

WRI Summary of H.R. 2454, the American Clean Energy and Security Act (Waxman-Markey)

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This summary provides a concise overview of H.R. 2454, the American Clean Energy and Security Act (herein referred to as ACES), as passed by the House of Representatives on June 26, 2009.³ The ACES is a comprehensive energy and greenhouse gas (GHG) reduction bill substantially revised since the original discussion draft released on March 31, 2009.

The ACES consists of five titles:

- Title I, Clean Energy
- Title II, Energy Efficiency
- Title III, Reducing Global Warming Pollution
- Title IV, Transitioning to a Clean Energy Economy
- Title V, Agriculture and Forestry Related Offsets

This summary roughly follows the structure of the bill; it deviates from this structure where we believe it facilitates understanding by grouping related components together. For a detailed review of allowance value distribution under ACES please see Appendix A. For more information on specific components of the ACES, please refer to the actual legislative language as referenced by section and page number in this document.⁴

CLEAN ENERGY

- **Combined efficiency and renewable electricity standard:** 20% renewables by 2020. Eligible resources are wind, solar, geothermal, biomass or landfill gas, qualified (incremental) hydropower, marine and hydrokinetic renewable energy. Hydro, nuclear, and CCS generation are not included in base sales. Up to 25% of compliance obligation can be met through efficiency and states may petition to increase this to 40% (Sec. 101, pg. 28-29).
- **Clean transportation**
 - Electric vehicles: Requires utilities to plan for the integration of electric vehicles. Creates a program to fund broad demonstration of electric vehicle integration into the grid. Provides financial assistance for electric drive vehicle and battery manufacturing (Sec. 121-123, pg. 108).
 - Large-scale vehicle electrification program use of funds. Funds may be used to assist fleet owners in the purchase of electric vehicles and provide electric vehicle supporting infrastructure such as smart grid (Sec. 122, pg. 115).
- **State Energy and Environment Development (SEED) Funds** are created for each state to manage and account for federal funds given to states to support state clean energy, energy efficiency, and climate change programs (Sec. 131, pg. 137). Revenue for SEEDS is derived from the disposition of allowances under Title III, the cap and trade program.
- **Transmission and distribution**
 - Smart grid: Incorporates smart grid considerations into the federal labeling programs. Requires states or load-serving entities to establish peak demand reduction goals. Expands rebate and public information programs to include smart grid equipment (Sec. 141, pg. 154).

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³ This summary applies only to H.R. 2454 as passed and not subsequent iterations.

⁴ Page numbers apply to H.R. 2454 as passed. Copies of the bill can be acquired from the Government Printing Office.

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- Transmission planning: Calls for a regional transmission planning process to be coordinated by FERC. However, the ACES does not give FERC siting authority, as called for in other similar proposals (Sec. 151, pg. 172). In the Western Interconnection FERC may call for the construction or modification of construction facilities if the facility is multi-state, if there is no conflict concerning the need for the facility, and if the appropriate siting authority does not carry out its obligations within 1 year after the date of application (Sec. 216B, pg. 180).
- **Technical corrections to energy laws**: Makes a variety of amendments to 2007 EISA and 2005 EPACT (Sec. 161, pg. 200 and Sec. 162, pg. 235).
- **Energy and efficiency centers**: Establishes and funds regional research centers to develop renewable, transmission, water security, and efficiency technologies (Sec. 171-175, pg. 235-265).
- **Nuclear and advanced technologies**: Establishes energy technology deployment goals to be met through loan-guarantees and a clean energy investment fund. Applies broadly to technologies that can reduce energy sector emissions or improve energy security (Sec. 181, pg. 265).

ENERGY EFFICIENCY

- **Building efficiency**: Requires government to update national model building codes for residential and commercial buildings every three years in line with specific efficiency targets (Sec. 201-205, pg. 320).
 - Incentives in the form of allowances from Title III are provided to states and local governments for implementing and complying with building codes.
 - Establishes Retrofits for Energy and Environmental Performance (REEP) program to facilitate energy efficient retrofits for residential and non-residential buildings.
 - Provides for rebates to owners of manufactured homes constructed prior to 1976 to use toward the purchase of an Energy Star qualified manufactured home. Establishes a building efficiency labeling program for residential and commercial markets.
 - Requires labeling program to be used in Department of Energy and Environmental Protection Agency buildings.
 - Establishes a grant program for retail power providers that partner with tree planting organizations to develop targeted tree planting programs for residences and small office buildings.
 - Under HUD, establishes Residential Energy Efficiency Block Grant Program of \$2.5 billion (Sec. 123, pg. 630).
- **Lighting and appliance efficiency**: Provides a series of new appliance and lighting efficiency standards and makes changes to standards-setting process. Establishes a WaterSense program in EPA to identify and promote water efficient products, buildings, and landscapes. Also creates new water-efficiency purchase requirements, rebates, and labeling programs (Sec. 211-219, pg. 421).
- **Transportation efficiency**
 - Vehicle performance standards: Creates new performance standards for heavy-duty vehicles and other mobile emissions sources. See “interaction with EPA authority” section for more details.
 - State planning: States must create transportation emissions reduction goals incorporating strategies such as new public transit, land use and zoning policies, etc. (Sec. 841, pg. 510).
 - Smartway transport efficiency program: Measures and designates energy-efficient, low-greenhouse gas “SmartWay” technologies and strategies. Provides incentives for the adoption of SmartWay technologies (Sec. 822, pg. 519).
- **Industrial efficiency programs**: Requires DOE to establish industrial plant energy efficiency certification standards. Provides awards for electric and thermal energy efficiency. Provides rebates for efficient industrial motors. Establishes a revolving loan fund program for clean energy technology products, including wind turbines, solar panels, and fuel cells (Sec. 241, pg. 524).

