



ALLIANCE TO  
**SAVE ENERGY**  
*Creating an Energy-Efficient World*

## **ACES/ACELA/CEJAPA**

# **A Comparison of Energy and Climate Legislation**

This document compares the House-passed energy and climate bill with the energy bill from Senate Energy and Natural Resources Committee, and the climate bill from Senate Environment and Public Works:

**The American Clean Energy and Security Act of 2009** (HR 2454 or ACES) passed the House on June 26, 2009 by a vote of 219 to 212. ACES combines standards and incentives to promote clean energy and energy efficiency technologies with a firm cap on greenhouse gas emissions; it represents our first real chance for a national carbon reduction plan in the United States. The American Council for an Energy Efficient Economy (ACEEE) estimates that, in 2030 alone, the energy efficiency provisions in ACES could reduce energy consumption by about 8.8 quads, avoid about 539 MMT of carbon emissions, and save about \$62 billion in net consumer savings, or \$486 per household.

**The American Clean Energy Leadership Act** (S. 1462 or ACELA) passed the Senate Energy and Natural Resources Committee on June 17, 2009 by a vote of 15 to 8. ACELA is an energy bill that incorporates many policies similar to those in ACES; the Senate is constructing a climate component to add to the bill, but currently ACELA does not include provisions to cap and trade greenhouse gas emissions. ACEEE estimates that, in 2030 alone, the energy efficiency provisions in ACELA could reduce energy consumption by about 4.3 quads, avoid about 65 MMT of carbon emissions, and save about \$36 billion in net consumer savings; this would equate to a savings of about \$240 per household.

**The Clean Energy Jobs and American Power Act** (S. 1733 or CEJAPA) was passed by the Senate Environment and Public Works Committee on November 5, 2009. CEJAPA promotes clean energy and energy efficiency technologies with a firm cap on greenhouse gas emissions by targeting a reduction of 20 percent by 2020 and 80 percent by 2050 from 2005 levels.

# Energy Efficiency and Renewable Energy Provisions of ACES, ACELA & CEJAPA

## Energy Efficiency and Renewable Energy Provisions

	<b>ACES (H.R. 2454)</b>	<b>ACELA (S. 1462)</b>	<b>CEJAPA (S. 1733)</b>
<b>Sponsor</b>	Waxman-Markey	Bingaman-Murkowski	Kerry-Boxer
<b>Status</b>	Passed House 6/26/2009	Passed Senate Energy and Natural Resource Committee 6/17/2009	Introduced on 10/23/2009
<b>Renewable Electricity Standard</b>			
<b>Energy Efficiency and Renewable Electricity Standard</b>	<p>ACES Sec. 101- Requires retail electricity suppliers to meet a combined efficiency and renewable electricity standard, starting at 6% in 2010 and increasing semiannually by 2.5% to reach 20% in 2020, and remain at 20% until 2039. Up to one quarter of the total requirement (5% in 2020) can be achieved through energy efficiency, or with a governor’s petition, up to two-fifths (8% in 2020) for utilities in that state.</p> <p>Electricity savings may be customer savings, reductions in distribution system losses, and savings from combined heat and power and fuel cells, compared to business-as-usual projections. To claim credit for energy savings, electric providers have to have played a ‘significant role in achieving the savings,’ but can be with government funding. Savings achieved due to building codes or appliance efficiency standards do not count toward this requirement. The Federal Energy Regulatory Commission (FERC) will develop standards for measurement of energy savings and third-party verification, methods for deemed savings and extrapolation from representative samples, and other methods.</p> <p>Electric suppliers may contract with other utilities, states, or third parties for electricity savings in the same state, but (unlike for renewables) there is no</p>	<p>ACELA Sec. 132- Requires electricity utilities to meet a 15% renewable electricity standard by 2021, starting from 3% in 2011 and increasing according to an irregular schedule. The 15% standard would continue to 2039. Upon the petition of a governor, 26.67% of this amount (4% in 2021) may be met with energy efficiency measures.</p> <p>Electricity savings may be customer savings, reductions in distribution system losses, and savings from combined heat and power. To qualify, energy savings must be “properly attributable to measures carried out by” the utility. Savings achieved due to building codes or appliance efficiency standards do not count toward this requirement. The Department of Energy (DOE) will develop standards for measurement of energy savings and third-party verification, methods for deemed savings, and other methods.</p> <p>An electric utility may buy credits for renewable electricity or efficiency</p>	

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	<p>efficiency credit trading market and no banking of savings. They may also buy out of the requirement for \$25 per megawatt-hour (MWh), for use by states for renewable energy and energy efficiency. Failure to comply with the standard incurs a penalty of twice this amount.</p> <p>Retail electric suppliers producing less than 4,000,000 MWh annually are exempt. Electricity generated by nuclear power plants placed in service after the enactment of this act, hydroelectric plants, and fossil fuel plants with carbon capture and sequestration is not included in calculating the base amount of electricity sold by an electric utility.</p> <p>FERC may delegate authority for enforcement to the states, and allow them to use their own measurement and verification standards.</p> <p>See also peak load reduction goals in Sec. 144 under Smart Grid.</p>	<p>from others, may bank credits for up to three years, or may make an alternative compliance payment of \$21 per MWh, to be used by the state for investment in renewable energy, nuclear power, coal power with carbon capture, electric vehicles, or efficiency projects. Utilities may petition to have this requirement waived if the increase in electrical rates would exceed 4% in a year.</p> <p>Retail electric suppliers producing less than 4,000,000 MWh annually are exempt, as are those in Hawaii. Electricity generated by nuclear power plants placed in service after the enactment of this act, hydroelectric and municipal solid waste plants, and fossil fuel plants with carbon capture and sequestration is not included in calculating the base amount of electricity sold by an electric utility.</p> <p>The DOE is to develop a loan program to assist utilities in carrying out projects to attain compliance with this measure.</p> <p>Not later than January 15th, 2017, and then every five years, the DOE is to review the program every five years, and make recommendations to Congress.</p>	

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	<b>ACES (H.R. 2454)</b>	<b>ACELA (S. 1462)</b>	<b>CEJAPA (S. 1733)</b>
<b>Appliances, Equipment, Lighting, Products and Standards</b>			
<b>Reforms to DOE Appliance Efficiency Standards Program</b>	<p>ACES Sec. 213(a) - Clarifies that DOE can set more than one energy/water efficiency or consumption standard for a given covered product, including design requirements, but prohibits DOE from setting a standard for any component of a covered product without specific authorization.</p> <p>ACES Sec. 213(b) - Allows DOE to adopt quickly (through a direct final rule) a test procedure for determining the energy use of a covered product from a consensus recommendation of key stakeholders or that is used in a state or another nation.</p> <p>ACES Sec. 213(d) - Requires DOE when developing new energy efficiency standards for a covered product to consider, in addition to current criteria, carbon emission reductions, the impact on energy prices, smart grid capabilities, and the existence of more efficient prototypes. Also modifies the “rebuttable presumption” to set a firmer floor for standards at five years simple payback</p> <p>ACES Sec. 213(e) - Requires the manufacturers of covered products to report to DOE annually their compliance with requirements, the economic impacts of proposed standards, and their annual shipments of each covered product.</p> <p>ACES Sec. 213(j) - Would increase flexibility for state building codes to address products that are covered under federal appliance standards, without being preempted by the federal standards. States could require equipment in new construction to meet a level set in national model building energy codes (see Sec. 201 below), or use that level as a</p>	<p>ACELA Sec. 221- Allows DOE to adopt quickly a consensus test procedure, as in ACES Sec. 213(b). Also allows individuals to petition DOE to create or amend the test procedure for a covered product.</p> <p>ACELA Sec. 223- Requires DOE to respond to a petition for an amended appliance efficiency standard within 180 days and, if granted, to set the standard within 3 years.</p> <p>ACELA Sec. 229- Directs DOE to conduct a study on the degree of compliance with energy standards for appliances, including an investigation of compliance rates and options for improving compliance, including enforcement.</p>	

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	baseline in performance codes.		
<b>Appliance Efficiency Standards</b>	<p>ACES Sec. 212- Establishes consensus energy efficiency standards for water dispensers, hot-food-holding cabinets, portable electric spas, and commercial gas- and oil-fired warm air furnaces.</p> <p>ACES Sec. 213(c) - Repeals the existing test method for measuring the energy consumption of televisions, and requires DOE to prescribe a new test method for televisions within one year.</p>	<p>ACELA Sec. 227- Establishes energy efficiency standards for commercial gas- and oil-fired warm-air furnaces, as in ACES Sec. 212.</p>	
<b>Lighting Efficiency Standards</b>	<p>ACES Sec. 211(a) - Establishes efficiency standards for outdoor luminaires, increasing from 50 lumens per watt for luminaires manufactured in or after 2016 to 70 lumens per watt for luminaires manufactured in or after 2018. Also sets a standard for outdoor high light output lamps manufactured in or after 2017 of 45 lumens per watt.</p> <p>ACES Sec. 211(b) - Requires that portable light fixtures manufactured on or after 2012 be an Energy-Star fluorescent light fixture, an Energy Star fixture with a GU-24 socket, or an LED fixture that meets specified criteria (no new incandescent lamps).</p> <p>Also specifies that GU-24 base light bulbs shall not be incandescent.</p> <p>Also, directs DOE to establish efficiency standards for bulge incandescent reflector lamps no later than a year after enactment of this act, and to amend standards for all reflector lamps by January 1, 2015.</p>	<p>ACELA Sec. 224- Establishes efficiency standards for portable light fixtures as in ACES Sec. 211(b).</p> <p>ACELA Sec. 225- Sets a standard for GU-24 base light bulbs as in ACES Sec. 211(b).</p> <p>ACELA Sec. 226- Directs DOE to establish efficiency standards for incandescent reflector lamps as in ACES Sec. 211(b).</p>	
<b>Energy Star Program and Appliance</b>	<p>ACES Sec. 143- Expands the energy guide label on appliances to indicate smart grid-capability, including potential dollar savings when used in a</p>	<p>ACELA Sec. 222- Requires DOE and EPA to</p> <ul style="list-style-type: none"> <li>• come to agreement on several</li> </ul>	<p>CEJAPA Sec. 153- Same as ACES Sec. 274</p>

