should also be noted that under H.R. 2454, a large share of allowances (e.g., 17% of 2030 allowances) are auctioned several years ahead of time for deficit reduction or consumer rebates. The revenue from these auctions would be generated in the year the allowances were auctioned, but entities could not use the allowances to cover their emissions until the "vintage year" or thereafter. If, for example, a 2030 allowance were auctioned in 2025, that allowance could not be used to cover an entity's emissions until 2030 or later. Therefore, the market value of allowances in those early auctions would likely be lower than allowances auctioned for use in the current year. This provision would lead to a forward shift in auction revenue for that share of allowances, but the potential revenue may be difficult to predict. The Senate bill allocates some allowances to states early, but has no similar auctioning provision.

[3] An additional smaller share of allowances from the overall pool is also auctioned for deficit reduction in the Senate bill. Overall, roughly 10.3% of 2016 allowances are auctioned for deficit reduction in the Senate bill, as opposed to only about 0.2% in the House bill. In 2030, the Senate bill auctions about 23% of allowances for deficit reduction, while the deficit reduction allowances in the House have been phased out by 2030.

[4] The reserve is called a "strategic reserve" under the House bill, a "market stability reserve" under the Senate bill.

[5] Both the House bill and the Senate bill allocate allowances to all refiners, with an additional pool of allowances for small refiners, while only the Senate bill would also provide a specific allocation to mid-size refiners.

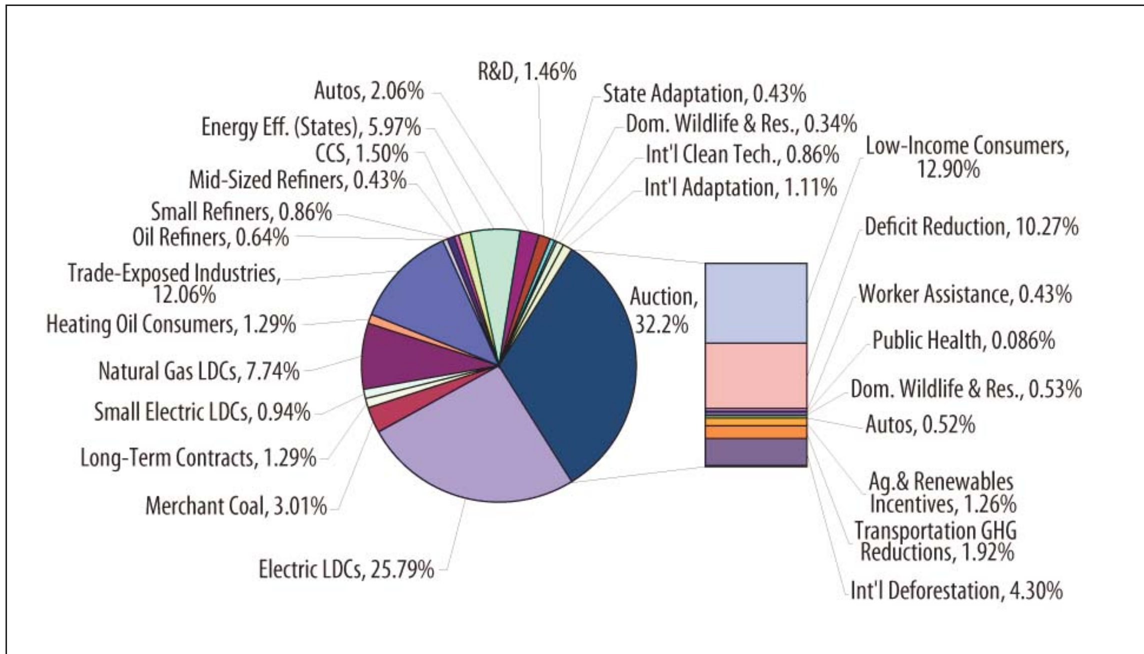
Figure 2. 2016 Allowance Allocation Under H.R. 2454



Source: CRS analysis of H.R. 2454 as passed by the House.

Notes: Percentages reflect the share of total allowances less those reserved for the Strategic Reserve.

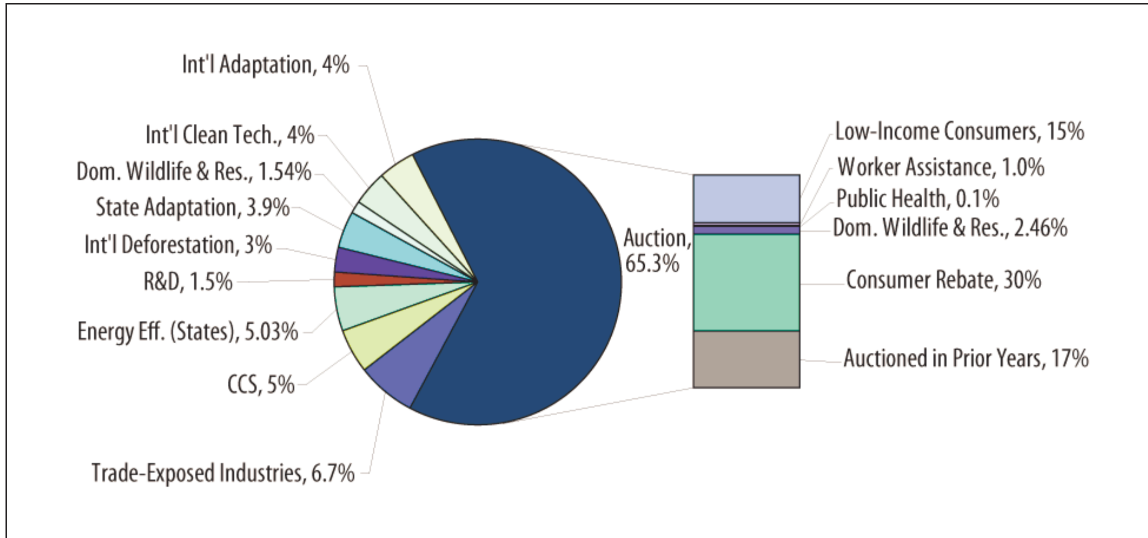
Figure 3. 2016 Allowance Allocation Under S. 1733



Source: CRS Analysis of the October 30 Manager's Amendment to S. 1733.

Notes: Percentages reflect the share of total allowances less those reserved for the Market Stability Reserve.

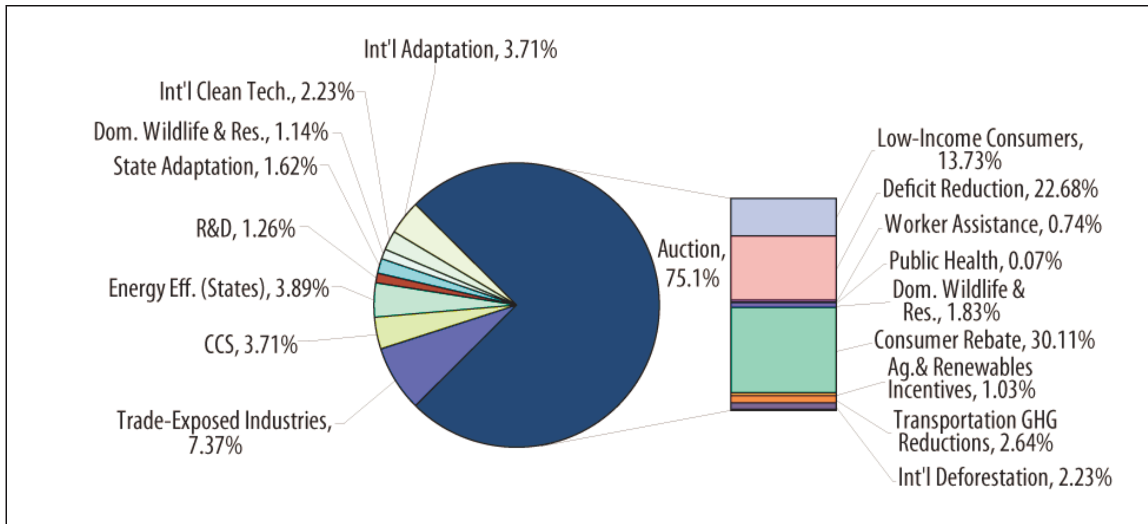
Figure 4. 2030 Allowance Allocation Under H.R. 2454



Source: CRS analysis of H.R. 2454 as passed by the House.

Notes: Percentages reflect the share of total allowances less those reserved for the Strategic Reserve.

Figure 5. 2030 Allowance Allocation Under S. 1733



Source: CRS Analysis of the October 30 Manager's Amendment to S. 1733.

Notes: Percentages reflect the share of total allowances less those reserved for the Market Stability Reserve.

Offset Treatment and Implementation

Both the House-passed legislation and the Senate bill would allow covered entities, in aggregate, to submit 2 billion tons of offsets each year. However, the two programs have different formulas for determining the annual percentage of offsets that each covered entity could use to meet its compliance obligation. The percentage in the House program is tied to the emissions cap and is known in advance: 27% in 2016, 36% in 2030, and 66% in 2050. In contrast, the percentage in the Senate bill is based on covered entities' actual emissions—which would depend on multiple factors, including banking and offset use/supply—and can only be determined using emission projections. Using EPA's estimates of covered entity emissions (results from the agency's H.R. 2454 analysis), the percentages would be 35% in 2016, 41% in 2030 and 48% in 2050.

The House and Senate programs would also differ in their allowable proportions of domestic and international offsets. In the House program, 50% of a covered entity's allowable offset submission could come from domestic projects, 50% from international sources (i.e., in 2016, 13.5% of a covered entity's allowance submission could be domestic offsets; another 13.5% could be international offsets). In the Senate, the ratio is 75% from domestic projects and 25% from international projects. Although both bills would provide conditional authority for EPA to increase (on an annual basis) the percentage of international offsets allowed, the annual volume of international offsets could not exceed 1.25 billion tons in the Senate bill, but could reach up to 1.5 billion tons in the House bill.

In addition, the House and Senate bills authorize different agencies to implement their respective offset programs. The Senate bill would delegate domestic program authority to the President and international program authority to EPA. The House bill would effectively create two offset programs: a domestic agriculture and forestry program would be implemented by the Department of Agriculture; other domestic projects and all international projects would be under the primary authority of the EPA.

Carbon Market Regulation

A major concern with respect to a cap-and-trade program is potential allowance market abuse and manipulation. The size of a U.S. carbon market could be in the hundreds of billions of dollars annually, and involve all of the financial instruments, particularly derivatives, that any other commodity market includes. To provide oversight of the newly created carbon allowance market, H.R. 2454 has detailed provisions for Federal Energy Regulatory Commission (FERC) oversight of the cash allowance market, and enhanced Commodity Futures Trading Commission (CFTC) oversight of allowance derivatives. With respect to the latter, the bill would remove energy commodities (including carbon allowances) from the category of "exempt commodity" and require that over-the-counter transactions be cleared through a clearing house (a standard feature of a futures exchange). In addition the CFTC is required to establish position limits, thus setting ceilings on the number of energy contracts that any person could hold.

The Senate bill currently has a placeholder awaiting action by other Senate committees.

Carbon Leakage and International Competitiveness

Many have expressed concern about U.S. greenhouse gas reduction legislation potentially resulting in firms choosing to shift investment and production from the United States to countries with less stringent carbon policies. The concern is both economic in terms of jobs being lost, and environmental in terms of net emission reduction benefits being compromised by the resulting increased greenhouse gas emissions in the less-regulated countries. This would happen, for example, if a GHG emitting industry moved from a country with an emissions cap to a country without a cap.

Two approaches to mitigating the potential impact of carbon leakage on the net greenhouse gas reductions have been proposed.[6] The first is the allocation of allowances at no cost to energy-intensive, trade-exposed industries; this is included in both bills.

The second is an international reserve allowance scheme that essentially imposes a shadow allowance requirement on importers of energy-intensive, trade-exposed products, creating a *de facto* tariff. Basically, the scheme would require importers of energy-intensive products from countries with insufficient carbon policies to submit a prescribed amount of "international reserve allowances," or IRAs, for their products to gain entry into the United States. Based on the greenhouse gas emissions generated in the production process, IRAs would be submitted on a per-unit basis for each category of covered goods from a covered country. Whether the international reserve allowance scheme would actually work is unclear. The daunting administrative, informational, and analytical resources necessary to implement such a program would create significant issues in any attempt to implement it. Likewise, it is not clear that the potentially severe World Trade Organization (WTO) implications of the provision have been fully exposed and accommodated.

This second approach is currently only included in the House bill. The Senate bill has a placeholder stating the Senate's intention to include such a provision. That inclusion is awaiting action by other Senate committees.

Relationship to Existing Clean Air Act Authorities

Although new legislation to address greenhouse gases is a leading priority of the President and many Members of Congress, the ability to limit these emissions already exists under Clean Air Act authorities that Congress has previously enacted – a point underlined by the Supreme Court in an April 2007 decision, *Massachusetts v. EPA*.[7] In response to the Supreme Court decision, EPA has begun the process of using this existing authority, issuing a proposed "endangerment finding" for greenhouse gases (GHGs) in April 2009, and proposing GHG regulations for new motor vehicles in the September 28, 2009, *Federal Register*.

There are five primary paths through which EPA could address greenhouse gases under the Clean Air Act: (1) to regulate GHGs as criteria air pollutants, (2) to regulate GHGs as hazardous air

[6] For a full discussion of carbon leakage, see CRS Report R40100, *"Carbon Leakage" and Trade: Issues and Approaches*, by Larry Parker and John Blodgett.

[7] For more information on stationary sources of greenhouse gases and the Clean Air Act, see CRS Report R40585, *Climate Change: Potential Regulation of Stationary Greenhouse Gas Sources Under the Clean Air Act*, by Larry Parker and James E. McCarthy.

pollutants, (3) to regulate GHGs as designated air pollutants, (4) to regulate under the international pollution provisions of Section 115, or (5) to regulate under the stratospheric ozone provisions of Title VI. In addition, any motor vehicle GHG standards resulting from pending regulatory action would lead EPA and state permitting authorities to require permits for stationary sources: language in the act triggers permitting under the Prevention of Significant Deterioration (PSD) program and Title V of the act whenever a pollutant is "subject to regulation" under any of the act's authorities.

Both bills contain provisions to limit EPA's authority to regulate greenhouse gas emissions as criteria air pollutants, hazardous air pollutants, or under the international pollution provisions of the Clean Air Act. However, with respect to exemptions from the permitting requirements of the PSD program and Title V, the bills differ in the extent of their exemptions. With respect to the PSD program, the H.R. 2454 provision would prevent new or modified stationary sources from coming under the Clean Air Act's New Source Review solely because they emit greenhouse gases. In contrast, the Senate bill's provision would simply raise the threshold for regulation under PSD from the current 100 or 250 short tons to 25,000 tons with respect to any greenhouse gas or combination of greenhouse gases. Likewise, with respect to Title V permitting, the H.R. 2454 provision would prevent any source (large or small) from having to obtain a state permit under Title V of the Clean Air Act solely because they emit greenhouse gases. In contrast, the exemption under the Senate bill is restricted to sources that emit under 25,000 tons of any greenhouse gas or combination of greenhouse gases.