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GLOBAL WARMING POLLUTION REDUCTION TARGETS AND TIMETABLES⁵

- **Emissions cap.** The ACES sets both a non-binding economy-wide GHG emission reduction goal (Sec. 702, pg. 682) as well as a mandatory cap on covered greenhouse gases (Sec. 703, pg. 682).
 - The economy-wide emission reduction goals are:
 - 2012: 3% below 2005 emission levels (~12% above 1990 emission levels)
 - 2020: 20% below 2005 (~7% below 1990)
 - 2030: 42% below 2005 (~33% below 1990)
 - 2050: 83% below 2005 (~80% below 1990)
 - The emission reduction cap targets are:
 - 2012: 3% below 2005 emission levels (~12% above 1990 emission levels)
 - 2020: 17% below 2005 (~4% below 1990)
 - 2030: 42% below 2005 (~33% below 1990)
 - 2050: 83% below 2005 (~80% below 1990)
- The cap brings in covered sources in three phases from 2012 through 2016 (see Point of Regulation).
- **A consumption⁶ cap on all HFCs.** This cap is established by extending Title VI of the CAA to apply to HFCs and represents the maximum annual allowable amount of consumption. Reduction amounts are relative to average U.S. HFC consumption levels between 2004 and 2006 (Sec. 619, pg. 963).
 - 2012: 10% below
 - 2020: 33% below
 - 2030: 75% below
 - 2032 and onward: 85% below
 - **Scientific and programmatic review.** The ACES requires the National Academies of Science (NAS) to conduct a review of climate science, technology options, and U.S. progress toward meeting the economy-wide emission reduction goals set by the proposal. The President is authorized to exercise all statutory authority to act on recommendations made by the NAS and recommend to Congress additional actions that may be necessary to meet U.S. and global GHG reduction commitments (Sec. 705, 706, pg. 684).

POINT OF REGULATION, EMISSIONS REPORTING AND COVERAGE

- **Covered gases:** 5 Kyoto gases (not HFCs, see above) plus NF₃ with EPA authorized to add additional GHGs in the future (Sec. 711, pg. 699).
- **Mandatory reporting:** Required by 2011 for all prior years through 2007. Quarterly reporting is required beginning in 2011. All covered entities plus other types of entities are required to report (Sec. 713, pg. 711).
- **Point of regulation:** A hybrid approach is used with sources phased in over a 5-year time frame (see definitions Sec. 700, pg. 844 and Sec. 722, pg. 734).
 - **Covered in 2012:** The ACES assumes the cap covers 66.2% of total U.S. emissions during this phase.
 - All electric power generators (downstream).
 - Natural gas liquid-, petroleum-, and coal-based liquid fuel producers/importers (upstream) whose products when combusted emit over 25,000 tonnes annually.
 - Producers and importers of fluorinated gases (upstream) except HFCs.
 - Geologic storage sites.
 - **Added to coverage in 2014:** The ACES assumes the cap covers 75.7% of total U.S. emissions during this phase.
 - Industrial sources (downstream) that annually emit 25,000 tonnes or more, not including emissions from petroleum and renewable biomass combustion; plus all sources (regardless of size) in select energy-intensive sectors (e.g., glass, ceramics).
 - **Added to coverage in 2016:** The ACES assumes the cap covers 84.5% of total U.S. emissions during this phase.
 - Natural gas Local Distribution Companies (LDCs) (midstream) that deliver more than 460,000,000 cubic feet of gas annually to non-covered entities. Emissions that result from sales are regulated with measures to prevent double counting.

Legislative assumptions of emissions coverage are consistent with WRI estimates.

⁵ See WRI's analysis of emission reductions under the ACES, available here: <http://www.wri.org/publication/usclimatetargets>

⁶ Consumption = Production + Imports – Exports

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- A note on renewable biomass: The definition of renewable biomass contained in the bill as passed may allow some net carbon-positive rather than carbon-neutral materials to qualify for use (Sec. 700, pg. 857).

CARBON MARKET ASSURANCE AND OVERSIGHT

- **FERC:** The Federal Energy Regulatory Commission is given regulatory authority over allowance and offset markets and allowance derivative markets (Sec. 341, pg. 1027). The President is also delegated authority to instruct agencies to pieces of market regulation based on existing authority as long as regulations are consistent with this section. The ACES makes it a federal crime to commit fraud or manipulate any carbon market. In addition, the regulations facilitate and maintain market oversight and transparency and require market monitoring to prevent fraud, manipulation, and excessive speculation. FERC is required to set position limits and margin requirements for all participants in regulated allowance markets.
- **Additional market assurance measures:** Expands authority of the Commodities Futures Trading Commission (CFTC) to regulate energy derivatives and carbon market derivatives (Sec. 351, pg. 1046). Requires these derivatives to be settled and cleared on designated exchanges (Sec. 354, pg. 1060).
- **Cease and desist powers:** FERC and CFTC are also given cease and desist powers for offenses that have taken place or may take place in their respective jurisdictions (Sec. 359, pg. 1077).

ALLOWANCE VALUE DISTRIBUTION⁷

- **Auction procedure:** Quarterly auctions will be held to sell allowances designated for auction beginning in March 2011. Auctions will be open to all individuals. A reserve price is established for all regular auctions initially set at \$10/tonne increasing at 5% above inflation in each subsequent year. All entities in possession of allowances may request that the Administrator sell their allowances on consignment (Sec. 791, pg. 943).
- **Distribution of value:** The ACES distributes allowance value in a number of ways to support various federal and state programs (both existing and established under the Act) and benefit energy consumers as well as giving some value to regulated entities for free. The amount of value directed to various purposes changes over time (Part H, Sec. 781-790, pg. 862-942).
- **Carryover:** If allowances are allocated to energy-intensive, trade-exposed industries, and the deployment of carbon capture and sequestration technology or supplemental agriculture and renewable energy are not all distributed in a vintage year, the Administrator shall use the undistributed allowances to increase, for the same vintage year, the allocation of allowances to be auctioned for deficit reduction, consumer refunds, and low-income consumers. In the following vintage year, the allocations to these programs is decreased by the same amount as it was increased the previous year, and those allowances are allocated for the purpose for which the undistributed allowances were originally allocated (Sec. 781, pg. 882).
- **Future release:** The Administrator shall make future year allowances available by auctioning specific amounts of allowances with vintage years 12 to 17 years after the year of auction (Sec. 781, pg. 880).