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	<b>ACES (H.R. 2454)</b>	<b>ACELA (S. 1462)</b>	<b>CEJAPA (S. 1733)</b>
<b>Labeling</b>	<p>smart grid-capable utility system.</p> <p>ACES Sec. 213(h) - Requires DOE to add to the energy guide labels information on the estimated total annual carbon dioxide and other greenhouse gases emissions due to the appliances, including both emissions due to average energy use of the product and any direct emissions.</p> <p>ACES Sec. 219 – Requires EPA to review every three years the Energy Star criteria for the ten models in each product category that consume the most energy, and to update the standards as necessary. Also requires EPA periodically to verify that Energy-Star-labeled products meet Energy Star criteria. Directs EPA and DOE to establish a rating system for Energy Star products to communicate to consumers the relative energy efficiency of the products with the Energy Star label, unless the two agencies agree that such a system would diminish the value of the Energy Star brand to consumers. Authorizes \$5 million per year, from 2010 onward, to carry out this section.</p> <p>ACES Sec. 274 – Requires EPA to study the feasibility of a national program that would measure, label and publicly disclose the carbon content of products and materials sold in the United States. Also requires EPA to establish a voluntary national program for the disclosure of products’ carbon content. Authorizes \$5 million for the EPA study and \$25 million per year from 2010 to 2025 for EPA to implement the carbon disclosure program.</p> <p>See also ACES Sec. 142 and 143 under Smart Grid below.</p>	<p>issues related to the Energy Star program that the two agencies jointly administer, including the roles and responsibilities of each agency, a process for high-level decision-making, a process for mediation of disagreement, and a biannual program review.</p> <ul style="list-style-type: none"> <li>• review, and update as needed, Energy Star criteria for each product category every three years and when market share reaches 35% or other designated level,</li> <li>• require a demonstration of compliance with the Energy Star criteria by qualified products, and</li> <li>• develop standardized building energy audit methods.</li> </ul> <p>Also specifies that DOE is in charge of Energy Star for solid state lighting.</p> <p>ACELA Sec. 232- Directs DOE and EPA jointly to carry out a study to determine the feasibility and advisability of adding a new tier, the “Energy Superstar Tier,” to the Energy Star program. The new tier would encompass the top products or buildings that are cost-effective, or approximately the top 5 percent of the market share of a given category, for at least a portion of the Energy Star product categories.</p> <p>See also ACELA Sec. 281 under</p>	

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		Building Labeling below.	
<b>Deployment of Energy Efficient Appliances</b>	<p>ACES Sec. 214 - Establishes the Best-in-Class Appliances Deployment Program, administered by DOE, to award:</p> <ol style="list-style-type: none"> <li>1) bonuses to retailers for increasing the sales of high efficiency equipment, electronics, and appliances</li> <li>2) bonuses to manufacturers for developing “superefficient” best-in-class products.</li> <li>3) bounties to retailers and manufacturers for the replacement and recycling of old, inefficient appliances.</li> </ol> <p>ACES Sec. 218 – Directs EPA to establish a program to facilitate the replacement of wood or pellet stoves that do not meet federal performance standards. Would authorize \$20 million per year from 2010 to 2014 to carry out this section.</p>		
<b>Building Energy Efficiency</b>			
<b>Building Energy Codes</b>	<p>ACES Sec. 201- Sets targets for the revision of national model building energy codes to achieve 30% savings by one year after enactment; 50% savings by the end of 2014 for residential buildings and 2015 for commercial buildings; and an additional 5% reduction every three years thereafter, through 2029 and 2030 respectively. DOE would adopt model codes developed by independent organizations if they meet the targets, and otherwise develop its own.</p> <p>Requires that, if a state and locality do not adopt codes that achieve the target within one year of the national codes’ revision, the national codes would automatically become that jurisdiction’s applicable energy codes. Within two years of</p>	<p>ACELA Sec. 241- Sets targets for the revision of national model building codes of 30% savings in the first code cycle after the beginning of 2010 and 50% savings starting in 2016, with DOE to set further targets on a path to achieve zero-net-energy buildings. Would require DOE to support updates by code development organizations to national model building energy codes at least every three years to achieve the targets, and only if necessary to issue modified versions of the codes that do meet the targets.</p>	<p>CEJAPA Sec. 163- Directs EPA to promulgate regulations establishing building code energy efficiency targets for a national average percentage improvement of the energy performance of residential and commercial buildings beginning in 2014 and applicable through 2030. Also directs EPA to establish national energy efficiency building codes for residential and commercial buildings, sufficient to meet the targets in the most cost-effective manner, and would allow the agency to promulgate provisions for state adoption of the national building</p>

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	<p>adoption of revised codes, a state would be required to demonstrate at least 90% compliance in new and renovated buildings (for the first seven years after enactment, 50% compliance and documentation of progress toward better compliance are sufficient). If states and local governments failed to enforce the codes, DOE would be responsible for enforcing them.</p> <p>Directs DOE to use 0.5% of the value of emissions allowances established by this bill to provide grants to states and local governments that comply with this section for development, adoption, implementation and enforcement of the codes.</p>	<p>Would direct states to adopt codes that achieve as much savings as the national models within three years of their revision, and to achieve compliance in 90% of building space (or no more than 5% excess energy use) within three additional years, except that they would have eight years from enactment to ramp up compliance). States that do not meet these goals would be directed to explain to DOE the status of their efforts to reach adoption and compliance, and their plan to do so.</p> <p>Directs DOE to provide funding to states to incentivize adoption and compliance with the codes and to support achievement of compliance goals. DOE would also provide funding to local governments, in non-compliant states that meet the goals. Would authorize \$100 million per year from 2009 to 2013 for these purposes.</p>	<p>code standards and for certification of state programs.</p>
<b>Community Building Code Administration Grant</b>	<p>ACES Sec. 207- Establishes a grant program in the Department of Housing and Urban Development (HUD) to support local building code enforcement departments in enforcing building, electrical, energy, fire, fuel gas, mechanical, and plumbing codes. \$20 million is appropriated for each of fiscal years 2010 to 2014.</p>		
<b>Building Labeling and Public Information</b>	<p>ACES Sec. 204- Directs EPA to establish a model building energy performance labeling program for construction after the date of enactment. Directs</p>	<p>ACELA Sec. 281- Directs EPA, in consultation with DOE, to establish a voluntary building energy</p>	

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	<p>EPA, in some cases with DOE, to:</p> <ul style="list-style-type: none"> <li>- improve existing building energy consumption databases,</li> <li>- propose measurement protocols for achieved performance and evaluation protocols for designed performance for different building types,</li> <li>- propose a model building energy label to display achieved performance and designed performance data for residential and commercial, and single-occupancy and multi-tenanted buildings</li> <li>- conduct demonstration projects for different building types,</li> <li>- work with all State Energy Offices to implement the labeling program, and encourage the use of the model building energy label by counties and local governments,</li> <li>- use the labeling program for their own buildings, and encourage other federal agencies to do so, and</li> <li>- establish a business and consumer education program on building energy efficiency and the labeling program.</li> </ul> <p>States that adopt the labeling requirements of this program or a plan to implement the program may use emission allowances from the state SEED Accounts.</p>	<p>performance information program to provide information on the relative energy performance of buildings, and to increase public awareness of the importance of building energy efficiency and energy performance.</p> <ul style="list-style-type: none"> <li>- Directs DOE to improve the commercial building energy consumption databases and evaluate the residential one.</li> <li>- Directs EPA to establish methods to measure achieved performance and designed performance for different building types,</li> <li>- Authorizes EPA to establish one or more formats that display designed and achieved energy performance tailored to building types, including on certificates.</li> <li>- Directs DOE to establish a business and consumer education program on building energy efficiency and building energy performance information.</li> <li>- Directs EPA to conduct demonstration projects for different building types,</li> <li>- Authorizes DOE, on request of a state or local government, to help that government develop a building energy information program,</li> </ul>	