Appendix. Comparison of the Cap-and-Trade Provisions in the American Clean Energy and Security Act (H.R. 2454) as Passed by the House and the Clean Energy Jobs and American Power Act (S. 1733), as Ordered Reported

H.R. 2454, as Passed by the House	S. 1733, as Ordered Reported	Comments
"Title VII—Global Warming Pollution Reduction Program"	**"Title VII—Global Warming Pollution Reduction and Investment Program"**	
"Part A—Global Warming Pollution Reduction Goals and Targets"	**"Part A—Global Warming Pollution Reduction Goals and Targets"**	
"Sec. 701. Findings and Purpose" Identifies threats posed by global warming. Highlights scientific studies that find links between manmade greenhouse gas (GHG) emissions and global warming. Determines that GHG emission control is vital to the mitigation of global warming and its impacts, some of which are listed. Finds that U.S. action is critical to engage other nations in international efforts. Names purpose as prevention, reduction, and mitigation of global warming and its impacts, to be accomplished by establishing an emissions trading market and advancing clean energy and efficiency technologies.	**"Sec. 701. Findings"** Basically identical provisions, except that the Senate bill does not contain any statements regarding purpose.	
"Sec. 702. Economy-Wide Reduction Goals" Lists GHG emission reduction goals as: in 2012, U.S. GHG emissions not to exceed 97% of 2005 GHG emissions in 2020, U.S. GHG emissions not to exceed 80% of 2005 GHG emissions in 2030, U.S. GHG emissions not to exceed 58% of 2005 GHG emissions; in 2050, U.S. GHG emissions not to exceed 17% of 2005 GHG emissions.	**"Sec. 702. Economywide Reduction Goals"** Basically identical provisions.	Under both bills, the 2012 goal is less stringent than targets (7% below 1990 levels by 2012) imposed by the Kyoto Protocol, which the United States did not ratify.

H.R. 2454, as Passed by the House	S. 1733, as Ordered Reported	Comments
"Sec. 703. Reduction Targets for Specified Sources" Clarifies that the emissions cap imposed by Sec. 721 would reduce GHG emissions from capped sources in relation to the economy-wide emission reduction goals in Sec. 702. However, the 2020 target for capped sources is 17% below 2005 levels, differing from the 2020 economy-wide goal of 20% below 2005 levels (in Sec. 702).	**"Sec. 703. Reduction Targets for Specified Sources"** Basically identical provisions, except that the 2020 target for capped sources is 20% below 2005 levels.	Neither bill would achieve its GHG emission reduction goals through the cap-and-trade program alone; the bills include complementary policies—international forestry efforts, performance standards, energy efficiency—that are intended to provide reductions in addition to those imposed by the GHG emissions cap.
"Sec. 704. Supplemental Pollution Reductions" Instructs EPA to allot emission allowances to support international deforestation reduction efforts. Between 2012 and 2025, EPA is to transfer (per Sec. 781) up to 5% of each year's emission allowances to nations that enter into and implement agreements (pursuant to Part E) relating to reduction of deforestation. The allotted percentage decreases to 3% between 2026 and 2030 and 2% between 2031 and 2050. The section's objective is to support emission reductions (through avoided deforestation) that are outside of and additional to those required by the U.S. emissions cap. For example, the 2020 goal is to achieve reductions of 720 million metric tons, roughly equivalent to 10% of U.S. emissions in 2005.	**"Sec. 704. Supplemental Pollution Reductions"** Basically identical provisions.	The bills' drafters are counting on emission reductions from this section to help meet the overall GHG emission reduction goals that the cap will not achieve by itself. International deforestation reduction activities are also part of the international offsets program. Deforestation reduction projects motivated by this section may limit to some degree the pool of international offset opportunities.
"Sec. 705. Review and Program Recommendations" Directs EPA to prepare periodic reports to Congress—starting in 2013 and every four years thereafter—that provide (1) the latest scientific information on various climate change issues, (2) an analysis of GHG emission monitoring and verification capabilities in the United States and abroad, and (3) an assessment of both U.S. and worldwide GHG emission reduction efforts. Instructs EPA to include recommendations relevant to the three categories listed above.	**"Sec. 705. Review and Program Recommendations"** Basically identical provisions. Also directs the Department of Energy to prepare a report on technology feasibility.	

H.R. 2454, as Passed by the House	S. 1733, as Ordered Reported	Comments
"Sec. 706. National Academy Review" Establishes process for scientific review to be conducted by the National Academy of Sciences (NAS). NAS is to prepare a report by July 1, 2014, and every four years thereafter. The report will include an analysis of (1) latest climate change science, (2) technological feasibility of GHG emission mitigation efforts, and (3) domestic and international efforts to mitigate climate change. (The first report will examine only the latest scientific information). This section provides considerable detail regarding what the NAS is to provide in its reports, including recommendations and identification of improvements.	**"Sec. 706. National Academy Review"** Basically identical provisions.	
"Sec. 707. Presidential Response and Recommendations" Directs federal agencies — by July 1, 2015, and every four years thereafter — to address shortfalls identified in the periodic EPA (Sec. 705) and/or NAS reports (Sec. 706). If either the EPA or NAS reports find that emission reduction targets (or atmospheric concentration or safe temperature thresholds) are not on schedule, the President is to submit a plan (by July 1, 2015) outlining additional domestic and international reduction efforts or legislative recommendations that would address these concerns.	**"Sec. 707. Presidential Response and Recommendations"** Basically identical provisions, except that the Senate bill requires the President to submit a plan only if the NAS report (and not the EPA report) finds the targets are not on schedule.	
No similar provision.	**"Sec. 708. Consultation with States"** Directs EPA to consult with the states participating in regional GHG emission reduction programs (e.g., Regional Greenhouse Gas Initiative) when EPA develops its implementing regulations.	

H.R. 2454, as Passed by the House	S. 1733, as Ordered Reported	Comments
"Part B—Designation and Registration of Greenhouse Gases"	**"Part B—Designation and Registration of Greenhouse Gases"**	
"Sec. 711. Designation of Greenhouse Gases" Designates the following gases as GHGs: (1) carbon dioxide, (2) methane, (3) nitrous oxide, (4) sulfur hexafluoride, (5) hydrofluorocarbons emitted as a byproduct, (6) perfluorocarbons, and (7) nitrogen trifluoride. Sets up process by which EPA can designate other GHGs. Allows for any person to petition EPA for other manmade gases to be added as GHGs. Directs EPA to consult with the Science Advisory Board before making determinations.	**"Sec. 711. Designation of Greenhouse Gases"** Basically identical provisions. Senate bill covers perfluorocarbons, "except as provided in Sec. 714."	It is unclear to which advisory board the bills refer.
"Sec. 712. Carbon Dioxide Equivalent Value of Greenhouse Gases" Lists the carbon dioxide equivalents of other GHGs. For example, one metric ton of methane equals 25 metric tons of carbon dioxide equivalent. Directs EPA to periodically review, not later than February 1, 2017, and every five years thereafter, the carbon dioxide equivalent values. Establishes process by which EPA can revise the values.	**"Sec. 712. Carbon Dioxide Equivalent Value of Greenhouse Gases"** Identical provisions.	
"Sec. 713. Greenhouse Gas Registry" Directs EPA , no later than six months after enactment, to establish a federal GHG emission registry. The registry will include data on (1) GHG emissions, (2) production/importation of fuels and products that lead to GHG emissions, and (3) electricity delivered to carbon-intensive industries. Reporting entities, including covered entities and other entities that EPA determines will help achieve overall goals of the new Title VII, must submit 2007-2010 data by March 31, 2011. For calendar year 2011 and each subsequent year, reporting entities will submit quarterly data. In creating the registry, EPA is to consider best practices from ongoing state and regional efforts. EPA is to disseminate the data to states and tribes and publish the data online as soon as practicable. *[Sec. 713(a)(2)(E) includes a reference to Sec. 764 that may be incorrect, likely citing a reference in the as-reported version of the bill.]*	**"Sec. 713. Greenhouse Gas Registry"** Basically identical provisions.	EPA issued a final rulemaking (signed September 22, 2009) that would require mandatory emission reporting from facilities that emit 25,000 metric tons or more per year of GHG emissions. The applicability of these regulations may be broader than Sec. 713 requirements, but EPA has authority to expand coverage under Sec. 713(a)(2)(C). Some stakeholders may worry that emission reporting requirements may lead to coverage under an emissions cap (assuming their industries are not already identified as covered), because if a source's emissions are amenable to reporting, some may make a case—for efficiency or equity reasons—for that source's inclusion under the "economy-wide" emissions cap.

H.R. 2454, as Passed by the House	S. 1733, as Ordered Reported	Comments
No similar provision.	**"Sec. 714. Perfluorocarbon Regulation and Other Nonhydrofluorocarbon Fluorinated Substance Production Regulation."** Directs EPA to determine (one year after enactment) whether fluorinated gases emitted during the production of nonhydrofluorocarbon fluorinated substances should be covered under the emissions cap with other GHGs or whether they should addressed through sec. 714(c). This section would establish a performance-based standard for gases emitted at covered entities.	
"Part C—Program Rules"	**"Part C—Program Rules"**	
"Sec. 721. Emission Allowances" Instructs EPA to establish a specific quantity of emission allowances (the cap), starting in 2012, based on the table provided in Sec. 721(e). Each allowance will have a unique identification number. From a legal standpoint, neither emission allowances, compensatory allowances, strategic reserve allowances, nor offset credits constitute a property right. EPA may adjust the annual caps once, if specified assumptions are subsequently found to be inaccurate, such as 2005 emission levels and percentage of emissions from covered sources. Directs EPA to promulgate regulations to establish a process of providing compensatory allowances for several activities, including the use of fossil fuels (e.g., asphalt or plastic manufacturing) that does not lead to emissions.	**"Sec. 721. Emission Allowances"** Similar to H.R. 2454, with two key differences: 1) Between 2017 and 2026, the cap is 2% to 4% lower (i.e., more stringent) in the Senate bill than in H.R. 2454, and remains somewhat lower until 2030, when the cap is equal for both bills; 2) the Senate bill only explicitly states that allowances are not property rights, and makes no statements about offsets or other instruments.	The actual emission results in any year may not be the same as the emissions limit for that year because of various flexibility mechanisms—banking, borrowing, offsets—designed into the cap-and-trade program.
"Sec. 722. Prohibition of Excess Emissions" Requires covered entities, starting April 1, 2013, and each year thereafter, to have one emission allowance for each ton of carbon dioxide equivalent of GHGs that were either, depending on the type of covered entity, (1) directly emitted by the entity in the previous year or (2) emitted downstream in the economy in relation to a covered entity's outputs (e.g., fossil fuels) that were produced or imported for sale or distribution in the previous year. EPA will retire the held allowances after the annual deadline has passed. Covered entities (defined in Sec. 700) include electricity generators, various fuel producers and importers, fluorinated gas producers and importers, geological sequestration sites, various industrial sources, and local distribution companies (LDCs) that deliver natural gas.	**"Sec. 722. Prohibition of Excess Emissions"** Many of this section's provisions are identical, with exceptions noted below: Senate bill would include "qualified R&D facilities" as covered entities; the House bill would not. Concerning the applicability of emissions from electricity generators and industrial fossil-fueled combustion devices, the House bill would exclude emissions from "petroleum coke or gas derived from petroleum coke"; the Senate bill would exclude emissions from "petroleum coke." Senate bill would phase-in small business refiners in 2015 (instead of 2014 under the House bill).	When the phase-in schedule concludes (in 2016), and all of the covered entities are subject to the cap, approximately 85% of the U.S. GHG emissions would be covered. Although these sections do not explicitly exclude specific emission sources, certain sources do not meet any of the definitions or thresholds. (In the House bill, Sec. 501(b) specifically excludes the agriculture and forestry sectors as "capped sectors" from requirements under this title. However, neither "agriculture and forestry sectors" nor "capped sector" appear in Title III.) These uncapped sources include: agricultural

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Compliance provisions are phased in by entity: most entities start compliance in 2012; industrial stationary sources begin compliance in 2014; natural gas LDCs begin compliance in 2016. Upon review, EPA may lower the emission threshold, which currently stands at 25,000 tons/year, to not less than 10,000 tons/year, after considering various factors, such as cost-effectiveness. **Offsets**: In 2016, approximately 27% of an entity's allowance obligation can be satisfied with offsets; this percentage increases to 36% by 2030 and 66% by 2050; if all entities maximized their use of offsets, the aggregate annual number of submitted offsets would total 2 billion tons. Half of an entity's offsets can come from domestic sources and half from international sources (e.g., 15% domestic and 15% international in 2012); EPA can increase the allowable percentage for international offsets (up to 1.5 billion), if the agency determines use of domestic offsets will not be maximized (at current emission allowance prices) in a particular year. Starting in 2018, international offsets are discounted: 1.25 offsets equals 1 emission allowance. Allows entities to use "term offset credits" in lieu of domestic offsets. Term offset credits expire at the end of its term (no more than five years) and must then be replaced with (1) emission allowances; (2) domestic offset credits; or (3) unexpired term offset credits. To use term offsets, a covered entity must provide financial assurance to EPA to demonstrate that the entity has the resources be in compliance when the term offset expires.	Senate bill includes additional clarification regarding the ownership and applicability of natural gas liquids, requiring EPA to develop regulations on this topic. Senate bill does not include provision in House version stating: "any amount less than 1 ton of carbon dioxide equivalent of emissions or attributable greenhouse gas emissions shall be treated as 1 ton of such carbon dioxide equivalent." While the House bill requires each covered entity to submit to EPA a certificate of representation designating a designated representative, the Senate bill requires only the selection of a designated representative. **Offset treatment differences**: although the Senate bill would allow covered entities to submit, in aggregate, 2 billion tons of offsets, the formula used for determining each covered entity's allowable percentage differs from H.R. 2454. Allowable percentages are tied to actual emissions from covered entities (which would depend upon factors such as offset use and banking). Based on EPA estimates of covered entity emissions (ADAGE results for H.R. 2454 analysis), approximately 35% of an entity's allowance obligation can be satisfied with offsets in 2016. Based on the same EPA model, the percentage increases to 41% in 2030 and 48% in 2050. Unlike the House bill ratio, only 25% of the offsets can come from international sources, the remaining 75% would be domestic. Analogous to the House bill, EPA would have the authority to increase the percentage of international offsets up to a certain threshold. Ultimately, the annual volume of international offsets can not exceed 1.25 billion tons in the Senate bill, whereas the maximum annual volume in the House bill would be 1.5 billion tons.	emissions, residential emissions, commercial buildings, and stationary sources that emit less than 25,000 tons/year. The Congressional Budget Office estimated that a total of 7,400 entities would be covered by H.R. 2454 (and, presumably, the Senate bill). According to recent EPA analysis, lowering the threshold to 10,000 tons/year would subject approximately 7,000 additional facilities to the cap, but would only cover an additional 0.6% of U.S. emissions (EPA, *Proposed Mandatory GHG Reporting Rule: Overview*, Powerpoint Presentation). Offsets are expected to play a critical role in terms of cost containment. For example, EPA found that if international offsets are excluded, the emission allowance price under H.R. 2454 would increase by 96%. Compared to other cap-and-trade programs and proposals, the offset percentage limitations are relatively generous, particularly for international offsets in the House bill. Many of the details regarding implementation—which offsets practices to include and their methodologies—have been delegated to EPA (Title III offsets) and USDA (Title V offsets, domestic agriculture and forestry practices) in the House bill and to the President in the Senate bill. For more discussion of offset issues, 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. Term offset credits address concerns regarding the permanence of particular offset practices, such as agriculture sequestration efforts. This mechanism is similar to the temporary certified emission reductions (tCER) that are allowed under the Kyoto Protocol for forestry and agriculture projects.