For a detailed review of allowance value distribution both by distribution method (auction or allocation) and purpose, please see Appendix A of this summary. Note that the appendix accounts for all allowances in their respective vintage years and not in the year of release.

COST CONTAINMENT (OTHER THAN OFFSETS)

- **Trading.** Unlimited trading of allowances is permitted by any party (not restricted to owners and operators of covered entities). All allowances will be tracked in an allowance tracking system (Sec. 724, pg. 752).
- **Banking and borrowing:**
 - Banking of allowances and offsets is not limited (Sec. 725, pg. 754).
 - **Borrowing without interest:** Allowances can be used for compliance for emissions in the calendar year preceding the vintage year (e.g., for compliance in 2015 a covered entity could use an allowance from 2016). There is no limit on this type of borrowing (Sec. 725, pg. 755).
 - **Borrowing with interest:** Up to 15% of an entity's compliance obligation can be met through submission of allowances with a vintage year 1-5 years later than that calendar year. For

⁷ See Appendix A for analysis of the allowance value allocation under HR 2454.

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each borrowed allowance, the borrower needs to submit additional allowances to meet an 8% annual interest fee (Sec. 725, pg. 756).

- **Strategic reserve:** Quarterly auctions will be held to auction strategic reserve allowances. Only covered entities will be eligible to purchase allowances from the auction (Sec. 726, pg. 757). The following percentage of allowances will be held annually by the Administrator for the auction:
 - 2012-2019: 1% of allowances for that year
 - 2020-2029: 2% of allowances for that year
 - 2030-2050: 3% of allowances for that yearThe reserve will also contain allowances not sold in previous auctions.
 - Minimum reserve price:
 - 2012 minimum price will be \$28.
 - 2013 and 2014 price will be the price set for 2012, plus 5% above the rate of inflation
 - 2015 onward: minimum price will be 60% above a rolling 36-month average of the daily closing price for that year's allowance vintage.
 - Quantity of allowances sold at auction:
 - 2012-2016: not more than 5% of allowances established for that year can be sold
 - 2017-2050: not more than 10% of allowances established for that year can be sold
 - Purchase limits: Not more than 20% of a covered entity's compliance obligation may be purchased from the strategic reserve annually. Administrator shall establish a separate purchase limit for new entrants, starting at a minimum of 20%.
 - Auction proceeds: Proceeds from auction will be placed in a strategic reserve fund. The fund will be used to purchase international offset credits from reduced deforestation. The Administrator will retire those credits and establish emissions allowances equal to 80% of the number of offset credits retired. These allowances will be placed back into the strategic reserve to fill it to its original size (Sec. 726, pg. 763).
 - Additional forest offset sales: Under certain circumstances (very high offset use and a full exhaustion of strategic reserve allowances at any given auction), entities may sell at auction additional forest offsets above and beyond allowances sold at strategic reserve auctions. These offsets are not subject to the purchase limits in place for strategic reserve allowances or use limits in place for international offsets (Sec. 726, pg. 765).
- **International emission allowances:** The Administrator may by rule allow allowances from other trading programs that are at least as stringent as the U.S. program. Entities may initially use an unlimited number of international allowances for compliance, though the Administrator has the authority to restrict their use (Sec. 728, pg. 774).

OFFSETS

- **Program administration.** EPA is Administrator of the international offset program and all project types other than domestic forestry and agriculture offset projects; the Secretary of Agriculture will oversee the domestic agriculture and forestry sector (Sec. 501, pg. 1386).
 - Advisement.
 - Establishes an independent "Offsets Integrity Advisory Board" to provide guidance to EPA on project types, areas of scientific uncertainty, and acceptable qualification and quantification methodologies (for all project types other than domestic forestry and agriculture projects). The Board will also conduct a scientific review of offset program and deforestation reduction programs by 2017, and every 5 years thereafter (Sec. 731, pg. 776).
 - Also establishes a separate "USDA Greenhouse Gas Emission Reduction and Sequestration Advisory Committee" not later than 30 days after the date of enactment. Will consist of 9 members qualified by education or training and appointed by the Secretary to make recommendations on domestic agriculture and forestry offset projects (Sec. 531, pg. 1412).
- **Limits on offset use**
 - System-level offset limit: No more than 2 billion tons of offsets annually may be used for compliance (Sec. 722, pg. 740). The President may make a recommendation to Congress regarding whether the 2 billion ton limit should be increased or decreased (Sec. 722, pg. 743).
 - Entity-level offset limits: Covered entities may satisfy a percentage of their compliance obligation with offsets each year. This number is divided pro rata among covered entities.

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This percentage limit varies year to year and is determined by the Administrator by dividing the number 2 billion by the sum of 2 billion plus the number of emission allowances in the previous year's allowance budget and multiplying that number by 100 (for example, the 2013 limit will be 30% of an entity's compliance obligation and the 2050 limit will be 66%) (Sec. 722, pg. 741).