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		<p>including program administration grants.</p> <ul style="list-style-type: none"> <li>- Directs federal agencies to implement the building energy information program in 30% of existing and 90% of new buildings.</li> <li>- Directs state and local governments to use the certificate for federally funded buildings.</li> <li>- Authorizes EPA to develop an Energy Star program for commercial and residential retrofits.</li> </ul>	
<b>Building Retrofits</b>	<p>ACES Sec. 202- Directs EPA, with DOE, to establish standards for a national building retrofit policy for the residential and commercial sectors, and to develop the Retrofit for Energy and Environmental Performance (REEP) program to retrofit existing buildings to achieve maximum cost-effective energy efficiency improvements. The program is funded through the State Energy and Environmental Development (SEED) Accounts that will receive emissions allowances under this bill. States are to use the funds to create incentives for, or reduce financial barriers to, improved energy and environmental performance in buildings. Residential building retrofit funding is based on whole home percentage energy savings estimated either from home energy ratings or simulation software or from savings projected in an audit from the package of measures installed. Commercial building retrofit funding rates per square foot are based on percentage energy savings demonstrated</p>	<p>ACELA Sec. 262-265- Directs DOE to establish a national building retrofit program for the residential and commercial sectors. Funding would go to states based on performance criteria. States could contract with third parties to implement the building retrofit program. Residential building retrofit funding is based on whole home percentage energy savings estimated either from home energy ratings or simulation software or from typical savings from the package of measures installed. DOE is to set incentives for commercial building retrofits based on suggested rates per square foot for given levels of percentage energy savings demonstrated in a benchmarking system. The program is authorized</p>	<p>CEJAPA Sec. 164- Same as ACES Sec. 202, with less funding allocated to the program.</p>

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	<p>in a benchmarking system or from simulation software.</p>	<p>FY2010-FY2015.</p> <p>ACELA Sec. 266- Provides grants to states to establish or expand state revolving finance funds to support financing for energy efficiency and renewable energy improvements to existing homes and residential buildings.</p> <p>ACELA Sec. 251- Authorizes \$1.7 billion a year for the Weatherization Assistance Program for FY2011-FY2015</p>	
<b>Manufactured and Assisted Housing</b>	<p>ACES Sec. 203- Establishes the Manufactured Home Replacement Program, which would provide rebates to low-income families living in pre-1976 manufactured homes that purchase Energy Star-rated manufactured homes. The maximum rebate available is \$7,500 per household.</p> <p>ACES Sec. 283- Requires HUD to issue regulations to establish annual energy efficiency participation incentives to encourage participants in HUD programs to achieve substantial improvements in energy efficiency.</p> <p>ACES Sec. 284- Sets forth minimum energy efficiency standards for single family and multifamily buildings that receive HUD assistance, including requirements to comply with a building energy code under Sec. 201, ASHRAE Standard 90.1-2007, or the 2009 International Energy Conservation Code, or for existing buildings to achieve a 20% reduction in energy use. Also establishes enhanced energy efficiency standards for additional credit in HUD programs based on</p>	<p>ACELA Sec. 242- Establishes the Multifamily and Manufactured Housing Energy Efficiency Grant Program, which would provide grants to carry out energy efficiency programs for multifamily buildings and pre-1976 manufactured housing.</p>	

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	<p>Energy Star, LEED, Green Globes, and other systems.</p> <p>ACES Sec. 285- Authorizes HUD to establish a program to demonstrate the effectiveness of funding a portion of the costs of meeting the enhanced standards in Sec. 284 in at least 50,000 homes.</p> <p>ACES Sec. 292- Requires HUD to establish incentives for increasing the energy efficiency of multifamily housing based on the standards in Sec. 284, including a discount on mortgage insurance, an increase in the mortgage cap, or a reduction in the owner’s contribution.</p> <p>ACES Sec. 293- Applies efficiency requirements for federally insured mortgages to manufactured homes with those mortgages, including Energy Star ratings for wall fixtures, appliances, and equipment, and specifies who may certify that the requirements are met, including a home energy rating system provider.</p> <p>ACES Sec. 294- Requires HUD to develop and implement a pilot program to facilitate the financing of cost-effective capital improvements to improve the energy efficiency of assisted housing projects.</p> <p>ACES Sec. 297- Requires that state and local housing affordability strategies include strategies to encourage sustainable development for affordable housing, and coordinate with transportation strategies on access to public transportation.</p> <p>ACES Sec. 298- Authorizes HUD to make grants to nonprofit organizations for use in training,</p>		

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	<p>educating, supporting, or advising community development organizations in clean energy in affordable housing and economic development; and for loans and grants to community development organizations for similar purposes.</p> <p>ACES Sec. 299- Requires HUD HOPE VI residential construction to comply with the mandatory items and some non-mandatory items on the Green Communities Criteria Checklist, and nonresidential construction to meet a green buildings rating system level to be chosen by HUD.</p> <p>ACES Sec. 299B- Requires the Housing Assistance Council, which helps local organizations provide affordable housing for rural homeowners, to encourage all grantees to comply with minimum efficiency standards under Sec. 284 and to provide incentives for meeting the enhanced standards.</p> <p>ACES Sec. 299C- Requires that each tribe, agency, organization, corporation, or any other entity that receives assistance from the HUD Office of Rural Housing and Economic Development ensure that funded buildings comply with the minimum efficiency standards under Sec. 284 and be given incentives for meeting the enhanced standards.</p> <p>ACES Sec. 299G- Requires HUD to obtain information from public housing agencies regarding the energy costs for HUD public housing.</p>		
<b>Other Buildings Grant Programs</b>	<p>ACES Sec. 261- Amends authorization of an energy efficiency and sustainability grant and loan program for public institutions to make nonprofit hospitals and public health facilities eligible. It also increases the maximum per-project grant amount.</p>		<p>CEJAPA Sec. 158 – Directs EPA to establish and administer a national “Efficient Buildings Program” to provide assistance to owners of new and renovated buildings that achieve a high efficiency score based on Energy Star</p>

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	<p>ACES Sec. 296- Requires HUD to make grants to states, cities and urban counties, Indian tribes, and insular areas to carry out energy efficient improvements in new and existing single-family and multifamily housing. These grants will be modeled after the Community Development Block Grant Program.</p>		<p>standards (or standards of an equivalent metric system selected by EPA). Priority would be given to projects completed by building owners with a proven track record of building energy performance or that result in greenhouse gas reduction benefits not encompassed in the Energy Star program. No allocation is specified for this program.</p>
<b>Energy Efficient Mortgages and Home Financing</b>	<p>ACES Sec. 286- Requires HUD to assign 125% credit to Fannie Mae and Freddie Mac for the purchase of mortgages that comply with the existing HUD housing goals and either support housing that meets the minimum efficiency standards in Sec. 284 or are location efficient mortgages, and to provide additional credit for purchases that support the enhanced standards in Sec. 284.</p> <p>ACES Sec. 287- Requires Fannie Mae and Freddie Mac to develop loan products and flexible underwriting guidelines to facilitate a secondary market for energy-efficient and location-efficient mortgages on housing for very low-, low- and moderate-income families.</p> <p>ACES Sec. 288- Requires HUD to establish a method to consider utility bill savings in its underwriting standards for mortgages on single-family housing meeting the minimum efficiency standard in Sec. 284. Sets a goal to insure at least 50,000 of these mortgages through 2012.</p> <p>ACES Sec. 289- Requires HUD to establish a commission to develop model mortgage products and underwriting guidelines to provide incentives</p>		

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	<p>for energy efficiency and location efficiency, and to carry out a public awareness, education, and outreach campaign to inform and educate residential lenders and prospective borrowers regarding energy-efficient mortgages and location-efficient mortgages.</p> <p>ACES Sec. 290- Requires banks to track the number and dollar amount of energy-efficient mortgages and location-efficient mortgages.</p> <p>ACES Sec. 299A- Requires that real estate appraisals for federally related transactions take into account any renewable energy sources, and energy efficiency or energy-conserving improvements and features, of a property.</p> <p>ACES Sec. 299E- Requires federal banking agencies to prescribe guidelines to encourage banks and credit unions to establish “green banking” centers to provide consumers with information on obtaining a home energy rating, energy efficient mortgages, and related information.</p> <p>ACES Sec. 299F- Requires the Government Accountability Office to examine the impact of The GREEN Act (Sections 281-308) on the availability of affordable mortgages at least every 3 years.</p> <p>ACES Sec. 299I- Authorizes HUD to guarantee the portion of mortgages, up to 10%, that is used to finance eligible sustainable building elements, including energy efficiency.</p>		
<b>Buildings RD&amp;D</b>	ACES Sec. 173- Directs DOE to provide funding for higher education institutions to create Building Assessment Centers that would conduct research and development in various areas of building	ACELA Sec. 291- Authorizes the “Residential High-Performance Zero-Net-Energy Buildings Initiative” to reduce the quantity of energy	