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"Sec. 723. Penalty for Noncompliance" Establishes penalties for noncompliance. A covered entity must pay a penalty to EPA for each allowance the entity should have held at the compliance deadline. The penalty amount equals the emissions generated in excess to the allowances held multiplied by twice the auction clearing price for the earliest vintage year of the most recently conducted auction. In addition, covered entities must submit, in the following calendar year or other time period determined by EPA, allowances to cover the excess emissions from the previous year. Includes noncompliance provisions for "term offset credits" and their related requirements (per Sec. 722).	**"Sec. 723. Penalty for Noncompliance"** Substantially similar to H.R. 2454, except that the excess emissions penalty is equal to twice the average "fair market value" for the year in question (as opposed to the auction clearing price). Fair market value is defined as the average daily closing price on registered exchanges.	
"Sec. 724. Trading" Ensures that emission trading will not be restricted. Allows for both covered and non-covered entities to hold allowances. Holders of allowances may ask the EPA to retire the allowance. Allowance transfers are not effective until EPA receives written certification in accordance with regulations required by Sec. 721.	**"Sec. 724. Trading"** Basically identical provision.	
"Sec. 725. Banking and Borrowing" Allows for unlimited banking of emission allowances, offset credits, term offset credits, and international allowances for compliance in future years. Allows entities to borrow (without interest) emission allowances from the calendar year (vintage) immediately following the compliance year. For example, vintage 2015 allowances can be used for compliance in 2014. In addition, covered entities may borrow at interest allowances (limited to 15% of their emissions) from up to five vintage years in the future.	**"Sec. 725. Banking and Borrowing"** Basically identical provision, except that the Senate bill refers to "credits" as opposed to "offset credits." The bill defines "offset credits" but does not define "credits."	By allowing covered entities to borrow allowances (without interest) from the next calendar year, the bills effectively create a rolling, two-year compliance period. Compared to previous cap-and-trade proposals, this is a new design element (although the Regional Greenhouse Gas Initiative—RGGI—program has a three-year compliance period). This feature may help alleviate some of the market volatility that would otherwise exist.

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"Sec. 726. Strategic Reserve" Directs EPA to create a "strategic reserve" of approximately 2.7 billion allowances by setting aside a small number of allowances from each vintage year. EPA will conduct quarterly auctions of allowances from the strategic reserve. Only covered entities may participate in the auctions. The auctions will have a reserve price, which in 2012 will be $28/allowance (in 2009 dollars) and increase annually (by 5% plus inflation) in 2013 and 2014. Subsequent year reserve prices will be 60% above the 36-month rolling average allowance price. Entities are limited in the number of allowances they may purchase at each auction. Unsold allowances replenish the reserve. EPA is to use the auction proceeds to purchase international (reduced deforestation) offsets (with a 1.25 discount rate) that will replenish the strategic reserve. Under certain conditions, international (reduced deforestation) offsets may be sold by EPA at the strategic reserve auction.	**"Sec. 726. Market Stability Reserve"** Similar to H.R. 2454, except for five key differences: 1) The total size of the reserve pool is roughly 30% larger (3.5 billion allowances) than in H.R. 2454 (between 2012 and 2019, the Senate bill reserves 2% of the allowances while H.R. 2454 reserves 1%, and between 2020 and 2029, the Senate bill reserves 3% while H.R. 2454 reserves 2%); 2) The 2012 reserve price is $28 in real 2005 dollars, as opposed to 2009 dollars; 3) For 2013 through 2017, the reserve price grows at 5% real annually, and 7% real annually from 2018 onward; 4) H.R. 2454 limits the size of the auction to 5% of the annual cap for 2012 through 2016, and 10% thereafter, while the Senate bill raises those limits to 15% and 25%, respectively; 5) Sec. 726(j) of the Senate bill establishes a "Market Stability Reserve Fund," while the similar "Strategic Reserve Fund" is established in Sec. 793(1) of H.R. 2454.	A strategic reserve (SR) auction is meant to provide some cost containment, particularly for emission allowance price spikes. The level of the reserve price will influence the nature of the strategic reserve auction. For example, a SR auction with a relatively high reserve price may be utilized by entities only during relatively extreme price spike conditions. A relatively lower reserve price may alter the character of the SR auctions, which are held regardless of market conditions. Some covered entities may choose to purchase strategic reserve allowances (at higher than current prices) and bank the allowances for future use, in expectation that the emission allowance price will rise over time.
"Sec. 727. Permits" Describes procedural requirements for sources that are also subject to Title V of the Clean Air Act. Requires an entity's designated representative to file a certificate of representation. Describes procedural process for situations involving multiple owners or leasing arrangements. Requires EPA to promulgate implementing regulations within two years of enactment.	**"Sec. 727. Permits"** Substantially similar to H.R. 2454, except that the section provides no deadline for EPA to promulgate regulations implementing the section.	
"Sec. 728. International Emission Allowances" Lists process by which EPA can designate an international climate change program as "qualifying." Only international allowances from "qualifying" programs can be used by covered entities for compliance purposes. Requires covered entities to certify that international allowances used for U.S. compliance have not been used for compliance with other programs. Allows EPA to issue a rulemaking that limits the amount of international allowances a covered entity may use for compliance purposes.	**"Sec. 728. International Emission Allowances"** Basically identical provision.	International allowances should not be confused with international offsets. Allows for linkage between other cap-and-trade programs, such as the European Union's Emission Trading Scheme (EU ETS). See CRS Report RL34150, *Climate Change and the EU Emissions Trading Scheme (ETS): Kyoto and Beyond*, by Larry Parker.

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"Part D—Offsets"	**"Part D—Offsets"**	
"Sec. 731. Offsets Integrity Advisory Board" Instructs EPA to create an independent Offsets Integrity Advisory Board, which will make recommendations that include (1) which offset types should be eligible for compliance purposes, and (2) methodologies for evaluating offset projects. The Board shall by 2017, and every five years thereafter, provide an analysis to EPA of the offset program and make recommendations regarding the offset program.	**"Sec. 731. Offsets Integrity Advisory Board"** Substantially similar provisions, with differences noted below. The Board would make recommendations to the President, not EPA. Senate bill's list of Board's recommendations would include information regarding whether certain project types are required by law and/or the extent to which they are common practices. In several instances, the House bill instructs the Board to conduct activities relating to "Part E," which concerns reduced deforestation efforts. The Senate bill does not contain similar references, although the bill does have an analogous "Part E."	The creation of an offsets board is a new development compared to previous cap-and-trade proposals. Regardless of the board's input, EPA (or the President in the Senate bill) has ultimate authority in determining eligible offset types and protocols.
"Sec. 732. Establishment of Offsets Program" Directs EPA, not later than two years after enactment, to promulgate regulations that establish a program for issuing offsets for compliance purposes. EPA is to consult with other federal agencies and consider the Advisory Board's (Sec. 731) recommendations. EPA must ensure that offsets are verifiable and additional, that sequestration projects are permanent, and that offsets avoid or minimize negative effects. EPA must set up an offset registry. The agency may collect fees from offset project representatives to cover administrative costs.	**"Sec. 732. Establishment of Offsets Program"** Substantially similar provisions: differences noted below. Senate bill delegates program to the President instead of EPA. Senate bill includes instruction to President to establish a process to accept and respond to comments from third parties regarding offset program. Both bills allow for the collection of fees from offset project developers. House bill refers to the administrative costs of EPA; the Senate bill refers to the administrative costs of EPA and the Department of Justice. This is noteworthy, considering that the Senate proposal delegates the offset program to the President, not EPA.	Although the bills identify key principles that EPA (or the President in the Senate bill) must address, the details are to be developed through a regulatory process. Some stakeholders argue that Congress should be more explicit in legislation regarding offset implementation. Others contend that the lack of prescriptive details provides more flexibility to the agency and the offsets board.

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"Sec. 733. Eligible Project Types" Directs EPA (through the regulatory process) to develop a list of eligible offset project types, which can be revised at a later time. EPA must consider (and give priority to) the Advisory Board recommendations. Persons may petition EPA to add or remove offset project types from the list of eligibility.	**"Sec. 733. Eligible Project Types"** Many similar provisions: differences noted below. Senate bill directs the President, instead of EPA, to develop list of eligible project types. Provides a list of specific project types that the President is to consider when developing the ultimate list of eligible projects. The to-be-considered list includes multiple agricultural and forestry-related activities, as well as methane abatement at landfills and underground coal mines. The Senate bill provides additional authority to the President to add offset projects to the list within two years of enactment (without going through a rulemaking process).	Whether or not to include a list of specific project types and the requirements associated with such a list (e.g., a mandatory list versus a to-be-considered list) has been a subject of some debate. For instance, stakeholders in the agricultural sector have raised particular concern regarding the omission of specific project types in the legislation. Compared to the list of potential projects in Title V of the House bill (the offset program implemented by the Department of Agriculture), the Senate bill's list is similar and contains a few additional potential project types.
"Sec. 734. Requirements for Offset Projects" Instructs EPA to include certain provisions in its regulations, including project-specific standards that address additionality, baseline calculations, measurement, leakage, and uncertainty. EPA is to develop a process that accounts for offset "reversals," including mechanisms such as an offsets reserve and/or insurance. "An offsets reserve ... is a program under which, before issuance of offset credits under this part, the Administrator shall subtract and reserve from the quantity to be issued a quantity of offset credits based on the risk of reversal." EPA will specify the crediting period for each offset type. The periods must fall between 5 and 10 years, except for sequestration projects.	**"Sec. 734. Requirements for Offset Projects"** Many similar provisions: differences noted below. Senate bill directs the President, instead of EPA, to implement this section. Senate bill has an extra provision relating to additionality determinations. Senate bill requires a further provision in the regulations that would address reversals: to discourage intentional reversals the President may assess fees or disqualify project developers from the offset program. Senate bill allows any person to submit petition showing that a reversal has occurred at an offset project. Senate bill includes different reversal provisions for "term offset credits." These provisions are similar to the "term offset" provisions in Title V (the USDA offset program) of the House bill. Senate bill specifically limits the crediting period for forestry projects to 20 years. Senate bill requires a public notice and comment opportunity before a petition for a new crediting period is to be granted.	These provisions provide both flexibility and some prescription. For example, the bills set some parameters for crediting periods (some stakeholders may seek longer periods), with specific timeframes to be determined through a regulatory process. The offsets reserve provisions are a new concept compared to previous cap-and-trade proposals. However, EPA (or the President in the Senate bill) is provided the authority to address reversals—projects for which an offset credit was granted, but later lead to emissions, "reversing" the offset—with this approach or another mechanism.

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"Sec. 735. Approval of Offset Projects" Describes the process by which an offset project representative seeks approval for a particular offset project. The representative must submit to EPA a petition that includes the information specified in EPA's forthcoming rulemaking. EPA must respond in writing to the petition within 90 days. Both the petition and EPA's response are to be made publicly available. Procedures for an appeal process are to be established by EPA. In addition, EPA is to establish a voluntary pre-approval review process as an option for project developers.	**"Sec. 735. Approval of Offset Projects"** Many similar provisions: differences noted below. Senate bill directs the President, instead of EPA, to implement this section. Senate bill requires the offset project developer to sign the petition and certify its accuracy. Petitions submitted per the Senate bill must also include "designation of a party who is authorized to provide access to the appropriate officials or an authorized representative to the offset project." Senate bill requires petition responses to be made publicly available on the internet.	In general, there are two approaches to issuing offsets in a cap-and-trade system: a project-by-project assessment and a standards scheme. These bills take elements from both strategies. Although EPA (or the President) would establish methodologies for eligible projects, each project must be submitted to, and approved by, EPA/the President. Some question whether the government would be able to process offset petitions in a timely manner. On the other hand, some argue that this level of oversight is important to ensure the integrity of offset projects.
"Sec. 736. Verification of Offset Projects" Requires offset project representatives to provide EPA with verification from an EPA-accredited third-party. EPA is to create a process to accredit third-parties for this function. Required information (e.g., tons reduced/avoided/sequestered, methodologies used) in the verification and the schedule for its submittal will be determined by EPA.	**"Sec. 736. Verification of Offset Projects"** Provisions basically identical: differences noted below. Senate bill directs the President, instead of EPA, to implement this section. Senate bill requires regulations concerning third-party verifiers to include provisions for revoking a party's accreditation.	Many consider third-party verification to be a necessary element in an offsets program. However, some question whether this requirement will create a bottleneck for issuing offsets, particularly if the supply of accredited third-parties is limited (especially in the early years).
"Sec. 737. Issuance of Offset Credits" Directs EPA to make offset issuance determinations no later than 90 days after receipt of the third-party verification reports. EPA may issue offset credits only for approved projects (Sec. 735) and only for reductions, avoidance, or sequestration that have already occurred (i.e., no forward crediting) during the project's crediting period. EPA will assign a unique serial number to each offset credit.	**"Sec. 737. Issuance of Offset Credits"** Provisions basically identical: differences noted below. Senate bill directs the President, instead of EPA, to implement this section. Senate bill requires verification reports be made publicly available on the internet.	Some sequestration offset projects may provide offsets for decades, but both bills would prevent project developers from receiving credit for sequestration that will occur in the future. A tracking system with serial numbers is used to avoid situations of double-counting.
"Sec. 738. Audits" Authorizes EPA to conduct random audits of offset projects, credits, and practices of third-party verifiers. EPA is required to annually audit, at minimum, a representative sample of project types and geographic areas. EPA may delegate this duty to a state or tribal government.	**"Sec. 738. Audits"** Provisions basically identical: differences noted below. Senate bill directs the President, instead of EPA, to implement this section. Senate bill includes specific provisions that should be regulations concerning audit procedures.	