- Domestic/International offset limits: Of the total offsets allowed, not more than half can come from domestic offsets and not more than half can come from international offsets. However, if the Administrator determines that less than 0.9 billion tons of domestic offsets are available, the Administrator can increase the use of international offsets, and decrease by a corresponding amount the domestic offset limit up to a maximum of 1.5 billion international tons and a minimum of 0.5 billion domestic tons (Sec. 722, pg. 744).
- **General offset provisions**. Includes provisions for project approval, verification, verification accreditation, credit issuance, and auditing. Directs administrator to establish as part of regulations promulgated under sec. 732(a) provisions to address: additionality, leakage, uncertainty, permanence, and variances from methodologies (Sec. 734, pg. 785).
 - Program review. The program will be reviewed at least once every 5 years, and revised if necessary (Sec. 739, pg. 799).
 - Offset reserve: Before the issuance of offset credits, the Administrator shall subtract and reserve an unspecified quantity of credits based on the risk of an offset reversal and hold and register these credits (Sec. 734, pg.158).
 - Reversals: The Administrator shall establish policies to report, assign liability for, and mitigate reversals of sequestration projects, potentially including: 1) an offset reserve, 2) insurance, 3) another mechanism. If a reversal occurs the Administrator will cancel credits equal to reversal. The Administrator is also directed to hold emissions allowances in amounts to fully compensate for GHG emissions attributable to reversals.
- **Early offset supply**. One offset credit shall be issued for each ton of CO₂e registered under a government-established or Administrator-approved program established before Jan. 1, 2009, as long as the project: 1) was started after Jan. 1, 2001, 2) has developed methodologies through a public consultation or peer-review process, 3) has publicly published standards that ensure emission reductions are real, additional, verifiable, and enforceable, 4) requires that all credits issued are registered in a publicly accessible registry with individual serial numbers for each ton, and 5) there is no conflict of interest between the offset project representative and the registry.
 - Retired and expired credits are not eligible.
 - Credits will only be issued for emission reductions that occur after Jan. 1, 2009, and only for 3 years after the date of enactment of the act.

Projects that were not established by state or tribal law, or were established after Jan. 1, 2009 but otherwise meet all other criteria can apply to the Administrator for consideration for early offset credit (Sec. 740, pg. 800).

DOMESTIC AGRICULTURE AND FORESTRY OFFSETS

- **Administration**. The Secretary of Agriculture will oversee the domestic agriculture and forestry offset programs. The Secretary has 1 year from the date of enactment to establish the program governing domestic offsets (Sec. 502, pg. 1390). The Secretary shall review the program and based on updated information and the recommendations of the Advisory Board shall update and revise the offset program (Sec. 509, pg. 1410).
- **General offset provisions**
 - Offset quality. Offsets must represent additional, verifiable emission reductions, avoidance, or sequestration. Sequestration projects can only be issued for GHG reductions that result in a permanent net reduction in atmospheric GHGs (Sec. 502, pg. 1391).
 - Offset project types. Requires the Secretary to, within 1 year of date of enactment, consider a broad range of potential emission reduction and sequestration projects. Includes list of projects to be considered as long as they meet offset provisions in the bill. Provides a petition process for adding project types to the list (Sec. 503, pg. 1392).
 - Offset baselines. The Secretary shall set baselines to reflect a conservative estimate of performance or activity for the relevant type of practice (excluding previous changes in performance or activities due to the availability of offset credits) such that the baseline provides an adequate margin of safety to ensure the environmental integrity of offset credits calculated in reference to such baseline (Sec. 504, pg. 1396).

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- **Additionality.** Offset projects are considered additional only to the extent that they result from activities that: 1) are not required by existing government regulation, as determined by the Secretary, 2) were not commenced prior to January 1, 2009 (with exceptions for certain types of sequestration projects that started after 2001), 3) exceed the applicable activity baseline established under paragraph 2 (Sec. 1396).
- **Crediting periods.** Offsets crediting periods are specified: 5 years for agricultural sequestration, 20 years for forestry and 10 years for other practice types. Crediting period renewals are unlimited, but can be limited for some project types by the Secretary (Sec. 504, pg.1404).
- **Term offset credits.** Offset projects with 5-year crediting periods approved as an offset project type under the list promulgated by the Secretary (largely agriculture sequestration projects) can be issued temporary credits that expire 1 year after this crediting period ends and must be replaced by a permanent offset credit, an emissions allowance, or another term offset credit. Reversals are only required to be accounted for during the activity crediting period (Sec. 504, pg.1403 and Sec. 722, pg.743).
- **Environmental integrity.** The Secretary shall apply conservative assumptions or methods to ensure the environmental integrity of the cap (Sec. 504, pg. 1405).
- **Offset reversals.** The bill requires that reversals of stored carbon be addressed through an offset credit and/or allowance reserve established to fully account for any reversals (with the exception of reversals of projects issued term offset credits, where reversals are only required to be accounted for during the project's crediting period) (Sec. 504, pg. 1399).
- **Verification and auditing.** Requires the Secretary to establish a process and requirements for periodic accreditation of third-party verifiers to ensure that those verifiers are professionally qualified and have no conflicts of interest. Requires annual, random audits of offset projects, credits, and practices of third-party verifiers (Sec. 506, pg. 1407 and Sec. 511, pg. 1412).
- **Environmental considerations.** Requires the Secretary to consider native species, biodiversity, and sustainable forestry practices for offset projects in the forestry sector (Sec. 510, pg. 1411).

INTERNATIONAL OFFSETS

- **Administration.** The Administrator, in consultation with the Secretary of State and Administrator of USAID, may issue international offset credits based on projects that avoid, reduce or sequester emissions in developing countries. Regulations must be promulgated within 2 years from date of enactment (Sec. 743, pg. 805).
 - **Regulation.** International offset credits may be issued only if: 1) the U.S. is a party to a bilateral or multilateral agreement that includes the country in which the project has occurred, 2) such a country is a developing country⁸, 3) the agreement ensures all requirements of legislation apply and provides for appropriate disposition of offsets (Sec. 743, pg. 805).
 - **Additional credit requirement.** Beginning in 2018, a covered entity must surrender 1.25 offset credits in lieu of 1 allowance for any international offset credits (Sec. 722, pg. 743).
- **Project sources.** Offset credits may be issued for projects identified by the Administrator under Sec. 733, through an approved international body, sectoral crediting mechanisms, or international reduced deforestation as outlined in legislation (Sec. 743, pg. 805).
 - **Sector-based credits:** Approves the issuance of offset credits based on sectoral crediting mechanisms targeted at sectors in countries that 1) have comparatively high emissions or greater levels of economic development, or 2) would be subject to a compliance obligation under section 722 if it were located in the U.S. Also outlines factors that should be taken into consideration including GDP, GHG emissions, international competitiveness, risk of leakage, etc. (Sec. 743, pg. 806).
 - **Recognition of other programs:** The Administrator can issue credits in exchange for credits issued by an international body established by the UNFCCC, a protocol to such convention or a treaty that succeeds such a convention, as long as those credits were generated through a program that creates equal or greater assurance of the environmental integrity of the U.S.