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	energy efficiency and provide training in efficiency-related building sciences. Renewable energy would also be included. Specifies that these centers could also count as Centers for Energy and Environmental Knowledge and Outreach in section 174. The program is authorized at \$50 million per year in FY 2010 and thereafter.	consumed and increase the renewable energy generated in residential buildings. Under the program, buildings would reduce energy needs through energy efficiency gains and renewable technologies. Authorizes the program at \$40 million for FY2010, \$60 million for FY2011-FY2012, and \$100 million for FY2013-FY2020.  ACELA Sec. 243- Similar to ACES Sec. 173	
<b>Federal Energy Management</b>			
<b>Federal Renewable Purchase Requirements</b>	ACES Sec. 103 - Establishes a renewable electricity standard (RES) for the federal government. The RES would begin in 2012, when it would require that 6% of the federal government's electricity consumption be generated by renewable sources. It would rise gradually to a 20% standard by 2020 and remain at that level through 2049. The RES would not include an energy efficiency component.  ACES Sec. 251(b)-(c) - Modifies the federal government's existing renewable energy purchase requirements, including expanding existing targets to include thermal energy as well as electricity.	ACELA Sec. 271- Similar to ACES Sec. 251(b)-(c).	
<b>Energy Savings Performance Contracts (ESPCs)</b>	ACES Sec. 251(a) - Amends competition requirements for energy savings performance contracts (ESPC) in federal buildings. The new process would require a federal agency that wishes to issue a task or delivery order under an ESPC to notify all previously awarded contractors of its interest and to select two or more contractors for	ACELA Sec. 272- Similar to ACES Sec. 251(a).  ACELA Sec. 273- Allows federal agencies to use other private financing of energy saving measures in combination with appropriated funds and/or private financing under ESPCs	

# Energy Efficiency and Renewable Energy Provisions of ACES, ACELA & CEJAPA

	<b>ACES (H.R. 2454)</b>	<b>ACELA (S. 1462)</b>	<b>CEJAPA (S. 1733)</b>
	discussions. The agency may then select one or more contractors for initial assessments and to negotiate a task or delivery order.	to carry out a contract.  ACELA Sec. 274- Amends the definition of “energy savings” in ESPCs to include “installation of renewable energy systems.”	
<b>Federal Use of State and Local Incentives and Rules</b>	ACES Sec. 152- Directs state public utility commissions to consider requiring large electric utilities to make interconnection and net metering available to federal government agencies, offices, or facilities.	ACELA Sec. 278- Allows federal agencies to participate in energy efficient programs that are implemented by state agencies or third parties as well as by utilities.	
<b>Federal Government Energy Efficient Information and Communication Technologies</b>	ACES Sec. 271 - Requires that each federal agency, in collaboration with the Office of Management and Budget (OMB), create an implementation strategy for the purchase and use of energy efficient information and communication technologies and practices. Their efforts will be evaluated by performance goals established by OMB.	ACELA Sec. 277- Similar to ACES Sec. 271.	
<b>Transportation</b>			
<b>Vehicle Emission Standards</b>	ACES Sec. 221- Requires EPA to create greenhouse gas emission standards by 2010 for heavy-duty vehicles and engines, to take effect at least four years later, and by 2012 for nonroad vehicles and engines. It also allows EPA to establish averaging, banking, and trading of greenhouse gas emission credits within or between categories of motor vehicles and engines, non-road vehicles and engines (including marine vessels), and aircraft and aircraft engines.		CEJAPA Sec. 111- Same as ACES Sec. 221  CEJAPA Sec. 172- Authorizes states to prescribe fuel economy standards for taxicabs and similar vehicles, as long as they are as stringent as the federal standard.  CEJAPA Sec. 173- Authorizes states to adopt and enforce emission standards from new motor vehicles that are taxicabs, as long as they are at least as protective of public health and welfare as federal standards.

# Energy Efficiency and Renewable Energy Provisions of ACES, ACELA & CEJAPA

	<b>ACES (H.R. 2454)</b>	<b>ACELA (S. 1462)</b>	<b>CEJAPA (S. 1733)</b>
<b>Greenhouse Gas Emissions</b>	ACES Sec. 222 - Requires EPA, in consultation with the Department of Transportation, to establish national goals to reduce greenhouse gas emissions from the transportation sector commensurate with overall emissions reduction goals, as well as standardized models and methodologies for developing state and local targets. Also requires metropolitan planning organizations to establish local emissions reduction targets and strategies.		<p>CEJAPA Sec. 112- Similar to ACES Sec. 222, but requires EPA and DOT to develop additional models and methodologies to perform assessments; it would specify a greater number of transportation-emission-reduction policies that states and MPOs can include in their plans; and it would strengthen the enforcement section by requiring that, in order for a state or MPO to receive approval of their plan from DOT, DOT must find that its plan meets the specified requirements and that it is likely to achieve the state or MPO's targets.</p> <p>CEJAPA Sec. 113- Directs DOT to provide grants to states and MPOs. Up to 10% of the funds available would support the development and updating of the transportation GHG targets, strategies and plans required of states and MPOs in CEJAPA Sec. 112, and up to 5% could be used for administrative expense incurred in carrying out this section.</p>
<b>SmartWay Transportation Efficiency Program</b>	ACES Sec. 223- Authorizes the existing EPA SmartWay Transportation Efficiency Program to develop measurement protocols to quantify and evaluate the energy consumption and greenhouse gas impacts from technologies and strategies in the mobile source sector, including freight carriers. Also authorizes a financing program to award funding to public and private entities for the adoption of low-greenhouse gas technologies and		CEJAPA Sec. 114- Same as ACES Sec. 223, except that CEJAPA would also direct EPA to provide funds under the program for the electrification of freight transportation systems.

# Energy Efficiency and Renewable Energy Provisions of ACES, ACELA & CEJAPA

	<b>ACES (H.R. 2454)</b>	<b>ACELA (S. 1462)</b>	<b>CEJAPA (S. 1733)</b>
	strategies in the mobile source sector.		
<b>State Vehicle Fleets</b>	ACES Sec. 224- Directs DOE to revise the alternative fuel vehicle rules for state vehicle fleets so that they are consistent with any updates to the types of alternative fuel vehicles in federal fleet requirements.		
<b>Plug-In Hybrid Electric and Electric Vehicles</b>	<p>ACES Sec. 121- Directs state PUCs to consider requiring each electric utility to develop a plan to support the use of plug-in electric drive vehicles, and establishing protocols and standards for integrating plug-in electric drive vehicles into smart grid systems, including time-of-use pricing.</p> <p>ACES Sec. 122- Establishes a DOE program to deploy and integrate plug-in electric vehicles into the electricity grid, including assistance to states, tribes and local governments. See Sec. 124, below, on funding.</p> <p>ACES Sec. 123- Establishes a DOE program to provide financial assistance to automobile manufacturers to facilitate the manufacture of plug-in electric drive vehicles in the United States. See Sec. 124, below, on funding.</p> <p>ACES Sec. 124- Establishes funding levels for the programs described in Sections 122 and 123. From 2012 to 2017, this section directs EPA to make 0.375% of emissions allowances of a given year available to programs established under Section 122 and 0.375% to Section 123.</p> <p>ACES Sec. 125- Would increase from \$25 billion to \$50 billion the authorization for the Advanced Technology Vehicle Manufacturing Incentive Loans Program.</p>	<p>ACELA Sec. 152- Requires DOE to analyze and assess the need for recharging facilities for plug-in electric drive vehicles and neighborhood electric vehicles; minimum technical standards for public recharging facilities; the technical and infrastructure investments that electricity utilities will be required to make, etc. Also directs DOE to establish a state and local grant program for plug-in electric drive vehicles and recharging facilities.</p> <p>ACELA Sec. 153- Requires DOE to submit a report to Congress containing recommendations for establishing and adopting consensus or industry standards for electric drive transportation.</p> <p>ACELA Sec. 154- Requires DOE to establish, as part of the Federal Energy Management Program, a pilot program to provide grants for the cost of pre-commercial plug-in electric drive vehicles for purchase or lease in an amount not to exceed \$10,000 per vehicle purchased or \$1,500 per year</p>	

# Energy Efficiency and Renewable Energy Provisions of ACES, ACELA & CEJAPA

	<b>ACES (H.R. 2454)</b>	<b>ACELA (S. 1462)</b>	<b>CEJAPA (S. 1733)</b>
		<p>per vehicle leased, and for recharging infrastructure at federal facilities in conjunction with the vehicles.</p> <p>ACELA Sec. 155- Requires DOE to conduct a study on the end-of-useful life options for motor vehicle batteries, including batteries in electric drive vehicles.</p>	
<b>Transportation Roadmap</b>		<p>ACELA Sec. 151- Requires DOE to ask NAS to conduct a comprehensive analysis of energy use within the light-duty vehicle transportation sector and use that analysis to conduct a study of the technology options for alternative fuels and advanced technologies that could reduce petroleum consumption and greenhouse gas emissions.</p>	
<b>Lightweight Materials RD&amp;D</b>		<p>ACELA Sec. 423- Increases the authorization for the Lightweight Materials R&amp;D programs to \$100 million for FY2010-FY2013.</p>	
<b>Smart Grid and Transmission</b>			
<b>Peak Load Reduction Goals</b>	<p>ACES Sec. 144- Directs load-serving entities of greater than 250 MW peak load, or states on their behalf, to determine peak demand reduction goals for 2012 and 2015 at the maximum reductions that are realistically achievable. Also directs load-serving entities to prepare plans to meet their goals. It does not set out specific required reductions, but possible reduction strategies include efficiency programs, demand response, distributed generation, and stored energy. DOE, in consultation with FERC, EPA, and NERC, is to</p>		