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"Sec. 739. Program Review and Revision" Requires EPA to review various components — methodologies, reversal policies, accountability measures — of its offset program at least once every five years.	**"Sec. 739. Program Review and Revision"** Provisions basically identical. The only difference is that the Senate bill directs the President, instead of EPA, to implement this section.	
"Sec. 740. Early Offset Supply" Directs EPA to issue offset credits, if specific conditions are met, for offsets issued under other regulatory or voluntary offset programs. The following are highlights of some of the conditions: An offset project must have started after January 1, 2001. EPA can only issue offset credits for reduction/avoidance/ sequestration tons that occur after January 1, 2009, and only for a limited period of time (three years after enactment or effective date of regulation, whichever is sooner). The other-program offsets must have been issued under a program that was established by state (or tribal) law or regulation, or a program specifically approved by EPA. The offset standards must have been developed through a public consultation process. All projects must have been or will be verified by a state regulatory agency or accredited third-party. Offsets are ineligible if used for compliance with a state law.	**"Sec. 740. Early Offset Supply"** Provisions basically identical: differences noted below. Senate bill requires public notice and opportunity for comment before issuance of offsets.	Allowing offsets to be generated from pre-existing state or voluntary programs would increase the available supply, which may be an issue in the early years of the program. Thus, the purpose of these sections is largely one of transition, providing opportunity for the offset pool to increase (under existing programs), while EPA/President develops offset regulations. Some may be concerned that offsets created under other systems are developed with less stringent standards, thus imposing some uncertainty about their legitimacy. As with the offsets program in general, this section would delegate the decision to EPA/President regarding whether other programs, such as the Chicago Climate Exchange, could contribute offsets during the transition period and beyond.
"Sec. 741. Environmental Considerations" Instructs EPA, if it lists forestry or other relevant land management-related projects as eligible offset types, to develop regulations that address concerns particular to these offset types. The list of concerns includes biodiversity, invasive species, and non-native species.	**"Sec. 741. Environmental Considerations"** Provisions basically identical: select differences noted below. Senate bill includes two additional provisions in regulations: (1) ensure that project land was not converted (within specified timeframe) from a native ecosystem to generate offsets; and (2) ensure offsets satisfy U.S. commitments in international agreements.	This section supplements the requirement in Sec. 732(c) of both bills.

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"Sec. 742. Trading" States that Sec. 724 shall apply to offsets.	**"Sec. 742. Trading"** Identical provision.	This would allow any party to hold and trade offset credits.
No similar provision.	**"Sec. 743. Office of Offsets Integrity"** Establishes within the Department of Justice an Offsets Integrity Unit, which would be headed by a Special Counsel (appointed by the President per the advice and consent of the Senate). Responsibilities include: conducting investigations and civil enforcement efforts regarding the offsets program; ensuring that federal law is used to the fullest extent authorized to enforce the offsets program; and making sure that adequate resources are made available for investigations and enforcement activities.	This type of provision was not found in previous cap-and-trade proposals. A primary concern with offsets is whether or not they represent real emission reductions. The objective of this section is likely to provide an additional layer of offset oversight and strengthen the credibility of the program.
"Sec. 743. International Offset Credits" Authorizes EPA to issue (in consultation with Department of State) international offset credits. EPA may only issue international offset credits if (1) the United States is a party to a bilateral or multilateral agreement that includes the nation hosting the offset project; and (2) the host nation is a "developing country" (defined in Sec. 700). EPA may issue international offset credits from four possible source categories: (1) project types on the list created per Section 733; (2) offset credits generated on a sectoral basis in developing nations; (3) offset credits that originate from international bodies established by the United Nations Framework Convention on Climate Change (UNFCCC), a UNFCCC protocol, or a treaty that succeeds the UNFCCC; (4) offset credits for projects that reduce deforestation. Regarding deforestation projects, the United States must be a party to a bilateral or multilateral agreement that includes the nation hosting the offset project. A national deforestation baseline must be established in accordance with an appropriate agreement (details for developing baselines are provided). Credits can only be issued after deforestation reduction has been demonstrated using "ground-based inventories, remote sensing technology, and other methodologies" to ensure carbon stocks are measured. EPA must make country-specific adjustments, such as discounting. EPA, working with Department of State, is to prepare (within two years of enactment) a list of developing nations that are eligible, based on the nation's ability to monitor/measure carbon fluxes from	**"Sec. 744. International Offset Credits"** Many similar provisions (EPA is the lead agency for international offsets): select differences noted below. Senate bill provides that the offset project developer be "eligible to receive service of process in the United States for the purpose of all civil and regulatory actions in Federal courts.... " Senate bill allows offsets from source categories 2,3, and 4 (listed in left-hand column), but omits the authority for EPA to issue international offsets from project types on the list created by Sec. 733. However, Senate bill includes a provision authorizing EPA to allow additional offset types, if (1) the emission allowance auction price reaches a certain level for two consecutive years and (2) EPA determines that covered entities have not exceeded the quantity limit for international offsets. The additional offset types must satisfy further conditions. Senate bill contains additional provisions regarding the development of sectoral offset credits. House bill would not allow category 3 offsets (e.g., from the CDM) if the offsets came from a country and sector identified by EPA in its sectoral offsets program; the Senate bill would allow such offsets, if they satisfied the provisions of the sectoral offsets program. Senate bill has additional provisions (e.g., transparency, oversight, and information dissemination) regarding	Regarding the first offset category (not provided in the Senate bill unless a price trigger is met), the details—including eligible project types—are largely delegated to EPA to determine through regulation. The second method is a novel approach for cap-and-trade proposals, likely stemming from the 2008 international negotiations in Bali. It is unclear how U.S. parties would participate through this method (and the Copenhagen discussions may influence this concept). The third method, allowing EPA to issue offsets originating from a UNFCCC protocol (e.g., the Kyoto Protocol), suggests that Clean Development Mechanism (CDM) offsets would be available for compliance purposes. Although offsets generated through the CDM undergo a relatively rigorous evaluation, the CDM has received criticism on several fronts (see GAO, Lessons Learned from the European Union's Emissions Trading Scheme and the Kyoto Protocol's Clean Development Mechanism, 2008), but this may be partially due to its high profile. The fourth method provides the most

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deforestation and its institutional capacities and governance. EPA may issue offsets for state- or province-level activities, but this option is phased-out after 5 years. In certain countries, EPA may issue offsets for program or project-level activities. This mechanism is phased-out after 5 years (with the possibility of an 8 year extension). EPA is to consult with USDA regarding the implementation of international offset credits for projects that reduce deforestation.	development of offsets from avoided deforestation. National baseline is to include a "spatially explicit land use plan." Senate bill does not set a 2-year schedule for developing a list of eligible nations, and the list provisions are more comprehensive (e.g., more leakage monitoring). Includes 8 year phase-out timeline for program or project-level activities (with 5-year extension). No provision regarding USDA consultation.	prescriptive details in the legislative text. Although this offset category offers enormous potential, implementation of this offset category would likely pose substantial challenges.
"Part E — Supplemental Emissions Reductions from Reduced Deforestation"	**Sec. 322. Emission Reduction from Reduced Deforestation** **"Part E — Supplemental Emissions Reductions from Reduced Deforestation"**	
"Sec. 751. Definitions" Includes definitions of five terms relevant to Part E.	**"Sec. 751. Definitions"** Senate bill provides definitions not found in the House bill, including "deforestation," and "degradation." Senate bill omits definitions for "national deforestation reduction activities" and "'subnational deforestation reduction activities."	
"Sec. 752. Findings" States that (1) deforestation amounts to approximately 20% of global GHG emissions, (2) reducing deforestation is cost-effective compared to other GHG emission mitigation efforts, and (3) reducing deforestation yields secondary benefits, such as biodiversity.	No similar provision.	
No similar provision.	**"Section 752. Purposes"** States that the purposes of this section are for the United States to assist developing countries in establishing policies that would reduce deforestation or conserve or restore forest ecosystems, while taking local, vulnerable, and forest-dependent communities into consideration.	
"Sec. 753. Supplemental Emissions Reductions Through Reduced Deforestation" Directs EPA , in consultation with the Departments of State and Agriculture, to promulgate regulations that create a program to allot emission allowances for supporting reduced deforestation efforts. Identifies objectives as (1) achieving 720 million tons of reductions in 2020 and a cumulative emission reduction of 6 billion tons by 2025, (2) building institutional capacities in developing nations, and (3) preserving intact, native forests.	**"Sec. 753. Emission Reductions from Reduced Deforestation"** Provisions largely similar: select differences noted below. Directs the Administrator of the United States Agency for International Development (USAID), in consultation with EPA, USDA, and other relevant agencies, to implement the program.	The bills' drafters are counting the supplemental reductions projected from avoided deforestation efforts toward their overall emission reduction goals, particularly in the first 10-15 years.

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"Sec. 754. Requirements for International Deforestation Reduction Program" Authorizes EPA to support efforts only in developing nations whose forest carbon stock presents a deforestation risk and have entered a bilateral or multilateral agreement with the United States. EPA may support projects directly or distribute allowances to established international funds. EPA (in consultation with the Administrator of USAID) must promulgate regulations to ensure emission reductions from reduced deforestation are additional, measureable, verifiable, permanent, monitored, and account for leakage and uncertainty. National baselines for deforestation must be established. EPA must develop a publicly available registry of the supplemental emission reductions. Clarifies that activities supported under this part would not be eligible as offsets.	Senate bill does not contain a similar section, but the clarification statement regarding offsets is found in Sec. 753 of the Senate bill.	
"Sec. 755. Reports and Reviews" Directs EPA to submit, by January 1, 2014, a report that lists the quantity of emission reductions under the program, a breakdown of allowances provided, and the activities supported by the supplemental reduction program. EPA is to conduct a review of the supplemental emission reduction program four years after enactment and every five years thereafter. The review will include an assessment of emission reductions achieved per participating nation and an examination of related factors, such as governance, biodiversity, and leakage.	No similar provision.	
"Sec. 756. Legal Effect of Part E" States that Part E does not supersede, limit, or affect restrictions imposed by federal law on any interaction between an entity in the United States and an entity in another country.	No similar provision.	

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Sec. 312. Definitions Amends Title VII of the Clean Air Act (created by this legislation) by adding a definitions section before Part A.	**Sec. 102. Definitions** Identical provision.	
"Sec. 700. Definitions" Provides definitions for terms relevant to Title VII.	**"Sec. 700. Definitions"** For the most part, definitions are identical: select differences noted below. In definition of covered entities, Senate bill includes "beneficiation or other processing (including agglomeration) of metal ores" within the list of potentially covered industrial sectors (sec. 700(13)(H)). Unlike the House bill, the Senate definition of "emission allowance" does not include a reference to emission allowances established through the auctioning of international offset credits. However, this may be an oversight, because Sec. 726(h)(1)(A) of the Senate bill, which concerns auctioning international offset credits, would also establish emission allowances. Defines "high conservation priority land," a phrase relevant to the Senate bill's "renewable biomass" definition, which is different from the definition in the House bill. Within the definition of "natural gas liquid," the Senate bill adds the phrase "ready for commercial sale or use" after the list of natural gases. Defines "qualified R&D facility," as being part of a covered entity. Defines "research and development." Defines "repeated intentional reversals" as least 3 intentional reversals. Includes definition of "small business refiner."	Among other terms, in both bills this section defines covered entity, the applicability of which determines whether an emission source is subject to the cap. Some have voiced concern that the covered entity definition does not specifically exclude certain emission sources, particularly agriculture. (Sec. 501(b) of Title V—in the House bill only—does specifically exclude the agriculture and forestry sectors from the definition of "capped sectors" under the cap and trade program. However, the phrase "capped sector" does not appear in Title III.) In both bills, the three categories of stationary sources within the covered entity definition identify specific industrial sectors that are subject, if they meet or exceed the 25,000 ton annual threshold. The definition does not include a provision for EPA to add additional sources, but (per Sec. 722(g) of both bills) EPA may lower the threshold to 10,000 tons in 2020, based on certain conditions.
No similar provision.	**Sec. 103. Offset Reporting Requirements** Establishes a recordkeeping requirement (within Section 114 of the Clean Air Act). Offset project developers (and potentially third-party verifiers, per EPA discretion) would need to keep relevant records for a period not less than a project's crediting period plus 5 years.	Although the Senate bill's offset program delegates implementation to the President, this section delegates some authority to EPA.

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No similar provision.	**Sec. 127. Forestry Sector Greenhouse Gas Accounting** Directs EPA (in consultation with Departments of Agriculture and Interior) to provide an annual accounting of sequestration and GHG emissions from forests and forest products. The accounting would cover federal, other public, tribal, and private land over 5,000 acres ("on which forestry is regularly practiced.") Accounting must come from existing sources information gathering; EPA is not authorized to require new data generation from forest landowners.	
"Part H—Disposition of Allowances"	**"Part H—Disposition of Allowances"**	
Sec. 321. Disposition of Allowances for Global Warming Pollution Reduction Program Adds Part H to the new Title VII of the Clean Air Act.	**Sec. 111. Disposition of Allowances for Global Warming Pollution Reduction Program** Adds Part H to the new Title VII of the Clean Air Act.	
"Sec. 781. Allocation of Allowances for Supplemental Reductions" Instructs EPA to allot particular percentages of emission allowances to support supplemental reduction efforts, i.e., including the avoided deforestation projects described in Part E. For vintage years 2012 through 2025 the program receives 5% of each year's allotment; for 2026 through 2030, 3%; for 2031 through 2050, 2%. Directs EPA to modify these percentages as necessary to meet the 2020 reduction objective (720 million metric tons of reductions in 2020, which is equivalent to 10% of U.S. emissions in 2005) and the cumulative 2025 objective (achieve total reduction of 6 billion tons). Unused allowances are to be distributed for other purposes (e.g., deficit reduction, consumer rebate, or low-income assistance) per Section 782(s). In the subsequent year, the allotment for supplemental reduction will increase by the unused quantity from the preceding year, with a corresponding decrease in allotment for the other purposes (listed above) for that year.	Allowance allocation for all purposes contained in Sec. 771 of the Senate bill (see next section). The percentage allocations are identical for both bills, but the Senate bill takes a larger share of allowances off the top for deficit reduction and other purposes, effectively reducing the allowances allocated to international forestry projects relative to H.R. 2454. There is no provision for EPA to modify this allocation.	