⁸ The term 'developing country' means a country eligible to receive official development assistance according to the income guidelines of the Development Assistance Committee of the Organization for Economic Cooperation and Development (pg. 852).

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program. After Jan. 1, 2016, credits cannot be issued if the activity occurs in a country and sector covered under a sectoral crediting agreement (Sec. 743, pg. 810).

- Offsets from reduced deforestation: International offset credits are allowed only if the activity occurs in a country identified by the Administrator pursuant to their ability to participate in such a program according to specific criteria as established by this Act. Offset credits can be issued relative to a national, sub-national, or activity basis (in certain instances) (Sec. 743, pg. 811).

OTHER OFFSET RELATED PROVISIONS

- **Agriculture incentives program.** A portion of allowances are set aside to [provide incentives for] additional activities in the agriculture sector to reduce GHG emissions or sequester carbon. These must be: 1) GHG emission reduction or avoidance projects that do not meet the criteria for offsets credits as established by the bill; 2) support actions to adapt to climate change, or 3) activities that prevent conversion of land in ways that would increase GHG emissions (these can include projects and activities that complement or supplement conservation programs) (Sec. 788, pg. 938).
- **Exchange for early action offset credits.** Credits issued by an Administrator-approved offset program under the early offset provisions (Sec. 740) may be exchanged for allowances. The exchange value will be determined by the average monetary value of the credits during the period of Jan. 1, 2006 - Jan. 1, 2009. Only credits that have not been retired and were issued between Jan. 1, 2001 and Jan. 1, 2009 are eligible to receive allowances (Sec. 795, pg. 952).

INTERACTION WITH EPA AUTHORITY UNDER THE CLEAN AIR ACT

- **Extension of CAA Title VI** (stratospheric ozone protection) to include HFCs (Sec. 619, pg. 963).
 - Sets a cap on consumption of HFCs with most allowances auctioned and the rest sold to producers, importers, and consumers of HFCs (see targets and timetables section above). This cap is separate from the broader cap and trade program. No trading is permitted between programs (Sec. 619, pg. 963).
 - Imposes other requirements restricting commerce of HFCs (Sec. 619, pg. 963).
- **Prohibits EPA from:**
 - Classifying GHGs as criteria pollutants on the basis of their climate impacts (Sec. 831, pg. 962).
 - Designating any GHG as a hazardous air pollutant on the basis of its climate impacts (Sec. 833, pg. 963).
 - Setting New Source Review standards for GHGs on the basis of their climate impacts (Sec. 834, pg. 963).
 - Considering the climate impacts of GHG emissions when issuing operating permits under Title V of the CAA (Sec. 835, pg. 963).
- **Standards:** Requires EPA to:
 - Regulate black carbon or decide that any regulations set under the CAA are adequate (Sec. 851, pg. 206).
 - Set performance standards for GHGs from uncapped stationary emission sources that emit greater than 10,000 tonnes. Sources of methane from enteric fermentation are exempt from standards (Sec. 811, pg. 191).
 - Set emission standards for certain mobile sources based on costs and available technology (Sec. 821, pg. 505). Covered sources include heavy-duty vehicles not covered under existing CAA authority, aircraft, and other non-road vehicles (which may include marine vessels and other non-road vehicles and engines).
 - Set standards for CCS geologic storage sites and coal-fired power plants (see coal provisions).

INTERACTION WITH STATE PROGRAMS

- **Temporarily prohibits States from running their own cap and trade programs.** This prohibition expires after 2017. The prohibition does not apply to state LCFSS⁹, vehicle fleet standards such as CA cars, or most other areas of state authority (Sec. 861, pg. 1018).

⁹ LCFS stands for “Low Carbon Fuel Standard”

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- Those who hold CA or RGGI allowances can be compensated with allowances from the federal program. Compensation is based on the cost of holding allowances, not the amount of allowances held (see allowance distribution).
- States are permitted to require federal allowances for compliance with state air regulations that reduce GHGs.
- **State cooperation on energy programs** established or changed through the clean energy and energy efficiency titles of the ACES are required or encouraged. States also receive federal funds for clean energy, energy efficiency, and climate change programs (see Clean Energy and Energy Efficiency).

INTERNATIONAL ISSUES

- **Forestry**
 - Supplemental emissions reductions from reduced deforestation: Achieve supplemental emissions reductions of at least 720 million tons in 2020 (cumulative amount of 6 billion tons by 2025) through forestry projects in developing nations. Also builds capacity for international forest credits and preservation of existing forest carbon stocks at risk of international leakage (Sec. 751, pg. 826).
 - Allowances for reduced deforestation: In order to achieve the reductions called for in Sec. 751, the ACES allocates 5% from 2012-2025, 3% from 2026-2030, and 2% from 2031-2050 (Sec. 781, pg. 862).
- **Adaptation**: Establishes an international climate change adaptation program under State, USAID, Treasury, and EPA. The program would be administered by USAID, although 40-60% of funding should be distributed to international funds that meet specific eligibility criteria (Sec. 493, pg. 1370). This program will receive 1% of allowances between 2012 and 2021, 2% of allowances between 2022 and 2026, and 4% of allowances between 2027 and 2050 (Sec. 782, pg. 863).
- **Clean technology transfer**: Establishes a framework for an international technology transfer fund run by State, in consultation with DOE, EPA, USAID, and Treasury. Developing countries that have entered into an international climate agreement to which the U.S. is party and have undertaken nationally appropriate mitigation activities are eligible to receive support. Funded activities must contribute to substantial reductions, sequestration or avoidance of emissions. The Secretary of State will disburse funding through bilateral aid or through multilateral funds pursuant to the Convention (Sec. 441, pg. 1212). This program will receive 1% of allowances between 2012 and 2021, 2% of allowances between 2022 and 2026, and 4% of allowances between 2027 and 2050 (Sec. 782, pg. 864).
- **Competitiveness/leakage**:
 - Rebates: Follows Inslee-Doyle Output Based Rebating (OBR) model of providing rebates to carbon-intensive manufacturers to offset their cost of compliance. Sectors are presumed eligible if they meet a 5% energy or GHG intensity threshold and 15% trade intensity, or just a 20% energy or GHG intensity threshold. Each sector is rebated at 100% of sector average direct and indirect emissions cost. Rebates are phased out beginning in 2025, unless Presidential review determines that other countries have not yet taken substantial action and leakage concerns persist (Sec. 761, pg. 1081).
 - International negotiations: Recognizes that competitiveness concerns can be most effectively dealt with through internationally negotiated agreements. Also sets negotiating objectives including equitable emission reductions among all countries, the recognition of leakage as a concern, and the acceptance/adoption of mechanisms to address such leakage (Sec. 762, pg. 1089).
 - International reserve allowance program: If negotiating objectives have not been met by January 2018, the President will establish an international reserve allowance program to adjust the prices of energy-intensive imports at the border. Eligible industries will include those sectors that are eligible for rebates (see above) as well as manufactured goods that are primarily composed of the products of those sectors. Border adjustments will take into account free allocations provided through output-based rebates (Sec. 767, pg. 1116).