# Energy Efficiency and Renewable Energy Provisions of ACES, ACELA & CEJAPA

	<b>ACES (H.R. 2454)</b>	<b>ACELA (S. 1462)</b>	<b>CEJAPA (S. 1733)</b>
	develop measurement and verification rules. States may use emissions allowances in their SEED funds to pay any costs.		
<b>Smart Grid Capabilities in Appliances</b>	<p>ACES Sec. 142- Requires DOE and EPA to assess the potential for cost-effective integration of smart grid capabilities in all products that are reviewed for Energy Star labeling, and to analyze the optimal savings and cost-effectiveness.</p> <p>ACES Sec. 143 – Directs the Federal Trade Commission to consider indicating smart grid capability on appliance energy guide labels, including potential dollar savings when used in a smart grid-capable utility system.</p> <p>ACES Sec. 146- Makes smart grid-capable appliances eligible to receive rebates under the federal appliance rebate program that was created in Energy Policy Act of 2005 and is operated through state offices.</p>		
<b>Smart Grid Public Information</b>	ACES Sec. 145- Expands the authorization of the Energy Efficiency Public Information program, originally authorized in the Energy Policy Act of 2005, to include information about smart grid. Extends the authorization until 2020.		
<b>Transmission Planning</b>	ACES Sec. 151- Encourages regional electric grid planning, taking into account all demand- and supply-side options including energy efficiency, distributed generation, smart grid, demand response, storage, voltage regulation, advanced conductor technologies, underground transmission, and conventional transmission capacity and corridors. Planning is to be coordinated by FERC.	ACELA Sec. 121- Directs the FERC to coordinate regional transmission planning and, in consultation with interested parties, to develop national electricity grid planning principles. FERC could approve projects in certain high-priority instances if states failed to do so.	

# Energy Efficiency and Renewable Energy Provisions of ACES, ACELA & CEJAPA

	<b>ACES (H.R. 2454)</b>	<b>ACELA (S. 1462)</b>	<b>CEJAPA (S. 1733)</b>
	ACES Sec. 153- Makes certain high-efficiency transmission equipment eligible for a federal loan guarantee program, and for new DOE grants.		
<b>Industrial Energy Efficiency</b>			
<b>Industrial Plant Energy Efficiency Standards and Targets</b>	ACES Sec. 241- Requires DOE to continue existing work with the American National Standards Institute (ANSI) and the International Standards Organization to develop industrial plant efficiency certification technical standards. Would also require DOE’s Industrial Technologies Program to support the voluntary implementation of such standards by manufacturing firms.		
<b>Industrial RD&amp;D and Technical Assistance</b>	<p>ACES Sec. 244- Requires DOE to assess the electric motor market in the United States, the opportunities for energy-efficiency improvements by market segment, and motor purchase and maintenance practices. Based on the assessment. Directs DOE to establish a national motor end-user education program.</p> <p>ACES Sec. 275 – Requires DOE to carry out a national program to educate leaders in the industrial and commercial buildings sectors and in government on the large energy-saving potential of greater use of mechanical insulation. It would provide information through education and training sessions, the internet and advertising. Authorizes \$3.5 million per year from 2010 to 2014 to carry out this section.</p> <p>See also ACES Sec. 174 under Research and Development</p>	<p>ACELA Sec. 202- Directs DOE to establish collaborative research and development partnerships between the Industrial Technologies Program and other DOE programs.</p> <p>ACELA Sec. 203- Directs DOE to conduct an assessment of cost-effective energy efficiency technologies that are not widely implemented in the United States for application to energy-intensive industrial sectors.</p> <p>ACELA Sec. 204- Renames the Energy-Intensive Industries Program to be the “Future of Industry Program.” Creates a “road map process” to assess energy and greenhouse gas emissions in individual industrial processes, establish targets of opportunity for “efficiency, sustainability, and resilience” improvement, and develop</p>	

# Energy Efficiency and Renewable Energy Provisions of ACES, ACELA & CEJAPA

	<b>ACES (H.R. 2454)</b>	<b>ACELA (S. 1462)</b>	<b>CEJAPA (S. 1733)</b>
		<p>public-private actionable plans.</p> <p>Establishes 10 Centers of Excellence at high-performing Industrial Assessment Centers (IACs) that will support newer IAC programs in their surrounding regions. IACs engage students and faculty at institutes of higher education to assess the efficiency of small- and medium-size manufacturers. Also provides funding to establish additional IACs and support internships.</p> <p>ACELA Sec. 205- Authorizes a sustainable manufacturing initiative under DOE’s Industrial Technologies Program to provide onsite technical assistance to identify ways in which a manufacturer can improve its energy efficiency and achieve other environmental goals.</p> <p>ACELA Sec. 206- Directs DOE to provide one-time competitive grants of up to \$500,000 for state-industry partnerships that improve efficiency and cost competitiveness while reducing pollution and industrial waste.</p> <p>ACELA Sec. 207- Directs DOE to arrange with the National Academy of Sciences (NAS) for a study on the development of advanced manufacturing capabilities for various energy technologies.</p>	

# Energy Efficiency and Renewable Energy Provisions of ACES, ACELA & CEJAPA

	<b>ACES (H.R. 2454)</b>	<b>ACELA (S. 1462)</b>	<b>CEJAPA (S. 1733)</b>
		ACELA Sec. 231- Same as ACES Sec. 244.	
<b>Grants, Awards, and Loan Programs</b>	<p>ACES Sec. 242- Directs DOE to provide awards to electric and thermal energy generation facilities for the innovative recovery of waste heat for electricity production or thermal use. Awards can comprise up to 25% of the value of the energy projected to be recovered or generated through the first five years of program activity.</p> <p>ACES Sec. 245- Establishes a DOE program to provide rebates for the purchase and installation of new electric motors that meet certain efficiency criteria.</p>	<p>ACELA Sec. 201- Establishes a DOE program to provide grants of up to \$100 million to lenders to support revolving loans for commercial and industrial manufacturers to reduce systems energy intensity and increase competitiveness.</p> <p>ACELA Sec. 228- Same as ACES Sec. 245.</p>	<p>CEJAPA Sec. 156- Authorizes DOE to provide technical assistance, award grants, and enter into contracts with eligible entities (including economic development districts, Indian tribes, states, cities, institutions of higher education, and public or private non profits for projects that promote energy efficiency to enhance economic competitiveness) to support the development of conventional energy resources to produce alternative transportation fuels, electricity and heat; to develop energy efficient or environmentally sustainable infrastructure; to promote environmentally sustainable economic development practices and modes; or to support development of energy efficiency and alternative energy development plans, studies or analysis, including enhancement of new and existing Comprehensive Economic Development Strategies.</p> <p>CEJAPA Sec. 201- Establishes an EPA program to provide grants to higher education institutions, companies, research foundations, trade and industry research collaborations, or consortia of each for advanced energy research.</p>

# Energy Efficiency and Renewable Energy Provisions of ACES, ACELA & CEJAPA

	<b>ACES (H.R. 2454)</b>	<b>ACELA (S. 1462)</b>	<b>CEJAPA (S. 1733)</b>
<b>Research and Development</b>			
<b>Clean Energy Centers</b>	<p>ACES Sec. 171- Directs DOE to establish eight Energy Innovation Hubs. The Hubs are to be housed in public universities, institutions and non-governmental organizations, and are to support the commercial application of clean energy technology through research and development in a specific focus area, which may include: solar electricity, fuels from solar energy, batteries and energy storage, electricity grid systems and device, energy efficient building systems and design, advanced materials, modeling and simulation and other clean energy technology areas as designated by DOE. 0.45% of all carbon allowances are allocated for these hubs.</p> <p>ACES Sec. 174- Establishes ten regional “Centers for Energy and Environmental Knowledge and Outreach” within higher education institutions to coordinate and advise industrial assessment centers, clean energy application centers, and building assessment centers. The centers are to include in their research approaches to specifically regional issues and the development of regionally-specific technical resources, and are to run internship programs. These centers are authorized at \$10 million a year.</p>		
<b>Advanced Research Projects Agency – Energy (ARPA-E)</b>	<p>ACES Sec. 172- Directs the Advanced Research Projects Agency – Energy (ARPA-E) to distribute its 1.05% of carbon allowances on a competitive basis to appropriate research and development entities to fund early stage energy research with possible technology applications, development of manufacturing processes for technologies, and</p>	<p>ACELA Sec. 421- Authorizes the Advanced Research Projects Agency – Energy (ARPA-E) to initiate and execute grants, contracts, cooperative agreements, and other transactions separate from DOE for the development of technologies that</p>	

# Energy Efficiency and Renewable Energy Provisions of ACES, ACELA & CEJAPA

	<b>ACES (H.R. 2454)</b>	<b>ACELA (S. 1462)</b>	<b>CEJAPA (S. 1733)</b>
	demonstration of commercial application of technologies, among other activities.	result in reductions of imports of energy from foreign sources, reductions of energy-related emissions, including greenhouse gas emissions from all sources; and improvement in the energy efficiency of all economic sectors.	
<b>DOE Programs</b>		ACELA Sec. 401- Authorizes appropriations to DOE for research, development, demonstration and commercial application activities in the areas of energy efficiency and conservation, distributed energy, electric energy system activities, and renewable energy.	
<b>Financing</b>			
<b>Clean Energy Deployment Administration</b>	ACES Sec. 182–191- Establishes the Clean Energy Deployment Administration (CEDA), an independent government-owned corporation, to finance clean energy technologies. Directs CEDA to manage a Clean Energy Investment Fund. The purpose of CEDA is to provide for an attractive investment environment through partnership with and support of the private capital market in order to promote access to affordable financing for accelerated and widespread deployment of--  (1) clean energy technologies;  (2) advanced or enabling energy infrastructure technologies;  (3) energy efficiency technologies in residential, commercial, and industrial applications, including end-use efficiency in buildings; and	ACELA Sec. 101-109- Similar to ACES Sec. 182-191, but establishes CEDA as part of DOE, transfers the DOE loan guarantee program to CEDA, and funds CEDA with a \$10 billion transfer from Treasury.	