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"Sec. 782. Allocation of Emission Allowances" Directs the EPA Administrator to distribute emission allowance value (which can include auction revenue or no-cost allowances) to a range of parties, both covered and non-covered entities, to support a range of policy objectives. The distribution changes over time. In 2016, allowance value is allotted in the following manner (in some cases, the percentages are estimates): 30% (at minimum) to electricity local distribution companies (LDCs); 0.5% for small electric LDCs; 9% to natural gas local distribution companies; 1.5% to states for home-heating oil consumers; 15% directly to low-income consumers; 13.4% to energy-intensive, trade-exposed industries; up to 3.5% to merchant coal units; 2% to petroleum refineries plus 0.25% for small business refineries; up to 1.5% for certain long-term power contract operators; 7.1% to states to support renewable energy and energy efficiency efforts; 6% to promote technological advances; 0.2% for deficit reduction; and roughly 10% to further other objectives. In 2030, allotments are as follows: 30% for consumer rebate; 15% for low-income consumers; 6.7% for trade-exposed industries; 6.5% for technology; 5% energy efficiency; 8% for adaptation; 12% for other objectives; and 17% of the 2030 allowances were sold in prior years to support consumer rebate or deficit reduction. If allowances that are conditionally allotted for various objectives (e.g., avoided deforestation efforts or carbon capture and storage activities) are not distributed in a given year, EPA may redistribute the allowances for deficit reduction, consumer	**"Sec. 771. Allocation of Emission Allowances"** Directs the EPA Administrator to distribute allowances directly and through auctions. The introduced version of S. 1733 generally did not define the number or percentage of allowances allocated to various purposes, but the current Senate bill provides a detailed allocation scheme. The bill generally allocates allowances three ways: 1) off-the-top allocations for various purposes (most notably deficit reduction); 2) direct allocation of allowances to various entities; and 3) auction of allowances with the proceeds directed to various purposes. In 2016, allowance value is allotted in the following manner (in some cases, the percentages are estimates): 25.8% (at minimum) to electricity local distribution companies (LDCs); 0.94% for small electric LDCs; 7.7% to natural gas local distribution companies; 1.3% to states for home-heating oil consumers; 12.9% directly to low-income consumers; 12.1% to energy-intensive, trade-exposed industries; up to 3.0% to merchant coal units; 0.64% to petroleum refineries plus 0.86% for small business refineries and 0.43% for medium refineries; up to 1.3% for certain long-term power contract operators; 5.97% to states to support renewable energy and energy efficiency efforts; 5.6% to promote technological advances; 1.92% for greenhouse gas reductions in the transportation sector; 10.3% for deficit reduction; and roughly 8% to further other objectives. In 2030, allotments are as follows: 30.1% for consumer rebate; 13.7% for low-income consumers; 7.4% for trade-exposed industries; 5% for technology; 4% energy efficiency;	Under H.R. 2454, In 2016, 16.5% of the allowances are sold through an auction; in 2030, 65.3% are auctioned. Under the Senate bill, those numbers are 32.2% and 75.1% in 2016 and 2030, respectively. The most significant difference is that throughout the program the Senate bill would auction a much larger share of allowances for deficit reduction (10% in 2012 through 2029, 22% in 2030 thorough 2039, and 25% thereafter). This off-the-top allocation reduces the share of allowances available for other purposes. Another key difference between the two bills is H.R. 2454's use of carry-forward allocations. This provision directs EPA to sell a portion of future vintage-year allowances at earlier dates. For example, a percentage of vintage-2026 allowances are sold in 2015. Although covered entities can only use the 2026 allowances for compliance in 2026 or later, the government would collect the value of 2026 allowance (as auction revenue) in 2015, and apply that value in 2015. While this creates additional funds early in the program, which are applied to deficit reduction and then to consumer rebates (in 2021), it depletes the number of allowances (and potentially the total allowance value) available for distribution in later years. The outcome of this provision may have unforeseen effects. The Senate bill does not contain this provision.

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rebate, low-income assistance, or a combination thereof. In 2012, the bill allots 1% for (documented) emission reduction efforts that occurred before 2009.	8.4% for adaptation; 2.6% for reductions in transportation emissions; 22.7% for deficit reduction; and 6% for other objectives. If allowances that are conditionally allotted for various objectives (e.g., avoided deforestation efforts or carbon capture and storage activities) are not distributed in a given year, EPA may redistribute the allowances for deficit reduction, consumer rebate, low-income assistance, or a combination thereof. In 2012, the bill allots 1% for (documented) emission reduction efforts that occurred before 2009.	
"Sec. 783. Electricity Consumers" Outlines process by which EPA is to distribute allowance value to electricity consumers, which includes both households and commercial entities. Recipients of no-cost allowances would include: electricity local distribution companies (LDCs), small electric LDCs, merchant coal units; and specifically defined power production facilities that have entered into long-term power contracts. Instructs EPA, based on specific parameters, to allot a portion of the percentages listed for electricity consumers in Sec. 782 to merchant coal generators and facilities in long-term power contracts; the remainder (which would represent the vast majority of the allotment) would go to LDCs. Directs EPA to distribute allowances to LDCs by formula: 50% of the distribution would be based on the CO_2 emissions associated with the electricity delivered to customers and 50% would be based on the quantity of electricity delivered (or sold). However, the bill prohibits LDCs from receiving a greater quantity of allowances than is necessary to address any increased electricity costs to ratepayers. Requires LDCs to use allowances "exclusively for the benefit of retail ratepayers." EPA will develop regulations with specific implementation guidelines. If LDCs choose to provide rebates, the rebates cannot be based solely upon the quantity of electricity delivered.	**"Sec. 772. Electricity Consumers"** Substantially similar to H.R. 2454, except that in addition to requiring the EPA Administrator to audit a sample of LDCs to ensure that allowance value is distributed by LDCs in accordance with the section, the Senate bill also requires: 1) an evaluation by the Government Accountability Office (GAO) of energy efficiency and other investments made under the section; and 2) a report by the EPA Administrator evaluating the disposition of allowance value and ways to use that value to reduce costs of the program. Sec. 772 of the Senate bill also contains several definitions included in other sections of H.R. 2454 (e.g., CHP Savings, Qualified Hydropower).	This section is intended to alleviate the electricity price increases that would be expected under a cap-and-trade program. LDCs are different from the industrial sector that generates electricity. In general, LDCs control the wires that deliver electricity to homes and businesses. Unlike electric generating facilities, some of which are (price) regulated and some of which are not, all LDCs are regulated by a state agency (or are cooperatives) that controls the price of delivered electricity. The 50/50 formula for allowance allotment to LDCs is an attempt to address regional differences in energy use. For example, some parts of the country use a higher percentage of coal than others, and these areas are expected to experience relatively higher electricity price increases from the legislation than areas that use less-carbon-intensive energy (e.g., hydropower). Some argued that LDCs selling less-carbon-intensive electricity would potentially receive a windfall under this formula. To address this concern, allowances that would have gone to these LDCs are to be redistributed to LDCs that

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		sell more carbon-intensive electricity. Some have argued that if merchant coal-fired generators receive no-cost allowances, the facilities would simply pass along the opportunity cost of the allowances to consumers and thus gain so-called "windfall profits." (See e.g., comments and testimony from the National Association of Regulatory Utility Commissioners, at http://www.naruc.org). Indeed, this section requires EPA (in 2014) to examine this issue and authorizes EPA to make adjustments to the merchant coal generators' allocations. Moreover, these entities would receive allowances based on an output-based formula, which some argue would create a perverse incentive to generate electricity in order to receive more allowances. The bills allocate allowances to small electric LDCs, approximately half of which would be rural electric cooperatives. These no-cost allowances would be in addition to the share these LDCs would receive under the allotment to LDCs generally.
"Sec. 784. Natural Gas Consumers" Outlines process by which EPA is to distribute allowance value to natural gas consumers, which includes both households and commercial entities. To meet this objective, EPA is to allot all of the no-cost allowances (per Sec. 782) to natural gas local distribution companies (LDCs). LDCs would receive a portion of allowances based on annual natural gas deliveries from each LDC (i.e., quantity sold). Requires natural gas LDCs to use the allowances "exclusively for the benefit of retail ratepayers." Includes rebate provisions that are similar to electricity LDCs. Directs natural gas LDCs to use, at minimum, 33% of the allowances to support energy efficiency programs for natural gas consumers.	**"Sec. 784. Natural Gas Consumers"** Similar to H.R. 2454, except that while H.R. 2454 precludes those industrial ratepayers who are also covered entities from receiving benefits under this section, the Senate bill contains no such prohibition. Further, the Senate bill has more extensive auditing and reporting requirements that parallel those in the above section on electricity LDCs.	Similar to the previous section, this section is intended to alleviate the natural gas price increases that would be expected under a cap-and-trade program. Both bills compel LDCs to use at least 33% of allowances for energy efficiency.

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"Sec. 785. Home Heating Oil, Propane, and Kerosene Consumers" Outlines process by which EPA is to distribute allowance value to home heating oil, propane, and kerosene consumers, which includes both households and commercial entities. To meet this objective, EPA would distribute no-cost allowances (per Sec. 782) to states. States would receive allowances based on a ratio of each state's carbon emissions associated with home heating oil sales compared to a similar national value. States may use allowances for either energy efficiency programs or financial assistance (rebates) to customers, but at least 50% of the allowances must be used for energy efficiency.	**"Sec. 774. Home Heating Oil and Propane Consumers"** Similar to H.R. 2454, except that kerosene consumers are not included.	Similar the previous two sections, this section is intended to alleviate the heating oil, propane, and kerosene (in the case of H.R. 2454) price increases that would be expected under a cap-and-trade program. Both bills compel states to use at least 50% of the allowances for energy efficiency purposes.
"Sec. 787. Allocations to Refineries" Outlines process by which EPA is to distribute no-cost allowances (per Sec. 782) to petroleum refineries and small business refiners. Within three years of enactment, EPA must promulgate regulations to established an appropriate distribution formula.	**"Sec. 775. Domestic Fuel Production"** Basically identical provision.	
"Sec. 788. Supplemental Agriculture and Renewable Energy Incentives Programs" Instructs EPA to distribute allowances for agricultural renewable energy programs (per Sec. 782) at the direction of DOE and USDA. At least 50% of the allowances should be allotted to a newly established USDA program that would support agriculture-related GHG mitigation efforts. The supported activities would reduce, avoid, or sequester GHG emissions, but not qualify as offsets. Allowances could also be used to support a newly created EPA and DOE program that would support the deployment of renewable energy infrastructure in the states.	**Sec. 155. Supplemental Agriculture, Abandoned Mine Land, and Forestry Greenhouse Gas Reduction and Renewable Energy Program** A similar program to H.R. 2454 is established, but with several key differences: 1) USDA and the Department of the Interior are the lead agencies; 2) the Senate bill includes activities undertaken on public and private abandoned mine land and on forest land; 3) despite the title of the section, the Senate bill does not include renewable energy deployment; 4) the Senate bill has a longer list of eligible project types and considerations for funding, as well as potential forms of assistance (e.g., grants, grazing contracts, land management contracts, conservation easements); and 5) a separate section (Sec. 214) directs the EPA administrator to deposit the proceeds of auctions under Sec. 771(b)(9) into a new Supplemental Agriculture, Abandoned Mine Land, Renewable Energy, and Forestry Fund.	

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"Sec. 789. Climate Change Consumer Refunds" Directs the President (or an agency designated by the President) to annually distribute monies from the Consumer Climate Change Rebate Fund (per Sec. 782) to each household—on a per capita basis—in the United States.	**"Sec. 776. Consumer Protection"** Establishes two different funds: the Consumer Rebate Fund and the Energy Refund Account. Both would be funded from auction revenues per Sec. 771(b)(2). Starting in 2026, the Consumer Rebate Fund would be used (in accordance with Federal statutory authority) to provide relief to consumers impacted by the statute. The Energy Refund Account is analogous to allocation in the House bill that would distribute 15% of the allowance value to low-income consumers on an annual basis. The Senate bill would provide a similar percentage (but the absolute number of allowances would be smaller). The President is to use funds from this account (in accordance with Federal statutory authority) to offset energy cost impacts on low- and moderate-income households.	The House bill is considerably more specific on how funds would be used—only for per capita rebates—while the Senate bill would give the President the authority to determine how those funds are distributed.
"Sec. 790. Exchange for State-Issued Allowances" Instructs EPA to promulgate regulations that would establish a process by which any person can exchange emission allowances issued before December 31, 2011, by California, the Western Climate Initiative, or the Regional Greenhouse Gas Initiative (RGGI) for emission allowances under this title. Allowances allotted for this purpose will be deducted from the allowances to be auctioned for low-income consumers (Section 782(d)).	**"Sec. 777. Exchange for State-Issued Allowances"** Basically identical to the House provision, except that to qualify, emissions allowances must be issued by the later of December 31, 2011 or 9 months after the first auction under Sec. 778 of the Senate bill.	This section relates to Sec. 861 (of both bills), which effectively pre-empts state/regional cap-and-trade programs (until 2018). The exchange will not necessarily be a one-to-one swap. EPA's regulations will provide that a person exchanging a "state allowance" receive a Title III allowance that is "sufficient to compensate" for the cost of obtaining (this is specifically defined) and holding a state allowance. It is difficult to assess the quantity of state emission allowances that will be exchanged. A rough calculation: assuming RGGI entities (the only state program in operation) would need to exchange a year's amount of allowances (188 million tons), this would account for about 4% of the 2012 federal cap. However, RGGI allowance prices have hovered around $3.50/ton. Assuming an exchange based solely on price (assuming a $15/ton price for federal allowances) would thus reduce the 2012 allowance pool by 1%.

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"Sec. 791. Auction Procedures" Establishes auction format and procedures. Directs EPA to promulgate regulations, within 12 months of enactment, that govern allowance auctions. Auctions will be held quarterly, starting no later than March 31, 2011. The auctions will include a reserve price, starting at $10/allowance (in 2009 dollars) and increasing by 5% plus inflation each year. At each auction, EPA will offer both current and some proportion of future vintage allowances. Auctions will follow a single-round, sealed-bid, uniform price format. Auctions will be open to any person. EPA may require demonstrations of financial assurance as a condition of participation. Persons may not purchase more than 5% of allowances offered in any auction. EPA may revise auction design (through the regulatory process) if the agency determines an alternative design is more effective. Directs EPA to issue regulations that would establish a small business refiner (defined in Section 787(b)) allowance reserve. EPA would set aside varying percentages of allowances allocated for auction (e.g., between 2016 and 2024, 4.9% of the total allowances) that could be purchased by small business refiners at a price equaling the average auction price from the previous 12 months. These allowances would not be a separate allocation, but would come from the pool of allowances to be auctioned for all purposes under Section 782 (e.g., deficit reduction, consumer rebates, etc.).	**"Sec. 778. Auction Procedures"** Basically identical provision, except that the minimum initial reserve price is $10/allowance in 2005 dollars, or roughly $11/allowance in 2009 dollars.	The auction format largely follows the auction scheme used in RGGI, which has held five auctions, all of which have been successful. However, a federal emission allowance auction would be both larger in scale and broader in scope. Although this section is relatively prescriptive regarding the auction design, EPA has authority to alter the format. A reserve price may help alleviate market volatility to some degree and provide assurance to parties making emission reductions that the reductions will have some value in the allowance market. The small business refiner reserve would provide this subset of covered entities with some protection against emission allowance price spikes.
"Sec. 792. Auctioning Allowances for Other Entities" Allows for any holder of emission allowances to request that EPA auction their allowances. EPA will sell the allowances during one of the quarterly auctions per Sec. 791. EPA may permit allowance holders to set a reserve price for their allowances. However, allowance holders from foreign nations (selling allowances received per avoided deforestation projects) may not request a reserve price. EPA is to promulgate regulations to implement this section within 24 months of enactment. Any unsold allowances must be returned to the allowance holder.	**"Sec. 779. Auctioning Allowances for Other Entities"** Substantially similar provision, except that there is no requirement to return unsold allowances to the allowance holder.	Without this section, parties that receive allowances at no cost would need to sell the allowances in the secondary market, either through a market exchange or an over-the-counter transaction. This activity may involve some level of transaction cost. This section provides the opportunity for parties to effectively let EPA conduct the transaction (through an auction). It is uncertain whether parties would receive a higher price through the latter route. Indeed, there is some evidence (from RGGI) that the market price dips right before an auction event.