PROVISIONS FOR COAL

- **Legal and regulatory issues around carbon capture and storage (CCS)**

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- Requires interagency report that identifies legal and regulatory barriers to commercial CCS deployment. The report must provide recommendations to the President and Congress for new legislation and regulations that would address these barriers (Sec. 111, pg. 56). A task force study to design a legal framework for geologic storage sites is also established (Sec. 113, pg. 60).
- CO₂ geologic storage site regulations: Amends the CAA and the Safe Drinking Water Act (SDWA) to establish standards (Sec. 813, pg. 57). Standards must include rules on financial responsibility of injected CO₂, monitoring, record keeping, public participation, and certification rules, among other things. Rules must minimize redundancy between CAA and SDWA authority. Certified and uncertified geologic storage sites are covered entities under the cap and trade program (see Point of Regulation above).
- **R&D and early deployment of CCS**
 - Carbon Storage Research Corporation: Established to oversee and direct R&D of CCS technologies by issuing grants and financial assistance. This program is identical to Rep. Rick Boucher's (D-VA) proposal (Sec. 114, pg. 63).
 - Funding: Secured through assessments on utility sales of electricity from fossil fuels with annual nationwide limit of \$1 billion per year for no more than 10 years (Sec. 114., pg. 76).
 - Financial assistance eligibility: Commercial-scale projects undertaken by private, public, academic, and non-profit organizations are eligible, with an emphasis on supporting a diversity of technologies and fuels (Sec. 114, pg. 70).
 - Other provisions deal with governance, government oversight, sharing of information, and intellectual property.
- **Incentives and standards for commercial deployment of CCS**
 - Incentives: Provides fixed payments to facilities for tonnes of CO₂ captured and sequestered (Sec. 786, pg. 87). Amount per tonne is set on a sliding scale based on percent captured and the amount of commercial CCS already deployed. Initial amounts are as high as \$90/tonne for the highest capture rates. After 6 Gigawatts of CCS are deployed, bonus allowances are awarded through a reverse auction process. To be eligible, facilities must be fired by coal- or petroleum coke at least 50% of the time, achieve the emissions limitations set forth in Sec. 812, be an electric generating unit with 200 MW or greater nameplate capacity, or be an industrial source that will emit more than 50,000 tonnes of CO₂ per year absent any emissions capture.
 - Performance standards: Amends the CAA to require new coal-fired power plants to meet emission performance standards (Sec. 812, pg.104). The Administrator must review standards and may tighten them depending on the performance of commercially available technology. Details include:
 - Standards apply to all plants initially permitted after Jan. 1, 2009 where 30% or more of their fuel is coal and/or petroleum coke. Standards vary based on the year in which the plant is permitted along with other factors.
 - Plants initially permitted from 2009 through 2019 must emit no more than 50% fewer GHGs on an annual basis than they would otherwise by 2025 and potentially earlier, depending on the amount of commercial CCS technology deployed.
 - Plants initially permitted from 2020 onward must emit no more than 65% fewer GHGs on an annual basis than they would otherwise.
 - The Administrator may strengthen the standards but may not relax them.

DOMESTIC ADAPTATION

- **State Programs**. Establishes allocation of allowances to states starting in 2012 through 2050 to build resilience to climate change impacts.
 - A State must sell allowances within one year of receipt, and deposit proceeds into its State Energy and Environment Development (SEED) Fund. Requires promulgation of regulations related to submission of State climate adaptation plans not more than 2 years after date of enactment and submission of said plans every 5 years (Sec. 453, pg. 1230).
 - Requires **State-level Natural Resource Adaptation Plans** detailing each state's current and projected efforts to address the potential impacts of climate change and ocean acidification on natural resources and coastal areas (Sec. 479, pg. 1335).

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- **Federal programs.**
 - Establishes a **National Climate Change Adaptation Panel** that will include the heads of 10 federal agencies (Sec. 475, pg. 1320). Requires the development of climate change adaptation plans by each federal agency on the **Climate Change Adaptation Panel** (Sec. 478, pg. 1330).
 - Establishes a **National Climate Service** within NOAA to develop climate information and forecasts at national and regional scales. This service will also distribute information regarding climate impacts to State, local, and tribal governments (Sec. 452, pg. 1258).
 - **Public health and climate change.** Requires establishment of national strategic action plan to assist health professionals in preparing for and responding to the impacts of public health and climate change in the U.S. and other nations, particularly developing nations. Calls for development of a **Science Advisory Board**. Establishes climate change health protection and promotion fund of an unspecified amount (Sec. 461, pg. 1302).
 - Establishes a **National Climate Change Adaptation Strategy** that will develop reports and provide advice to key federal agencies (Sec. 476, pg. 1321).
 - Establishes a **National Climate Change Adaptation Fund** in the U.S. Dept. of Treasury with unspecified allowance allocation to assist regions and states in taking mitigation and adaptation actions. Allocation to States: 84.4% of funds will be made available to state wildlife agencies and 15.6% shall be made available to state coastal agencies. Allocation to federal agencies: 27.6% to Secretary of Interior, plus 8.1% for cooperative grant program, 4.9% for Indian Tribes. Land and Water Conservation Fund: 19.5%. Forest Service: 8.1%. Department of Commerce: 11.5%. EPA: 12.2% (Sec. 480, pg. 1345).