# Energy Efficiency and Renewable Energy Provisions of ACES, ACELA & CEJAPA

	<b>ACES (H.R. 2454)</b>	<b>ACELA (S. 1462)</b>	<b>CEJAPA (S. 1733)</b>
	<p>(4) manufacturing technologies for any of the eligible technologies or applications.</p> <p>The Clean Energy Investment Fund, housed in the Treasury, would be funded from \$7.5 billion in Green Bonds to be issued by the Treasury.</p>		
<b>Grants to Clean Technology Businesses</b>	<p>ACES Sec. 196- Would authorize DOE to provide grants to nonprofit organizations to conduct business competitions that provide incentives, training and mentorship to entrepreneurs and early-stage start-up companies to meet economic, environmental and energy security goals.</p> <p>ACES Sec. 264- Establishes a DOE program to provide grants to community development organizations to provide financing to businesses and projects that improve energy efficiency, identify and develop alternative, renewable, and distributed energy supplies, promote job and business opportunities for low-income residents, and increase energy conservation in low-income rural and urban communities. This program is authorized at \$50 million per year for five years.</p>		CEJAPA Sec. 152- Same as ACES Sec. 196
<b>National Energy Strategy</b>			
	<p>ACES Sec. 272- Directs DOE, EPA and other appropriate federal agencies to develop a strategic plan to increase the energy productivity (measured in GDP per unit energy input) of the United States by 2.5% each year from 2012 to 2030. The plan must identify regulatory, funding and policy priorities and establish data collection methodologies to establish baseline energy use and savings.</p>	<p>ACELA Sec. 275- Same as ACES Sec. 272</p> <p>ACELA Sec. 603- Updates the current requirement in the Department of Energy Organization Act for a biennial President of the United States' National Energy Policy Plan, with input from the National Academy of Sciences; it is now to be issued by February 1, 2010 and quadrennially</p>	

# Energy Efficiency and Renewable Energy Provisions of ACES, ACELA & CEJAPA

	<b>ACES (H.R. 2454)</b>	<b>ACELA (S. 1462)</b>	<b>CEJAPA (S. 1733)</b>
	See also ACES Sec. 222 under <b>Transportation</b>	thereafter.	
<b>Assistance to State and Local Governments</b>			
	<p>ACES Sec. 131-132 – Establishes State Energy and Environment Development (SEED) Accounts to manage emissions allowances dedicated to the states for energy efficiency and renewable energy. The SEED Accounts are to be managed by State Energy Offices or related state agencies. SEED Accounts receive a decreasing percentage of emissions allowances over time, starting at 9.5 percent of allowances from 2012 to 2015 and decreasing gradually to 4.5 percent of allowances from 2026 to 2050.</p> <p>ACES Sec. 262- Amends the Energy Efficiency and Conservation Block Grant Program to remove certain limits on the eligible use of funds by local governments and Indian tribes.</p> <p>ACES Sec. 263- Amends the Energy Efficiency and Conservation Block Grant Program to allow adjacent, contiguous, and geographically small communities to be counted together to meet the size threshold for direct DOE grants.</p> <p>ACES Sec. 273 – Requires DOE to assemble a team to address the energy needs of U.S. affiliated islands such as Puerto Rico, to improve the energy efficiency of their power generation, transmission and distribution, and increase end-use energy efficiency, among other strategies.</p>	<p>ACELA Sec. 255- Authorizes \$250 million per year for the State Energy Program for FY2011-FY2015.</p> <p>ACELA Sec. 276- Same as ACES Sec. 261</p>	<p>CEJAPA Sec. 154- Establishes a State Recycling Program to support recycling programs and associated source reduction for states by providing incentives for recycling-related technology that reduces or avoids greenhouse gas emissions and for energy-efficiency projects for transportation fleets and recycling equipment used to collect and sort recyclable material separated from solid waste, among other things.</p>
<b>Miscellaneous</b>			
<b>Evaluation, Measurement, and</b>		ACELA Sec. 282- Requires DOE to promulgate uniform rules to	

# Energy Efficiency and Renewable Energy Provisions of ACES, ACELA & CEJAPA

	<b>ACES (H.R. 2454)</b>	<b>ACELA (S. 1462)</b>	<b>CEJAPA (S. 1733)</b>
<b>Verification</b>		<p>document energy savings and avoided greenhouse gas emissions of energy efficiency programs and projects that:</p> <ul style="list-style-type: none"> <li>• receive funding from Federal, State, or local governments or public utilities;</li> <li>• require specific levels of energy reductions; and</li> <li>• are eligible for allowances or allowance proceeds based on energy savings and greenhouse gas emissions reductions under climate change regulations</li> </ul>	
<b>Energy and Water Efficiency</b>	<p>ACES Sec. 215– Authorizes the existing EPA WaterSense program to identify and promote water efficient products, buildings, landscapes and services in order to reduce water use; reduce the strain on water, wastewater and storm water infrastructure; conserve energy used to pump, heat, transport and treat water; and preserve water resources for future generations. Directs the program to be modeled after the EPA and DOE Energy Star program.</p>	<p>ACELA Sec. 147 – Directs DOE to establish a competitive grant program to provide grants to states, local governments and Indian tribes for the development of technologies that reduce the consumption of energy supplies and promote water conservation activities. Authorizes \$100 million per year for FY2010-FY2015 for carrying out this section.</p> <p>ACELA Sec. 148 – Directs DOE to establish a program to provide on-site technical assistance to rural water utilities to improve energy efficiency identify and develop alternative and renewable energy supplies, and conserve water. Authorizes \$7 million per year for FY2010-FY2015.</p> <p>ACELA Sec. 141- Directs DOE to</p>	<p>CEJAPA Sec. 141- Same as ACES Sec. 215</p> <p>CEJAPA Sec. 142- Directs federal agencies to procure a WaterSense or FEMP-designated product in order to meet the requirements of an agency for a water-using product, building, landscape, facility, or process, or service. Agencies must also prepare a water efficiency retrofit program.</p> <p>CEJAPA Sec. 143- Enables state and local governments, wastewater or sewerage utilities, municipal water authorities, energy utilities, water utilities, or nonprofit organizations eligible for allocations to pay up to 50% of the cost of establishing and carrying out a program to provide financial incentives to residential consumers for the purchase of residential water-efficient</p>

# Energy Efficiency and Renewable Energy Provisions of ACES, ACELA & CEJAPA

	<b>ACES (H.R. 2454)</b>	<b>ACELA (S. 1462)</b>	<b>CEJAPA (S. 1733)</b>
		<p>arrange with the National Academy of Sciences to conduct a study assessing water use associated with developing fuels in the transportation sector, and the water consumed in different types of electricity generation.</p> <p>ACELA Sec. 142- Directs DOE to conduct a study to identify the best alternative technologies to maximize efficiencies in water and energy use in producing electricity, and to develop other strategies.</p> <p>ACELA Sec. 143 – Directs the Department of the Interior to evaluate the energy used in storing and delivering water from reclamation projects and to reduce this energy use through conservation, improved operation, and renewable energy integration.</p> <p>ACELA Sec. 145 – Requires DOE’s Energy Information Administration to analyze the energy consumption associated with the acquisition, treatment and delivery of water for a variety of uses.</p> <p>ACELA Sec. 146 – Directs DOE to develop a roadmap to define the future efforts necessary to address water-related challenges relating to sustainable energy generation and production.</p> <p>ACELA Sec. 149 – Directs DOE to study</p>	<p>products, buildings, landscapes, processes, or services.</p>