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"Sec. 793. Establishment of Funds" Establishes the Strategic Reserve Fund; the Climate Change Consumer Refund Account; and the Climate Change Worker Adjustment Assistance Fund. Other funds are established in various sections: Sec. 467—Climate Change Health Protection and Promotion Fund; Sec. 480—Natural Resources Climate Change Adaptation Fund; and Sec. 782—Energy Efficiency and Renewable Energy Worker Training Fund.	**"Sec. 793. Establishment of Deficit Reduction Fund"** Establishes the Deficit Reduction Fund. Other funds are established in various sections: Sec. 201—Clean Vehicle Technology Development Fund; Sec. 208—Energy Efficiency and Renewable Energy Worker Training Fund; Sec. 209—Worker Transition Fund; Sec. 210—State Climate Change Transportation Fund and State Climate Change Response Account; Sec. 211—Climate Change Health Protection and Promotion Fund; Sec. 212—Natural Resource Climate Change Adaptation Account; Sec. 213—Nuclear Worker Training Fund; Sec. 214—Supplemental Agriculture, Renewable Energy, and Forestry Fund.	Auction proceeds or allowance allocations are to be deposited in these funds.
"Sec. 794. Oversight of Allocations" Directs the Comptroller General (by 2014 and every two years thereafter) to conduct a review of the programs administered by the federal government that distribute allowances or auction revenue. The review must examine various aspects, including as the effectiveness of the programs and the performance of activities receiving assistance from the programs. The Comptroller General must submit a report to Congress with the findings.	**"Sec. 781. Oversight of Allocations"** Basically identical to the House provision.	

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"Sec. 795. Exchange for Early Action Offset Credits" Directs EPA to promulgate regulations that would distribute emission allowances (in 2012 only) to persons who engaged in emission reduction activities between 2001 and 2008. This would include (unretired) offset credits from pre-existing state or voluntary programs that were issued before 2009 (75% of the allocation), as well as other documented efforts that meet specific conditions (25% of the allocation). The allowance exchange would be based on the monetary value of the offset credits between 2006 and 2008 (adjusted for inflation).	**"Sec. 782. Early Action Recognition"** Substantially similar to the House provision except that local programs and reductions by local governments would also be included.	There may be a high demand for these allowances. The bills do not specify how EPA would determine which persons would receive the allowances if the demand exceeds supply.
Subtitle C – Additional Greenhouse Gas Standards	**Subtitle C – Additional Greenhouse Gas Standards**	
Sec. 331. Greenhouse Gas Standards Amends the Clean Air Act to include a new Title VIII at the end of the new Title VII.	**Sec. 121 Greenhouse Gas Standards.** Similar provision.	
"Sec. 801. Definitions" Provides that terms under this title (Title VIII) are the same as under Title VII except for the definition of "stationary source."	**"Sec. 801. Definitions"** Identical provision.	
"Part A—Stationary Source Standards"	**"Part A—Stationary Source Standards"**	
"Sec. 811. Standards of Performance" Generally provides that EPA promulgate New Source Performance Standards (NSPS) under Sec. 111 of the Clean Air Act for categories of uncapped stationary sources that emit more than 10,000 tons of carbon dioxide equivalent annually. Stipulates the schedule for promulgation of the NSPS for various categories that is not subject to judicial review. Sources of enteric fermentation are expressly exempted from these provisions. In setting the appropriate NSPS, EPA is to take into account projections of allowance prices to ensure that the marginal costs imposed by such standards are not expected to exceed those projected allowance prices.	**"Sec. 811. Standards of Performance"** Defines "uncapped" greenhouse gas emissions as those to which the Title VII cap-and-trade program does not apply. EPA can not promulgate New Source Performance Standards before January 1, 2020, for any stationary source that: (1) emits uncapped greenhouse gases, and (2) qualifies as an eligible offset project.	For H.R. 2454, the provision focuses on categories of stationary sources that are responsible for at least 20% of uncapped greenhouse gases (or 10% of uncapped methane emissions). EPA is not required to make an "endangerment finding" under these provisions to promulgate the necessary NSPS. Also, stationary sources controlled under the Title VII emissions cap would not be subject to a greenhouse gas NSPS under these provisions. For the Senate bill, the use of "and" to link the two criteria for exemption from NSPS effectively limits the scope of that exemption to eligible offset projects. Also, unlike the House provision, there is no lower threshold for inclusion under NSPS.

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"Part C—Exemptions from Other Programs"	**Sec. 128(g). Amendments Clarifying Regulation of Greenhouse Gases Under Clean Air Act**	
"Sec. 831. Criteria Pollutants" Provides that a greenhouse gas can not be listed as a criteria air pollutant under Sec. 108(a) of the Clean Air Act on the basis of its effect on climate change.	**Sec. 128(g)(1). Air Quality Criteria and Control Techniques** Similar provision.	The provision would prevent EPA from regulating greenhouse gases via a National Ambient Air Quality Standard (NAAQS) because of their climate impacts. For more information on stationary sources of greenhouse gases and the Clean Air Act, see CRS Report R40585, *Climate Change: Potential Regulation of Stationary Greenhouse Gas Sources Under the Clean Air Act*, by Larry Parker and James E. McCarthy.
"Sec. 832. International Air Pollution" Provides that Sec. 115 of the Clean Air Act shall not apply to a greenhouse gas because of its climate impact.	**Sec. 128(g)(3). International Air Pollution** Similar provision.	The provision would prevent EPA from regulating greenhouse gases via the international air pollution provisions of the Clean Air Act because of their climate impacts.
"Sec. 833. Hazardous Air Pollutants" Provides that a greenhouse gas can not be added to the list of hazardous air pollutants under Sec. 112 of the Clean Air Act unless such gas meets the listing criteria of Sec. 112(b) on a basis other than its climate change effects.	**Sec. 128(g)(2). Hazardous Air Pollutants** Similar provision.	The provision would prevent EPA from regulating greenhouse gases via the hazardous air pollution provisions of the Clean Air Act because of their climate impacts.
"Sec. 834. New Source Review" Provides that a greenhouse gas can not be subject to the New Source Review provisions of the Prevention of Significant Deterioration (Part C of the Clean Air Act) program solely on the basis of its effect on climate change or its regulation under Title VII.	**Sec. 128(g)(4). Definition of Major Emitting Facility** Redefines a "major emitting facility" under Sec. 169(1) (Prevention of Significant Deterioration) with respect to a greenhouse gas or combination of greenhouse gases to sources that emit over 25,000 tons.	The provisions of the two bills differ significantly with respect to how major emitting sources would be treated under Part C (Prevention of Significant Deterioration) of the existing Clean Air Act. The H.R. 2454 provision would prevent new or modified stationary sources from coming under the Clean Air Act's New Source Review provisions (including the requirement to install best available control technology or BACT) solely because they emit greenhouse gases. In contrast, the Senate bill's provision would simply raise the threshold for regulation under Part C from the current 100 or 250 short tons to 25,000 tons with respect to any greenhouse gas or combination of greenhouse gases.

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"Sec. 835. Title V Permits" Provides that no source is covered under the permitting provisions of Title V of the Clean Air Act, solely because the source emits any greenhouse gases that are regulated solely because of their climate effects.	**Sec. 128(g)(5). Permits** Provides that no source emitting less than 25,000 tons of any greenhouse gas or combination of greenhouse gases is covered under the permitting provisions of Title V of the Clean Air Act solely because the source emits any greenhouse gases that are regulated solely because of their climate effects.	The provisions of the two bills differ significantly. The H.R. 2454 provision would prevent any source (large or small) from having to obtain a state permit under Title V of the Clean Air Act solely because they emit greenhouse gases. In contrast, the exemption under the Senate bill is restricted to sources that emit under 25,000 tons of any greenhouse gas or combination of greenhouse gases.
Sec. 332. HFC Regulation Amends Title VI of the Clean Air Act to add a new program to reduce hydrofluorocarbons (HFCs).	**Sec. 122. HFC Regulation** Identical provision.	HFCs are very powerful greenhouse gases. A common use for HFCs (specifically HFC-134a) is as a refrigerant in automobile air conditioning systems.

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"Sec. 619. Hydrofluorocarbons (HFCs)" Creates a separate cap-and-trade program to reduce emissions of hydrofluorocarbons (HFCs). Basically, the section puts 20 HFC substances in a new class II, group II category to be regulated under Title VI of the Clean Air Act. Beginning in 2012, producers and importers of any class II, group II substance are required to hold a consumption allowance or destruction offset credit for each CO_2-equivalent ton of class II, group II substance. The consumption allowances available are capped and that cap is steadily reduced from 90% of the average annual consumption during a 2004-2006 baseline to 15% of that baseline after 2032. Allowances may be banked for future use. Consumption allowances are divided into two pools: a producer-importer pool with 80% of available allowances and a secondary pool with 20% of available allowances. In the producer-importer pool, 10% of available consumption allowances are auctioned in 2012, increasing steadily to 90% in 2020 and thereafter. Only covered entities may participate in the auction. The remaining consumption allowances are to be offered for sale by EPA at a set price for the years 2012-2017, and at the auction clearing price thereafter. For the secondary pool, EPA provides for the sale of available consumption allowances at the same price as the un-auctioned allowances above. Covered entities and specific other entities that have taken significant steps to purchase or import any class II, group II substance, or produced or imported any such substance in 2004-2006 are eligible for this pool. Program provides that EPA may provide an exception to the reduction program for specific essential uses: medical devices, aviation safety, natural security (fire suppression, etc.) and exports to developing countries. EPA regulations are to provide offset credits for the destruction of chlorofluorocarbons (CFCs) equal to 80% of the carbon dioxide equivalent reduction achieved by the destruction. Other provisions include the regulation of small containers of class II, group II substances used to refill motor vehicle air conditioners.	**"Sec. 619. Hydrofluorocarbons (HFCs)"** Basically identical provision, with three notable differences. First, any allowances allocated for essential uses are to come from allowances withheld from auction or nonauction sale under subsection (b)(4) (E). Second, Sec. 619(d)(1) provides that EPA shall determine whether to allocate allowances withheld from auction or nonauction sale to medical devices determined by the Commissioner of Food and Drugs within 20 months of enactment to be essential. Third, explicit provisions are included for providing withheld allowances for fire suppression, and national security.	The cap-and-trade program for HFCs under Title VI is completely separate from the cap-and-trade program for other greenhouse gases set up under the new Title VII. The set price for the pool of consumption allowances not auctioned (and for the secondary pool) is set at $1 an allowance in 2012, rising to the average of $1.40 and the 2016 auction clearing price in 2017. The allowances in the producer-importer pool are available to covered entities based on their share of production, importation, or acquisitions, minus exports. Auctions are to be held once a year and follow a single-round, sealed-bid uniform price format. With respect to essential uses, H.R. 2454 provides that EPA may provide an exception to the reduction program for specific essential uses, while the Senate bill requires such allowances to be allocated from allowances withheld from auction or nonauction sale. There are several other differences with respect to essential uses, particularly with respect to medical devices. All proceeds from auctions and sales are deposited in a Stratospheric Ozone and Climate Protection Fund for various purposes, including to encourage the recovery, recycling, and reclamation of any Class II substance (subject to appropriations) in order to reduce emissions.

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Sec. 333. Black Carbon Requires EPA to submit a report to Congress on black carbon abatement within one year of enactment. Also amends the new Title VIII of the Clean Air Act to provide for black carbon mitigation (see below).	**Sec. 123. Black Carbon** Requires EPA to conduct a four-phase study of black carbon. A report to Congress on the results of the first two phases is required 180 days after enactment. Those phases establish definitions and summarize available scientific and technical information. A report to Congress on the results of the third phase is required 270 days after enactment. That phase summarizes international assistance the United States provides to reduce black carbon and its impacts, and identifies opportunities to reduce emissions in foreign countries. A report to Congress on recommendations resulting from the fourth phase is required 1 year after enactment. Those recommendations include research strategies for cost-effective approaches to reduce black carbon emissions in the United States and abroad, and actions the government could take to encourage or require additional reductions. Includes identical language to H.R. 2454 amending the new Title VIII of the Clean Air Act to provide for black carbon mitigation (see below).	The black carbon provisions of H.R. 2454 and the Senate bill are structured differently, although they contain many common themes.
"Sec. 851. Black Carbon" Authorizes EPA to propose a finding that existing Clean Air Act regulations adequately address black carbon emissions or to propose a regulation to reduce black carbon emissions within 18 months of enactment. Final regulations or finding is required within 24 months of enactment. Requires EPA to submit a report to Congress on U.S. efforts internationally to reduce, mitigate, and abate black carbon emissions. The report shall also identify opportunities and recommendations to achieve significant emission reductions in foreign countries through technical and other assistance.	**"Sec. 851. Black Carbon"** Requires EPA to propose a similar rule or finding within 2 years of enactment. A finding that existing Clean Air Act regulations are adequate may be based on economic, technological, and other criteria specified in the provision. The third and fourth phase of the black carbon study required under Sec. 123 generally includes the same elements required by the Sec. 851 report to Congress.	Authorizes such sums as necessary to fund this section.
Sec. 334. States Amends Sec. 116 of the Clean Air Act — which allows states to implement more stringent air pollution standards for stationary sources than the federal government — to clarify that the phrase "standard or limitation respecting emissions of air pollutants" includes provisions relating to GHG emission controls.	**Sec. 124. States** Basically identical provision, except for minor conforming language.	This section should be read in conjunction with Sec. 335/Sec. 125 ("Sec. 861") below, which effectively pre-empts state/regional cap-and-trade programs for a specific period of time.
Sec. 335. State Programs Amends Title VIII of the Clean Air Act by adding Part F — "Miscellaneous."	**Sec. 125. State Programs** Provision is similar.	