ASSISTANCE DURING THE TRANSITION TO A LOW CARBON ECONOMY

- **Additional consumer assistance**
 - Electric and natural gas LDC rate payer assistance: Emission allowances distributed to an electricity or natural gas local distribution company shall be used exclusively for the benefit of its retail rate payers and may not be used to support electricity sales or deliveries to entities or persons other than its ratepayers (Sec. 783, pg. 886 and Sec. 784, pg. 922).
 - Heating oil consumer assistance: Emission allowances are distributed to states that shall use them exclusively for the benefit of consumers of oilheat fuel, propane, or kerosene for residential or commercial purposes by using the proceeds for cost-effective energy efficiency programs, rebates, or other direct financial assistance programs (Sec. 785, pg. 932).
 - Climate change consumer fund: The Secretary of the Treasury shall provide tax refunds on a per capita basis to each household in the United States that shall collectively equal the amount deposited into the Climate Change Consumer Refund Account (Sec. 789, pg. 941).
 - Energy refund program for low income Americans: Amends the Social Security Act by adding that eligible low-income households are provided cash payments to reimburse the households for the estimated loss in their purchasing power resulting from the American Clean Energy and Security Act of 2009 (Sec. 431, pg. 1194).
- **Green job and worker transition**
 - Establishes a competitive grant program within the Department of Education for the development of programs of study in the fields of clean energy, renewable energy, energy efficiency, climate change mitigation, and climate change adaptation.
 - Establishes an Energy Efficiency and Worker Training Fund that will provide climate change worker adjustment assistance for adversely affected sectors (Sec. 421, pg. 1127).

Appendix A. Allowance Distribution Under H.R. 2454 the American Clean Energy and Security Act by Section
Total allowances and percentage¹ share of the allowance pool in selected years.

Category	Distribution	Use	2012		2014		2016		2025		2030		2050	
			%	Million tonnes	%	Million tonnes	%	Million tonnes	%	Million tonnes	%	Million tonnes	%	Million tonnes
Supplemental Forest GHG reduction program	Allocation to EPA, which in turn may transfer allowances to other countries that meet certain requirements. If not all allowances are distributed in a given year the value is carried over to the next vintage year (Sec. 781, pg. 862)	To reward countries that achieve certain amounts of GHG reductions in their forest sectors and to cover program costs (Sec. 751-756, pg. 826- 842)	5.0	229	5.0	252	5.0	271	5.0	210	3.0	103	2.0	20
Electricity Consumers	Allocation to electric local distribution companies (Sec. 782(a)1, pg. 863) based on total emissions resulting from retail deliveries and total retail deliveries weighted equally. No LDC may receive allowance value that exceeds the costs incurred by the cap-and-trade program (Sec. 783(b), pg.892).	Solely for the benefit of ratepayers distributed equitably across all rate classes (e.g. fixed amount rebates). State regulators must submit plans and reports on use of allowances. Allowance value to industrial rate payers may be distributed based on deliveries. (Sec. 783(b), pg. 892)	37.5	1717	33.3	1682	30.0	1628	30.0	1262	0.0	0	0.0	0
Electricity Consumers served by small LDCs	Allocation to electric local distribution companies with annual deliveries of less than 4 million MWH (Sec. 782(a)2, pg. 864) based on emissions resulting from retail deliveries (Sec. 783(e) pg. 916).	Must fund cost-effective energy efficiency programs, renewable energy deployment programs and assistance to low-income residential ratepayers (783(e), pg 916)	0.5	23	0.5	25	0.5	27	0.5	21	0.0	0	0.0	0

¹ Percentages may not sum to exactly 100 percent due to rounding.

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Category	Distribution	Use	2012		2014		2016		2025		2030		2050	
			%	Million tonnes	%	Million tonnes	%	Million tonnes	%	Million tonnes	%	Million tonnes	%	Million tonnes
Merchant Coal Generators and Generators with long-term contracts (maximum amount)²	Allocation to merchant coal generators and generators with long term sales contracts (Sec. 783(b), pg.892) equal to 50% of qualifying emissions (Sec. 783(c), pg. 908). Allowances are also allocated to generators with long term power contracts (Sec. 783(d), pg. 912)	No restriction after distribution	6.3	287	5.56	281	5.0	272	5.0	211	0.0	0	0.0	0
Natural Gas Consumers	Allocation to natural gas local distribution companies (Sec. 782(b), pg.865) based on total retail deliveries of natural gas	Solely for the benefit of ratepayers equitably distributed across all rate classes (e.g. fixed amount rebates). 1/3 of allowances must be used to fund cost effective energy efficiency projects. Allowance value to industrial rate payers may be distributed based on deliveries. State regulators must submit plans and reports on use of allowances (Sec. 784, pg. 922)	0	0	0	0	9.0	488	9.0	379	0	0	0	0
Home Heating Oil and Propane Consumers	Allocation to states based on carbon content weighted sales of home heating oil and propane (Sec. 782(c), pg. 866)	Solely for the benefit of heating oil and propane consumers. At least 50% must be used to fund cost effective energy efficiency projects (Sec. 785, pg. 932)	1.9	86	1.7	84	1.5	81	1.5	63	0.0	0	0.0	0

² The values shown here reflect the maximum annual amount that may be allocated to these entities in a given year. Any allowances not allocated to these entities are directed into the Electricity Consumers pool.