# Energy Efficiency and Renewable Energy Provisions of ACES, ACELA & CEJAPA

	<b>ACES (H.R. 2454)</b>	<b>ACELA (S. 1462)</b>	<b>CEJAPA (S. 1733)</b>
		the interrelated nature of water and energy use and identify opportunities to reduce energy consumption and associated costs through the use of water conservation and water management studies.	
<b>Green Jobs and Workforce Training</b>	<p>See ACES Sec. 173 under Buildings and ACES Sec. 174 under Research and Development</p> <p>ACES Sec. 421- directs DOE to award competitive grants to develop, implement, and disseminate programs of study that are focused on emerging careers and jobs in renewable and clean energy, energy efficiency, climate change mitigation, and climate change adaptation.</p> <p>ACES Sec. 422- Increases funding for the Energy Worker Training Program to \$150 million</p> <p>ACES Sec. 423- Directs the Department of Labor to develop an internet-based information clearinghouse to aid technical education and job training programs in the renewable energy sectors. The clearinghouse would emphasize programs that cater to high-demand middle-skill trades and would contain separate information for each renewable energy sector, including energy efficiency technical training. The Secretary of Labor is to solicit expertise from organizations involved in the clean energy sector, including business, organizations, career and technical schools, and institutes of</p>	<p>ACELA Sec. 439- Authorizes DOE, working with the Department of Labor, to issue grants to community colleges to provide workforce training and education in sustainable energy industries and practices, including for energy efficiency construction, retrofitting and design; water and energy conservation; and recycling and waste reduction. Authorizes \$100 million per year for FY2010 –FY2015 to carry out this section.</p> <p>Also see ACELA Sec. 243 under Buildings and ACELA Sec. 204 under Industrial.</p>	<p>CEJAPA Sec. 301- Same as ACES Sec. 421</p> <p>CEJAPA Sec. 302- Same as ACES Sec. 423</p> <p>CEJAPA Sec. 303- Establishes a Green Construction Careers demonstration project to promote middle class careers and quality employment practices in the green construction sector among targeted workers and to advance efficiency and performance on construction projects.</p>

# Energy Efficiency and Renewable Energy Provisions of ACES, ACELA & CEJAPA

	<b>ACES (H.R. 2454)</b>	<b>ACELA (S. 1462)</b>	<b>CEJAPA (S. 1733)</b>
	higher education.		
<b>Utility Consumer Protection and Advocacy</b>	<p>ACES Sec. 198- Establishes an Office of Consumer Advocacy and Consumer Advocacy Advisory Committee within the Federal Energy Regulatory Commission (FERC) to represent energy consumers in matters concerning the rates or service of public utilities and natural gas utilities under FERC's jurisdiction.</p> <p>ACES Sec. 291- Provides protection for homes not connected to or able to receive electricity service from a retail electric power provider from being denied homeowners insurance</p>		CEJAPA Sec. 151- Same as ACES Sec. 198
<b>Tree-Planting Programs</b>	<p>ACES Sec. 205- Authorizes DOE to provide financial and technical assistance for tree planting programs that are operated by retail electric power utilities in partnership with non-profit organizations. To be eligible, the program must optimize the electricity-consumption reduction benefit of the trees by planting them in strategic locations around a residence or small office.</p> <p>ACES Sec. 295- Requires HUD to establish and provide incentives for developers of housing receiving HUD assistance to enter into agreements and partnerships with tree-planting organizations, nurseries, and landscapers.</p>		
<b>Energy Markets</b>		ACELA Sec. 502-503- Establishes a "Working Group on Energy Markets" to investigate the effects of increased financial investment in energy commodities on energy prices and	

# Energy Efficiency and Renewable Energy Provisions of ACES, ACELA & CEJAPA

	<b>ACES (H.R. 2454)</b>	<b>ACELA (S. 1462)</b>	<b>CEJAPA (S. 1733)</b>
		energy security. Empowers the Working Group to recommend to Congress and the President regulations to prevent excessive speculation in energy commodity trading markets, and directs the Working Group to prepare a report.	
<b>Electricity Price Information</b>		ACELA Sec. 504- Expands DOE's existing Tariff Analysis Project, an online database and web interface on rate structure information and electricity prices to help retail customers compare tariff options.	
<b>International Programs</b>			CEJAPA Sec. 323- Directs the State Department to establish a Clean Energy Deployment Program to assist developing countries in activities that reduce, sequester, or avoid GHG emissions, and to encourage those countries to shift toward low-carbon development in compliance with the 1992 United Nations Framework Convention on Climate Change.

# Climate Provisions of ACES and CEJAPA

*[Sections numbers in italics refer to amendments to the Clean Air Act unless ACES or CEJAPA Division is noted]*

	<b>ACES (H.R. 2454)</b>	<b>CEJAPA (S. 1733)</b>
<b>Program Administration</b>	<p><b>Cap-and-Trade Program</b> administered by EPA. ACES preempts EPA from regulating global warming pollutants through other provisions outside the cap-and-trade program. <i>[831-835]</i></p> <p><b>Carbon Market Oversight</b> delegated to the Federal Energy Regulatory Commission and the Commodity Futures Trading Commission.</p>	<p><b>Cap-and-Trade Program</b> administered by EPA. CEJAPA also preempts EPA from regulating global warming pollutants under certain parts of the Clean Air Act, namely, the National Ambient Air Quality Standard. <i>[128(g) of Division B]</i></p> <p><b>Carbon Market Oversight</b> delegated to the Commodity Futures Trading Commission alone.</p>
<b>Cap Scope</b>	<p><b>Cap covers</b> 85 percent of US GHG emissions. <i>[700(13)]</i></p> <p><b>Ramp up:</b> Electric generating units and fuel refiners and importers covered in 2012, major industrial emitters in 2014, natural gas local distribution companies in 2016. <i>[722(c)]</i></p> <p><b>Additional provisions</b> outside the cap include HFCs, international deforestation, and domestic and international offsets. <i>[704 &amp; 751-756]</i></p>	<p><b>Cap coverage:</b> Same as ACES. <i>[700(13)]&amp;[722]</i></p> <p><b>Ramp Up:</b> Same as ACES. <i>[722(b)]</i></p> <p><b>Additional provisions</b> outside the cap similar to ACES, with an additional program for perfluorocarbons.</p>
<b>Reduction Targets</b>	<p><b>Cap Reduction targets</b> for capped sources (based on 2005 emissions): 17% by 2020, 42% by 2030, 83% by 2050 <i>[703]</i></p> <p><b>Economy-Wide Reduction Goals</b> (based on 2005 emissions): 20% by 2020, 42% by 2030, 83% by 2050 <i>[702]</i></p>	<p><b>Cap Reduction targets</b> similar to ACES except 20% by 2020. Note: CEJAPA provides fewer emissions allowances than ACES from 2017 to 2029 to account for a lower 2020 target. <i>[703]&amp;[721]</i></p> <p><b>Economy-Wide Reduction Goals:</b> Same as ACES <i>[702]</i></p>
<b>Price Stability and Cost Control</b>	<p><b>General:</b> Trading, banking and limited borrowing of emissions allowances. <i>[724&amp;725]</i></p> <p><b>Offsets:</b> 2 billion ton limit, split evenly between domestic and foreign sources (EPA adjustment allowed to increase the quantity of international offsets to 1.5 billion tons). International offsets discounted 20% after 2017. <i>[722(d)]</i></p> <p><b>Offset Oversight</b> delegated to USDA for domestic agriculture and forestry projects and to EPA for all other offset types. <i>[731-743]</i></p> <p><b>Strategic Reserve:</b> A pool of emissions allowances is set aside for purchase in the event of significant price volatility. <i>[726]</i></p> <p><b>Reserve filling schedule:</b> 1% of 2012-2019 allowances, 2% 2020-2029 allowances. 3% annually thereafter. Also supplemented by unsold allowances and international offsets for reduced deforestation purchased through reserve</p>	<p><b>General:</b> Same as ACES <i>[724&amp;725]</i></p> <p><b>Offsets:</b> Same number of offsets as ACES split to 75% domestic and 25% foreign sources (Presidential adjustment allowed to increase the quantity of international offsets). International offsets discounted same as ACES. <i>[722(d)]</i></p> <p><b>Offset Oversight:</b> TBD. “The President” is to delegate authority to individual agencies. <i>[731-744]</i></p> <p><b>Market Stability Reserve:</b> Same concept as ACES Strategic Reserve <i>[726]</i></p> <p><b>Reserve filling schedule:</b> 2% of 2012-2019 allowances, 3% annually thereafter. Also supplemented by unsold allowances and domestic and international offsets purchased through reserve proceeds. <i>[726(b), 726(g), 771(d)(9)]</i></p> <p><b>Trigger Price:</b> \$28 in 2012, rising at 5% per year through 2017, and rising at 7% per year for the duration of the bill. <i>[726(c)]</i></p>

# Climate Provisions of ACES and CEJAPA

*[Sections numbers in italics refer to amendments to the Clean Air Act unless ACES or CEJAPA Division is noted]*