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"Sec. 861. State Programs" Prohibits states from implementing or enforcing a GHG emission cap that covers any (federally) capped emissions during the years 2012 through 2017. Clarifies that a cap does not include fleet-wide motor vehicle emission requirement or life-cycle fuel standards. This section is "notwithstanding section 116." Sec. 116 allows states to implement more stringent standards at stationary sources, including (per Sec. 334 of the bill) GHG emission controls.	**"Sec. 861. State Programs"** Provision is similar except for a provision that conditions the beginning of the moratorium on the start-up of auctions under Sec. 778. If the scheduled March 31, 2011 auction is not delayed, the moratorium begins in 2012. If it is delayed, states can not enforce a GHG cap that covers any (federally) capped emissions "emitted during the period that commences at least 9 months from the date of the first auction as set out in section 778, through 2017."	Effectively provides federal pre-emption of state cap-and-trade programs for covered entities from 2012 through 2017. However, it does not pre-empt state programs that reduce greenhouse gas emissions by means other than a cap-and-trade program (e.g., fleet-wide motor vehicle emissions requirements).
"Sec. 862. Grants for Support of Air Pollution Control Programs" Authorizes the EPA to make grants to air pollution control agencies for purposes of providing implementation assistance in terms of this act.	**"Sec. 862. Grants for Support of Air Pollution Control Programs"** Basically identical provision except for minor conforming language.	
Sec. 336. Enforcement Amends Sec. 307 of the Clean Air Act to provide that (1) in cases where the EPA is found to have erred in an action, the court may remand that action, without vacatur, if vacatur would impair or delay protection of the environment or public health or timely achievement of the purposes of the Clean Air Act; (2) if a court remands an EPA decision, EPA shall complete final action within an expeditious time period, (3) a petition for reconsideration shall be considered denied for the purpose of judicial review if EPA does not take final action on such petition within 150 days; and (4) that the party denied the petition may seek judicial review in the appropriate court of appeals.	**Sec. 126. Enforcement** Basically identical provisions except for the addition of a provision entitled, "Petition for Review" that states that "any person may file a petition for review of action by the Administrator as provided in this subsection."	Attempts to prevent delays in environmental regulation through three means: (1) permits the courts to remand an EPA regulation back for reconsideration without requiring the court to vacate the entire rule if doing so would harm public health or the environment; (2) requires EPA to respond expeditiously to any remand; and (3) attempts to prevent EPA from delaying consideration of petitions for reconsideration by putting a 150-day limit on EPA's review process before the petition would be automatically denied and the petitioner could then seek a judicial remedy.
Sec. 337. Conforming Amendments Makes various conforming amendments to existing laws.	**Sec. 128. Conforming Amendments** Basically identical provision except for a minor conforming amendment to eliminate a numbering error in the current Clean Air Act (currently, there are two Title IVs in the act), and two major changes to the Clean Air Act. First, it amends the Clean Air Act to prevent EPA from regulating greenhouse gases under Sec. 108 (National Ambient Air Quality Standards), Sec. 112 (Hazardous Air Pollutants), or Sec. 115 (International Air Pollution) of the act. Second, it redefines a "major emitting facility" under Sec. 169(1) (Prevention of Significant Deterioration) and Title V (Permits) with respect to greenhouse gases to sources that emit over 25,000 tons.	H.R. 2454 amendments to the Clean Air Act are contained in **"Part C – Exemptions from Other Programs."**

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Sec. 338. Davis-Bacon Compliance Recipients of emission allowances are required to provide reasonable assurances that all laborers and mechanics employed by contractors and subcontractors on funded projects, including the Carbon Storage Research Corporation, will be paid wages at rates not less than those prevailing on projects of a character similar in the locality.	**Sec. 129. Davis-Bacon Compliance** Identical provision except for minor conforming language.	
Sec. 339. National Strategy for Domestic Biological Carbon Sequestration Requires EPA, in consultation with other agencies, to submit to Congress within one year of enactment a comprehensive plan to address barriers to maximizing the potential for sustainable biological carbon sequestration.	Biological sequestration approaches and technologies are included in a National Academy of Sciences review required under Sec. 706. The review must be updated every four years.	
Sec. 340. Reducing Acid Rain and Mercury Pollution Requires EPA, within 18 months of enactment, to submit to Congress a report that analyzes the effect of various carbon reduction strategies and technologies on emissions of mercury, sulfur dioxide, and nitrogen oxide, identifies the barriers to cost-effective multi-pollutant control technologies and strategies, and makes appropriate recommendations.	**"Sec. 863. Reducing Acid Rain and Mercury Pollution"** Provision is similar.	
Subtitle D—Carbon Market Assurance	**Subtitle D—Carbon Market Assurance**	
Sec. 341. Carbon Market Assurance Amends the Federal Power Act to include a new Part IV at the end entitled "Carbon Market Assurance."	**Sec. 131. Carbon Market Assurance** Provides a sense of the Senate that there shall be a single, integrated carbon market oversight program with 12 specific purposes.	The provision in H.R. 2454 provides for the regulation of trading in "regulated instruments," which are defined as regulated allowances and regulated allowance derivatives. The Senate provision is basically a placeholder to be filled in by the appropriate committee of jurisdiction.

H.R. 2454, as Passed by the House	S. 1733, as Ordered Reported	Comments
"Sec. 401. Oversight and Assurance of Carbon Markets" Provides for the Federal Energy Regulatory Commission (FERC) to regulate the cash market in emission allowances. Within 18 months of enactment, FERC shall issue regulations to provide for effective and comprehensive market oversight; prohibit fraud, market manipulation, and excess speculation; and provide measures to limit unreasonable fluctuation in the prices of regulated allowances. If necessary, rules will include margin requirements and position limitations for individual market participants. To provide for the formation and operation of a fair, orderly, and liquid national market system for allowances, FERC shall establish qualification standards for operation of trading facilities and clearing organizations for regulated allowances. FERC will have the authority to issue cease and desist orders and to suspend or revoke the registration of any trading entity violating any rule or order issued under this subsection. Taking into consideration the recommendations of an interagency working group created under the bill, the Commodity Futures Trading Commission is to promulgate regulations for the establishment, operation, and oversight of markets for regulated allowance derivatives. The purposes of the derivatives provisions are similar to those above for the cash market. The interagency working group shall also make recommendations to Congress regarding legislative changes needed to ensure that allowance derivatives markets are transparent, fair, stable, and efficient. The CFTC shall collect information and report periodically on the operation of the allowance derivatives markets.	No similar provision.	Under H.R. 2454, regulation of derivatives contracts (futures, options, etc.) based on allowances would fall to the Commodity Futures Trading Commission (CFTC) under current law.
Sec. 342. Carbon Derivative Markets Amends the Commodity Exchange Act to place allowance derivatives on the same regulatory basis as derivatives based on agricultural commodities.	No similar provision.	This section of H.R. 2454 would mean that allowance derivatives could not be traded in the over-the-counter (OTC) market without a specific regulatory exemption from the CFTC.

H.R. 2454, as Passed by the House	S. 1733, as Ordered Reported	Comments
Sec. 351. Regulation of Certain Transactions in Derivatives Involving Energy Commodities Amends Section 1a and other sections of the Commodity Exchange Act to increase oversight of carbon markets. Under its provisions energy commodities (as defined) are taken out of the "exempt commodity" category, meaning that energy derivatives must be traded on a CFTC-regulated exchange unless the CFTC issues a specific exemption. The section would also restrict CFTC's authority to issue such exemptions—the CFTC must provide 60 days' advance notice and take public comments. Limits on CFTC's exemptive authority would apply not only to prospective OTC energy contracts, but also to contracts listed on a foreign futures exchange that involve delivery in the United States or that are traded over a computer located in the United States. In addition, the CFTC is required to establish position limits setting ceilings on the number of energy contracts that any person could hold, and creates a Position Limit Energy Advisory Group to make recommendations to the CFTC regarding appropriate levels for position limits. Exemptions from the position limits would be available only for "bona fide hedging transactions," defined as either traders directly involved in physical energy markets, or financial intermediaries who are dealing with such traders. Finally, the CFTC is required to publish data on positions of swap dealers and index traders (such as institutional investors and financial intermediaries that deal in derivatives). This provision would apply to all commodities, not just energy.	No similar provision.	The Commodity Exchange Act (CEA) currently provides a statutory exemption for over-the-counter (OTC) derivatives based on non-agricultural commodities. This means that legislation is necessary to give CFTC power to regulate OTC derivatives. CFTC currently has authority to set position limits, but delegates that authority to the exchanges. There are no position limits applicable to OTC derivatives. Index trading—strategies that generate returns replicating an index of commodity prices—by pension funds and others was blamed by some observers for the run up in oil prices in 2008.
Sec. 352. No Effect on Authority of the Federal Energy Regulatory Commission Amends Section 2 of the Commodity Exchange Act to provide that the act does not affect FERC's regulatory jurisdiction.	No similar provision.	
Sec. 353. Inspector General of the Commodity Futures Trading Commission Amends the Commodity Exchange Act to make the Inspector General (IG) of the CFTC a presidential appointee.	No similar provision.	Under current law, the IG is appointed by the CFTC chairman.

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Sec. 354. Settlement and Clearing Through Registered Derivatives Clearing Organizations Amends the Commodity Exchange Act to require that over-the-counter (OTC) derivative contracts, such as swaps, be settled and cleared through a derivatives clearing organization (DCO) registered with the CFTC. DCOs would be required to disclose information about the terms and conditions of contracts, the methodology for determining margin requirements, and data regarding prices, volume, and open interest. In addition, DCOs would have to adopt fitness standards for directors and certain other parties. CFTC would be authorized to issue exemptions from the clearing requirement for certain OTC contracts that are not standardized instruments, but contracts so exempted would still have to be reported to the CFTC.	No similar provision.	Clearing houses are a standard feature of the futures exchanges. They are a central point for collection of data on all traders' positions; the CFTC currently obtains daily figures from exchange clearing houses on large trader positions.
Sec. 355. Limitation on Eligibility to Purchase a Credit Default Swap Amends Section 4c of the Commodity Exchange Act to set new eligibility requirements for trading credit default swaps. Participation in that market would be limited to those who (1) own the credit instrument that the credit swap was insuring, (2) would experience financial loss if the credit event that triggers the swap insurance payment were to occur, or (3) met capital adequacy standards to be established by the CFTC in consultation with the Federal Reserve.	No similar provision.	The collapse of AIG in 2008 was attributed to trading in "naked" credit swaps—basically insurance contracts sold to speculators who did not have an insurable interest in the bonds for which the swaps provided insurance against default.
Sec. 356. Transaction Fees Amends Section 12 of the Commodity Exchange Act to authorize the CFTC to set and collect fees from registered clearing organizations at a rate calculated to cover the cost of derivatives regulation (with the exception of costs directly related to enforcement). Fee rates would be adjusted annually so that amounts collected would approximate the CFTC's budget authority for non-enforcement activities.	No similar provision.	The Securities and Exchange Commission and the federal bank regulators have long been funded by fees and assessments on the financial institutions and markets they regulate. Every administration since President Reagan's has proposed similar fees for the futures market, but none has been enacted.
Sec. 357. No Effect on Antitrust Law or Authority of the Federal Trade Commission The subtitle does not affect FERC jurisdiction to obtain information, carry out enforcement activities or other responsibilities under either the Federal Trade Commission Act, EISA, or the antitrust laws.	No similar provision.	The H.R. 2454 provision specifies that nothing in this act diminishes the jurisdiction or authority of the Federal Trade Commission.

H.R. 2454, as Passed by the House	S. 1733, as Ordered Reported	Comments
Sec. 358. Effect of Derivatives Regulatory Reform Legislation Upon passage of derivatives regulatory reform legislation, Sections 351, 352, 354, 355, 356, and 357 of this act shall be repealed, and regulations issued pursuant to those sections shall be null and void.	No similar provision.	See CRS Report R40646, *Derivatives Regulation in the 111th Congress*, by Mark Jickling and Rena S. Miller, for information on other derivatives reform legislation.
Sec. 359. Cease-and-Desist Authority Amends Section 20 of the Natural Gas Act to authorize FERC to issue cease-and-desist orders for violations. Provides for administrative and judicial review of such orders.	No similar provision.	Market regulators such as the CFTC and SEC already have such authority.
Sec. 360. Presidential Review of Regulations Not less than 24 months after enactment, the President shall review offset and derivatives regulations issued pursuant to this act, and shall determine whether they adequately protect the U.S. financial system from systemic risk.	No similar provision.	A major purpose of derivatives reform proposals is to reduce the possibility that derivatives losses can spill over into other markets, generating systemic instability.
Title IV—Transitioning to a Clean Energy Economy **Subtitle E—Ensuring Real Reductions in Industrial Emissions**	**Subtitle E—Ensuring Real Reductions in Industrial Emissions**	
Sec. 401. Ensuring Real Reductions in Industrial Emissions Amends Title VII of the Clean Air Act by inserting a new "Part F—Ensuring Real Reductions in Industrial Emissions."	**Sec. 141. Ensuring Real Reductions in Industrial Emissions** Provision similar to that in H.R. 2454	For further information on trade and carbon leakage, see CRS Report R40100, *"Carbon Leakage" and Trade: Issues and Approaches*, by Larry Parker and John Blodgett.
"Part F—Ensuring Real Reductions in Industrial Emissions"	**"Part F—Ensuring Real Reductions in Industrial Emissions"**	
"Sec. 761. Purposes" Lists seven environmental and economic purposes for the provisions of Part F.	**"Sec. 761. Purposes"** Similar provision except it deletes two purposes contained in H.R. 2454 that related to that bill's International Reserve Allocation (IRA) scheme that the Senate proposal doesn't have (although it does include a sense of the Senate provision to include a border adjustment scheme).	The purpose of the new Part F is both environmental in terms of reducing potential carbon leakage resulting from potential shifts of production and investment from the United States to countries without carbon controls, and economic in terms of preventing the associated job loss from such a shift.

H.R. 2454, as Passed by the House	S. 1733, as Ordered Reported	Comments
"Sec. 762. Definitions" The new Part F generally uses the same definitions as those used in Title VII above, with some specific additions here with respect to defining terms such eligible sectors and products.	**"Sec. 762. Definitions"** Similar provision except it doesn't include definitions of a "covered good" or of an "item manufactured for consumption" (terms used in H.R. 2454's IRA scheme).	As passed by the House, potential product coverage with respect to the subpart 2 international reserve allowance system includes primary products, such as iron, steel, aluminum, and cement, and "manufactured item for consumption"—i.e., finished goods, which could involve items ranging from aluminum cans to automobiles. Such a potentially broad definition may be difficult to implement and create conflicts with commitments the United States has under the World Trade Organization (WTO) and various free trade treaties (such as NAFTA). The Senate proposal does not include such a term because it currently doesn't have an IRA scheme.
"Sec. 763. Eligible Industrial Sectors" Requires EPA to publish a list of eligible industrial sectors and amount of allowances to be rebated per unit of production for the next two years by June 30, 2011 (revised every four years thereafter). As determined by EPA, presumptively eligible sectors, based on six-digit NAICS classification, are those who meet energy or greenhouse gas intensity criteria (specifically, that energy or greenhouse gas costs are at least 5% of the value of their shipments) and trade exposure criteria (specifically, a trade intensity of at least 15%); or have very high energy or greenhouse gas intensity (at least 20%). The bill specifies data sources to be used in these determinations and, specifically, annual average data for 2004-2006 time period, unless unavailable. However, the bill provides that EPA shall determine additional sectors eligible if they (1) meet the greenhouse gas or energy intensity criteria at the time the rule is promulgated and (2) meet trade intensity criteria based on post-2006 data. The bill also has provisions allowing individual entities to petition for inclusion of their subsector under the program.	**"Sec. 763. Eligible Industrial Sectors"** Identical provision except for minor conforming language.	This new Part F creates a rebate program directed at energy/greenhouse gas-intensive, trade-exposed industries harmed by the direct emissions reduction costs and indirect increased electricity input costs from implementing Title VII.