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Category	Distribution	Use	2012		2014		2016		2025		2030		2050	
			%	Million tonnes	%	Million tonnes	%	Million tonnes	%	Million tonnes	%	Million tonnes	%	Million tonnes
Low-income Consumers	Auction with proceeds going to low-income consumers (Sec. 782(d), pg. 867)	Provides funding for energy tax credits and energy rebates for low income consumers (Title IV, Subtitle C, pg. 1193)	15.0	687	15.0	757	15.0	814	15.0	631	15.0	514	15.0	151
Trade Vulnerable Industries (maximum amount)³	Allocation to industrial sources meeting certain eligibility requirements based on carbon intensity of production and trade exposure. Final distribution to eligible facilities is based on output. If not all allowances are distributed in a given year the value is carried over to the next vintage year (Sec. 782(e), pg. 868 and Title IV, Part F, pg. 1087-1092)	No restriction after distribution	2.0	92	15.0	757	13.4	729	13.4	565	6.7	226	0.0	0

³ The values shown here reflect the maximum annual amount that may be allocated to these entities in a given year. The value of allowances not allocated to this purpose is carried over to the next year.

Appendix A. Allowance Distribution Under H.R. 2454 the American Clean Energy and Security Act by Section
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Category	Distribution	Use	2012		2014		2016		2025		2030		2050	
			%	Million tonnes	%	Million tonnes	%	Million tonnes	%	Million tonnes	%	Million tonnes	%	Million tonnes
Deployment of CCS Technology	Allocation to electric generators and industrial sources that achieve specified amounts of CO2 capture and storage. Allocation to eligible entities based on amount of CO2 sequestered. If not all allowances are distributed in a given year the value is carried over to the next vintage year (Sec. 782(f), pg.870 and Sec. 786, pg. 87)	No restriction after distribution	0.0	0	1.8	88	1.8	95	5.0	210	5.0	171	5.0	50
Investment in Energy Efficiency and Renewable Energy	Allocation to states based on three equally weighted factors: 1) equally among states 2) population 3) energy consumption (Sec.782(g)1, pg.872 and Sec. 132, pg. 41)	Allowances must fund state implementation of various ACES energy programs, incentives and rebates for energy efficient and renewable energy technologies. States must report on the use of allowances (Sec. 132, pg.145)	9.5	435	9.5	480	6.5	353	1.0	42	4.5	154	4.5	45
Greater Efficiency in Building Codes	Allocation to states that adopt, implement and enforce new building codes. Distribution based on several variables. (Sec. 782(g)2, pg. 873 and Sec. 201, pg. 78)	Assist in adoption, implementation and enforcement of new high efficiency building codes. States must report on progress and use of allowances (Sec. 201, pg. 320)	0.5	23	0.5	25	0.5	27	0.5	21	0.5	17	0.5	5

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Category	Distribution	Use	2012		2014		2016		2025		2030		2050	
			%	Million tonnes	%	Million tonnes	%	Million tonnes	%	Million tonnes	%	Million tonnes	%	Million tonnes
Energy Efficient Building Retrofits	Allocation to states and local governments based on certain requirements (Sec. 782(g)3, pg. 871 and Sec. 132(b, pg. 146)	To reward programs and projects that result in high efficiency building retrofits (Sec. 132, pg. 145)	0.05	2	0.05	3	0.05	3	0.03	1	0.03	1	0.03	< 1
Clean Energy Innovation Centers	Allocation to DOE , which in turn must award allowances to research centers on a competitive basis (Sec. 782 (h)1, pg. 873 and Sec. 171, pg. 235)	Research in clean technologies, centers must report on use of allowances (Sec. 171, pg. 235)	0.5	21	0.5	23	0.5	24	0.5	19	0.5	15	0.5	15
Advanced Energy Research	Allocation to the Advanced Research Projects Agency-Energy (ARPA-E) , which in turn must award allowances to public and private research organizations on a competitive basis (Sec.782(h)2, pg. 874 and Sec.172, pg. 249)	Accelerate research on energy technologies. ARPA-E most report on use of allowances (sec.172, pg. 249)	1.1	48	1.1	53	1.1	57	1.1	44	1.1	36	1.1	11
Investment in Clean Vehicle Technology	Allocation to EPA which in turn must award allowances to auto manufacturers and component suppliers (Sec. 782 (i), pg. 874 and Sec. 124, pg.118)	Financial assistance to manufacturers for retooling factories, deploying vehicle electrification infrastructure and plug in hybrids. (Sec. 122-124, pg. 113-122)	3.0	137	3.0	151	3.0	163	1.0	42	0.0	0.0	0.0	10

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Category	Distribution	Use	2012		2014		2016		2025		2030		2050	
			%	Million tonnes	%	Million tonnes	%	Million tonnes	%	Million tonnes	%	Million tonnes	%	Million tonnes
Domestic Fuel Production	Allocation to domestic petroleum refiners based on product output with additional allowances provided to small refiners (Sec. 782 (j), pg. 875 and Sec. 787, pg. 936)	No restriction after distribution	0.0	0	2.3	114	2.3	122	2.3	95	0.0	0	0.0	0
Investment in Workers	Auction with the proceeds going to the Department of Labor (Sec. 782(k), pg. 875)	Must fund programs for displaced worker assistance and training as well as additional programs to train new workers for renewable energy and energy efficiency jobs (Sec. 421-426, pg. 231-245)	1.25	57	0.5	25	0.5	27	1.0	42	1.0	34	1.0	10
Domestic Adaptation	Allocation to States based on population and per capita income (Sec. 782(l)1, pg. 876)	The proceeds from the sale of allocated allowances must be used for programs that build resilience against anticipated climate change impacts. States must construct adaptation plans for use of allowances and report on progress (Sec. 453, pg. 1291)	0.9	41	0.9	45	0.9	49	1.9	80	3.9	134	3.9	39
Climate Change Health Protection and Promotion Fund	Auction with proceeds directed to the Department of Health and Human Services (Sec. 782(l)2, pg. 877)	Provide funding for federal, state and tribal public health programs above and beyond existing funding sources (Sec. 467, pg. 1315)	0.1	5	0.1	5	0.1	5	0.1	4	0.1	3	0.1	1