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"Sec. 764. Distribution of Emission Allowance Rebates" Based on the best data available, EPA is to provide the rebate to eligible companies based on a two-part formula: (1) 100% of the industry's annual average emissions per unit of output over the most recent four years times the company's annual average output over the preceding two years (direct emissions); and (2) average emissions per kilowatt-hour of electricity purchased by the company times the industry average electricity used per unit of output over the preceding two years times an electricity efficiency factor to be determined by EPA (indirect emissions). Entities not covered by Title VII are eligible for the indirect emissions rebate. If these formulas result in more allowance needs than provided under the bill, the allocations to entities would be reduced on a pro rata basis to match the allowances available. Unless modified by the President, the allowance rebates are phased out over a 10-year period, beginning in 2026. Facilities that ceased to engage in qualifying activities would lose their allocations at the point they ceased those activities. Provides that iron and steel made with different processes and metal, soda ash, or phosphate production classified under more than one NAICS code be treated as different categories under the section; and that differences in use of combined heat and power technologies be taken into account.	**"Sec. 764. Distribution of Emission Allowance Rebates"** Generally similar provision, except for three major differences. First, there are no provisions permitting the President to modify the phase-out schedule. Second, the calculations of average greenhouse gas intensity is made using an average of the 5 most recent years of the best available data, from up to 7 years prior to the year in which such calculations are made (highest and lowest emitting years are excluded from the calculation). Third, a new subsection is added mandating that EPA calculate a sector's direct emissions and electricity efficiency averages, to the extent practicable, based upon the product produced, the process employed, and use of combined heat and power technologies.	
"Sec. 765. International Negotiations" Requires the President as soon as practicable after enactment to notify all non-exempted countries that the United States (1) seeks international agreements that commit all major emitting nations to contribute equitably to reducing greenhouse gas emissions; (2) requests the country take appropriate measures to limit its greenhouse gas emissions, and (3) may apply the international reserve requirements of this subpart to a covered good beginning on January 1, 2020.	No similar provision.	
"Sec. 766. United States Negotiating Objectives with respect to Multilateral Environmental Negotiations" States four negotiating objectives of the United States under this subpart.	No similar provision.	The H.R. 2454 provision lists the environmental and economic elements the United States would seek in negotiating an international greenhouse gas reduction agreement.

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"Sec. 767. Presidential Reports and Determinations" Requires the President by January 1, 2017 (and biannually thereafter), to submit a report to Congress on the effectiveness of the emission rebates under Subtitle 1 at mitigating carbon leakage and recommendations on improving the subtitle's purposes. If there is no multilateral agreement on reducing greenhouse gases in force by January 1, 2018, the President shall establish an international reserve allowance program for all eligible sectors unless the President determines and the Congress concurs that the program, or inclusion of a sector within that program, would not be in the Nation's economic or environmental interests. Beginning June 30, 2018, and every four years thereafter, the President shall determine for each eligible industrial sector whether more than 85% of U.S. imports for that sector is from countries that are either (1) parties to international agreements requiring economy-wide binding national commitments at least as stringent as those of the United States; (2) have annual energy or greenhouse gas intensities for the sector comparable or better than the equivalent U.S. sector; or (3) parties to an international or bilateral emission reduction agreement for that sector. If not, the President shall no later than June 30, 2018 (and every four years thereafter) assess the effectiveness of Subpart 1 rebates and the international reserve allowance program in mitigating or potentially mitigating the carbon leakage in that sector, and respond by (1) modifying the rebate formula under Subpart 1, and (2) implementing (or continuing to implement) an international reserve allowance program with respect to imports of covered goods from that sector.	No similar provision.	Under H.R. 2454, the international reserve allowance program would be implemented unless the Congress either (1) ratifies an multilateral agreement reducing greenhouse gases or (2) votes to concur with a Presidential determination that the program would not be in the Nation's economic or environmental interest. Likewise, the program must cover each eligible industrial sector unless the Congress votes to concur with a Presidential determination that including that sector would not be in the Nation's economic or environmental interest. The Senate proposal has a sense of the Senate motion on including a border measure in its bill, but no provisions.

H.R. 2454, as Passed by the House	S. 1733, as Ordered Reported	Comments
"Sec. 768. International Reserve Allowance Program" Requires EPA to promulgate rules establishing an international reserve allowance system for covered goods from the eligible industrial sector, including allowance trading, banking, pricing, and submission requirements. Allowances will be required for importation into the United States of any covered good of an eligible industrial sector from a covered country. Exemptions are provided for (1) least developed countries, (2) countries who emit less than 0.5% of global greenhouse gas emissions, and (3) countries meeting the criteria of Sec. 767. The program must be consistent with U.S. commitments under international agreements, and in a manner that minimizes the likelihood of carbon leakage resulting from costs differentials resulting from compliance by U.S. companies with the U.S. reduction program compared with compliance by foreign companies with their nation's reduction program. The EPA shall adjust the international reserve allowance requirement based on the value of allowances allocated free under Subpart 1 and under Sec. 782(a) (electricity providers), including reducing the requirement to zero. The international reserve allowances issued under this program may not be used by covered entities to comply with the emissions cap under Title VII. Also, this program may not begin before January 1, 2020.	**"Sec. 765. International Trade"** Provision states: "It is the sense of the Senate that this Act will contain a trade title that will include a border measure that is consistent with our international obligations and designed to work in conjunction with provisions that allocate allowances to energy-intensive and trade-exposed industries."	The Senate provision is basically a placeholder to be filled in by the appropriate committee of jurisdiction Whether any proposed border measure can be designed in a manner that would survive a challenge before the World Trade Organization (WTO) is a hotly debated topic.
"Sec. 769. Iron and Steel Sector" For this subpart, iron and steel produced by different processes shall be considered as one eligible industrial sector.	No similar provision.	

H.R. 2454, as Passed by the House	S. 1733, as Ordered Reported	Comments
Subtitle C—Consumer Assistance		
Sec. 431. Energy Refund Program Amends the Social Security Act (42 U.S.C. 201) by adding Title XXII.	No similar provision.	
"Sec. 2201. Energy Refund Program" Directs the Secretary of Health and Human Services to establish and administer a program to reimburse (via monthly cash payments) eligible low-income households for their loss of purchasing power resulting from the bill's enactment. Defines eligible households as (among other potential criteria) those with gross incomes not exceeding 150% of the poverty line. Directs EIA to annually provide an estimate of the total purchasing power loss that low-income households would experience in the next fiscal year. Provides a formula for calculating each household's monthly refund, based on household size and the EIA estimate. Requires state agencies to assume administrative responsibilities, including the certification of household applicants, the issuance of refunds, and related accounting. Stipulates that the refund shall not be considered income under federal, state, or local laws. Further, states cannot decrease assistance that would otherwise be provided because of the receipt of the energy refunds.	**"Sec. 776. Consumer Protection"** Establishes the Energy Refund Account, which would be funded from auction revenues per Sec. 771(b)(2). The Energy Refund Account is analogous to allocation in the House bill that would distribute 15% of the allowance value to low-income consumers on an annual basis. The President is to use funds from this account (in accordance with Federal statutory authority) to offset energy cost impacts on low- and moderate-income households. Further details are not provided.	In the House bill, households with gross incomes below 150% of the poverty line would be eligible for the full refund. The refund would decrease for households with incomes above this level, and is estimated to phase out completely near 160% of the poverty line.
Sec. 432. Modification of Earned Income Credit Amount for Individuals Amends Section 32 of the Internal Revenue Code to expand the Earned Income Tax Credit for individuals who work but have no qualifying children.	No explicit provision, however Sec. 776 provides broad Presidential authority.	Relief under Section 431of H.R. 2454 is projected to leave out this particular group.

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Sec. 433. Protection of Social Security and Medicare Trust Funds Amends Section 201 of the Social Security Act (42 U.S.C. 401) to require the Secretary of the Treasury to transfer ("from time to time") funds from the Treasury (not otherwise appropriated) to the Federal Old-Age and Survivors Insurance Trust Fund and the Federal Disability Insurance Trust Fund, so that these trust fund amounts would account for changes brought on by H.R. 2454.	No explicit provision, however Sec. 776 provides broad Presidential authority.	
Subtitle F—Deficit Neutral Budgetary Treatment		
Sec. 496. Deficit Neutrality Instructs Treasury to use different accounts for funds established under Secs. 422, 467, and 480. Funds may only be used for the purposes set forth in this bill. Receipts and appropriations from the Funds are to be attributed explicitly to the act. Appropriations from these funds may not exceed amounts deposited into the respective Fund during the previous year.	No similar provision.	
Title V—Agriculture and Forestry Related Offsets		
Subtitle A—Offset Credit Program for Domestic Agricultural and Forestry Sources		Unlike the House bill, which delegates offset program authority to both EPA and USDA, the Senate bill delegates the offset program to the President and is found in only one part of the bill (Part D of Title VII to the Clean Air Act, added by Title I of the bill). A comparison between the EPA program in the House bill and the program delegated to the President is found above.
Sec. 501. Definitions Provides definitions relevant for this title. Subsection 501(b) states that agricultural and forestry sectors are not considered "capped sectors" for the purposes of Titles III (the cap-and-trade provisions) or V. However, the phrase "capped sector" appears nowhere else in the bill.	No similar provision.	

H.R. 2454, as Passed by the House	S. 1733, as Ordered Reported	Comments
Sec. 502. Establishment of Offset Credit Program from Domestic Agricultural and Forestry Sources Directs the Secretary of Agriculture to establish an offsets program within one year of enactment of Title V. Instructs USDA to issue rulemakings that would include offset methodologies, provisions to address leakage and/or reversals, third-party verification requirements, and audit procedures. Provides technical assistance to offset project developers from funds appropriated to the Conservation Operations account.	No similar provision.	
Sec. 503. List of Eligible Domestic Agricultural and Forestry Offset Practice Types Directs USDA within one year of enactment to publish in the Federal Register a list of eligible offset practice types. When preparing the list, USDA shall consider the recommendations of the Advisory Committee. The list "shall include" practices that reduce/sequester GHG emissions, "such as" altered tillage, reduced fertilizer use, afforestation, and manure management, among other examples. Because the text includes the phrase "such as" instead of "including," USDA is not required to include on the list the practices specifically identified. Provides for procedures for USDA to add practices to the list or revise the list. Allows parties to petition USDA to add practices to the list.	No similar provision.	

H.R. 2454, as Passed by the House	S. 1733, as Ordered Reported	Comments
Sec. 504. Requirements for Domestic Agricultural and Forestry Practices Directs USDA to establish methodologies (per a regulatory rulemaking process) for the offset practices listed per Sec. 503. For each eligible practice type, USDA is to develop standardized methodologies that address additionality, baseline calculations, measurement, leakage, and uncertainty. USDA is to develop a process that accounts for offset "reversals," including mechanisms such as an offsets reserve and/or insurance. An offsets reserve "is a program under which, before issuance of offset credits under this part, the Secretary shall subtract and reserve from the quantity to be issued a quantity of offset credits based on the risk of reversal." USDA may issue "term offset credits" in lieu of offset credits for offset practices with crediting periods of five years or less. Requires USDA to implement different reversal requirements for term offset credits. USDA will specify the crediting period for each offset practice. Crediting periods will not exceed 5 years for agriculture sequestration; 20 years for forestry sequestration; and 10 years for other practices.	No similar provision.	
Sec. 505. Project Plan Submission and Approval Describes the process by which an offset project developer seeks approval for a particular offset project. Requires offset project developers to submit for approval to USDA an offset project plan. Directs USDA within 90 days to either approve or deny the plan. If approved, USDA must provide an estimate of offset credits that would be earned (subject to third-party verification). Includes appeals process. Clarifies that a project plan need only be submitted once in a crediting period.	No similar provision.	
Sec. 506. Verification of Offset Practices Requires offset project developer to provide USDA with verification from a USDA-accredited third party. USDA is to create a process to accredit third parties for this function. Required information (e.g., tons reduced/avoided/sequestered, methodologies used) in the verification and the schedule for its submittal will be determined by USDA.	No similar provision.	

H.R. 2454, as Passed by the House	S. 1733, as Ordered Reported	Comments
Sec. 507. Certification of Offset Credits Directs USDA to make offset issuance determinations no later than 90 days after receipt of the third-party verification reports. After making the determination, USDA is to issue credits within 14 days. Offsets will be assigned unique serial numbers provided by EPA.	No similar provision.	
Sec. 508. Ownership and Transfer of Offset Credits Clarifies that the initial owner of an offset credit would be the project developer. Allows offset credits to be sold, traded, or transferred until they are retired or expired.	No similar provision.	
Sec. 509. Program Review and Revision Requires USDA to review various components—methodologies, reversal policies, accountability measures—of its offset program at least once every five years.	No similar provision.	
Sec. 510. Environmental Considerations Instructs USDA, if it lists forestry projects as eligible offset types, to develop regulations that address concerns particular to forestry offsets. The list of concerns includes biodiversity, invasive species, and non-native species.	No similar provision.	
Sec. 511. Audits Authorizes USDA to conduct random audits of offset projects, credits, and practices of third-party verifiers. Requires USDA to annually audit, at minimum, a representative sample of project types and geographic areas.	No similar provision.	

H.R. 2454, as Passed by the House	S. 1733, as Ordered Reported	Comments
Subtitle B—USDA Greenhouse Gas Emission Reduction and Sequestration Advisory Committee		
Sec. 531. Establishment of USDA Greenhouse Gas Emission Reduction and Sequestration Advisory Committee Instructs USDA to create an independent USDA Greenhouse Gas Emission Reduction and Sequestration Advisory Committee, which will make recommendations regarding offsets as a whole and methodologies for each eligible offset practice. The Board shall by 2017, and every five years thereafter, provide an analysis to USDA of the Title V offset program and make recommendations regarding the program. Directs the USDA Advisory Committee to consult with the EPA-established Offsets Integrity Board.	No similar provision.	

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