		<b>ACES (H.R. 2454)</b>	<b>CEJAPA (S. 1733)</b>
		<p>proceeds.  <b>Trigger Price:</b> \$28 in 2012, rising at 5% per year through 2014, and then 1.6 times rolling average for the duration of the bill. <i>[726(c)]</i>  <b>Price Floor:</b> Allowance price cannot drop below \$10 in 2012, rising 5% per year plus inflation. <i>[Section 791(d)]</i></p>	<p><b>Price Floor:</b> Same as ACES. <i>[Section 778(d)]</i></p>
Allowance Allocations	<b>Overview</b>	<p>Allocations to a variety of sources, and most allocations decline after 2030. <i>Allowance values are estimated from bill text and EPA estimates of total allowance revenue. [782]</i></p>	<p>Similar to ACES, with a greater portion apportioned for deficit reduction. <i>Allowance values are estimated from bill text and EPA estimates of total allowance revenue. [771]</i></p>
	<b>Electricity Consumers</b> (using Large Local Distribution Companies)	<p><b>Total Allowance Value:</b> \$384.3 billion (13.0% of allowance revenue 2012-2050) <i>[782(a)]</i>  <b>Recipient:</b> Electric local distribution companies (LDCs) for the benefit of their ratepayers.  <b>Distribution to LDCs:</b> 50% by historic electricity use (adjusted by number of customers), 50% by historic emissions. No LDC may receive more allowances than necessary to offset increased electricity costs.  <b>Allowance Uses:</b> “Exclusively for the benefit of retail ratepayers.” Benefits are to be distributed among ratepayer classes (residential, industrial, etc) based on total deliveries and divided <i>at a fixed rate</i> among ratepayers in each class to the maximum extent practicable (i.e. not solely based on ratepayer energy consumption). For industrial ratepayers, LDCs <i>may</i> pass on allowance values based on electricity consumption if a fixed rate would result in increased electricity costs.  <i>[783]</i></p>	<p><b>Total Allowance Value:</b> \$ 326.9 billion (11.1% of allowance revenue 2012-2050) <i>[771(a)(1)]</i>            Same recipient as ACES            Same distribution as ACES            Similar allowance uses to ACES, except CEJAPA extends the industrial exception to residential ratepayers.  <i>[772]</i></p>

# Climate Provisions of ACES and CEJAPA

*[Sections numbers in italics refer to amendments to the Clean Air Act unless ACES or CEJAPA Division is noted]*

	<b>ACES (H.R. 2454)</b>	<b>CEJAPA (S. 1733)</b>
<b>Electricity Consumers</b> (using Small Electric Distribution Companies)	<p><b>Total Allowance Value:</b> \$5.3 billion (0.2% of allowance revenue 2012-2050) <i>[782(a)(2)]</i></p> <p><b>Recipient:</b> Small electric local distribution companies (LDCs) for the benefit of their ratepayers.</p> <p><b>Distribution to LDCs:</b> By historic emissions.</p> <p><b>Allowance Uses:</b> Exclusively to achieve electricity savings, deploy renewable electricity technologies, or provide low-income assistance programs. <i>[783(b)]</i></p>	<p><b>Total Allowance Value:</b> \$ 9.9 billion (0.3% of allowance revenue 2012-2050) <i>[771(a)(1)(b)&amp; 771(d)(7)]</i></p> <p>Same recipient as ACES Same distribution as ACES Same allowance uses as ACES. <i>[772(b)]</i></p>
<b>Natural Gas Consumers</b>	<p><b>Total Allowance Value:</b> \$77.8 billion (2.6% of allowance revenue 2012-2050) <i>[782(b)]</i></p> <p><b>Recipient:</b> Natural gas distribution companies for the benefit of their ratepayers.</p> <p><b>Distribution to companies:</b> Historic natural gas deliveries (adjusted by number of customers).</p> <p><b>Allowance Uses:</b> “Exclusively for the benefit of retail ratepayers,” with at least one-third of allowances used for energy efficiency programs. Benefits are not to be based solely on ratepayer energy consumption to the maximum extent practicable. <i>[784]</i></p>	<p><b>Total Allowance Value:</b> \$ 66.2 billion (2.2% of allowance revenue 2012-2050) <i>[771(a)(2)]</i></p> <p>Same recipient as ACES Same distribution as ACES Same allowance use to ACES. <i>[773]</i></p>
<b>Home Heating Oil and Propane Consumers</b>	<p><b>Total Allowance Value:</b> \$16.4 billion (0.6% of allowance revenue 2012-2050) <i>[782(c)]</i></p> <p><b>Recipient:</b> States for the benefit of residential and commercial home heating oil, propane, and kerosene consumers.</p> <p><b>Distribution to states:</b> Carbon content of historic home heating oil, propane, and kerosene sales.</p> <p><b>Allowance Uses:</b> At least 50% for energy efficiency programs, the remainder for direct financial assistance programs for consumers. <i>[785]</i></p>	<p><b>Total Allowance Value:</b> \$14.0 billion (0.5% of allowance revenue 2012-2050) <i>[771(a)(3)]</i></p> <p><b>Recipient:</b> Similar to ACES but not for kerosene consumers. Same distribution as ACES Same allowance use to ACES. <i>[774]</i></p>

# Climate Provisions of ACES and CEJAPA

*[Sections numbers in italics refer to amendments to the Clean Air Act unless ACES or CEJAPA Division is noted]*

	<b>ACES (H.R. 2454)</b>	<b>CEJAPA (S. 1733)</b>
<b>State Investment in Energy Efficiency and Renewable Energy</b>	<p><b>Program: State Energy and Environmental Development (SEED) Funds</b> <i>[131 &amp; 132]</i></p> <p><b>Total Allowance Value:</b> \$145.2 billion (4.9% of allowance revenue 2012-2050) <i>[782(g)]</i></p> <p><b>Recipient:</b> States to redistribute</p> <p><b>Distribution to States:</b> Based on a formula of 33% to all states, 33% by population, and 33% energy consumption.</p> <p><b>Allowance Uses:</b></p> <ul style="list-style-type: none"> <li>• 20% to states for specific energy efficiency programs: buildings codes, manufactured homes, building performance labeling, low income community energy efficiency programs and retrofit programs (at least 5.5% of SEED funds).</li> <li>• 12.5% to local governments for specific energy efficiency and renewable energy programs.</li> <li>• 20% to states for specific renewable energy financing programs.</li> <li>• 37.5+% To states for energy efficiency and renewable energy programs described above, energy efficiency programs for end-use energy consumers, Smart Grid for public building.</li> <li>• Up to 10% to states for transportation programs</li> </ul> <p><i>[131 &amp; 132 of ACES]</i></p>	<p><b>Program: State and Local Investment in Energy Efficiency and Renewable Energy</b> <i>[Section 202 of Division B]:</i></p> <p><b>Total Allowance Value:</b> \$119.5 billion (4.0% of allowance revenue 2012-2050) <i>[771(a)(9) &amp; 771(d)(6)]</i></p> <p>Recipient same as ACES</p> <p><b>Distribution to States:</b> Similar to ACES, but includes a 10% allocation based on each state’s successes in decreasing energy consumption and certain weather adjusted criteria.</p> <p><b>Allowance Use:</b> Different from ACES:</p> <ul style="list-style-type: none"> <li>• 24% to states for specific energy efficiency programs: Similar to ACES with the addition of district energy (at least 2.4% of State money) and end-use energy efficiency programs administered by entities other than the state. Retrofits are to receive 1.2% of the state and local EERE allocation, and low income, 8.4%.</li> <li>• 36% to states for a variety of programs: electricity transmission, energy efficiency programs for end- use energy consumers, Smart Grid, the State Energy Program, and the Weatherization Assistance Program.</li> <li>• 25% to local governments for energy efficiency and conservation block grants, as authorized in EISA.</li> <li>• 15% to renewable energy generating companies</li> </ul> <p><i>[202 of Division B]</i></p>
<b>Building Codes</b>	<p><b>Total Allowance Value:</b> \$14.4 billion (0.5% of allowance revenue 2012-2050) <i>[782(g)(2)]</i></p> <p><b>Recipient:</b> States for building codes adoption and implementation</p> <p><b>Distribution to states:</b> 20% equal for each state and territory, 40% based on building energy use in each state, and 40% based on building activity in each state</p> <p><b>Allowance Uses:</b> For building code adoption and implementation. <i>[201 of ACES]</i></p>	<p><b>Total Allowance Value:</b> \$11.2 billion (0.4% of allowance revenue 2012-2050) <i>[771(a)(10)]</i></p> <p>Same recipient as ACES</p> <p><b>Distribution to states:</b> Different from ACES; Same as CEJAPA Section 202 of Division B, above <i>[203 of Division B]</i></p> <p><b>Allowance Uses:</b> Similar to ACES, with prescriptive building codes language <i>[163 of Division A].</i></p>

# Climate Provisions of ACES and CEJAPA

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	<b>ACES (H.R. 2454)</b>	<b>CEJAPA (S. 1733)</b>
<b>Transportation GHG Reduction</b>	No allowance value allocated, though 10% of SEED funds <i>may</i> be used for programs to reduce transportation GHG emissions. <i>[132 of ACES]</i>	<b>Total Allowance Value:</b> \$70.7 billion (2.4% of allowance revenue 2012-2050) <i>[771(b)(10) &amp; 771(d)(4)]</i> <b>Recipient:</b> DOT to distribute grants to states, metropolitan planning organizations (MPOs), and public transportation agencies for transportation GHG emission reductions. <b>Allowance Distribution and Use:</b> 50% to states and MPOs to develop and implement plans outlined in the Transportation GHG Reduction Program <i>[Sec. 113, Division A]</i> . 50% as formula grants to public transportation agencies (and their designated recipients) (for projects that demonstrate GHG reductions. <i>[215 of Division B]</i> )
<b>Clean Vehicle Technology</b>	<b>Total Allowance Value:</b> \$15.6 billion (0.5% of allowance revenue 2012-2050) <i>[782(i)]</i> <b>Recipient:</b> To DOE to provide grants to states, tribes, local governments and automobile manufacturers to support vehicle electrification. <b>Allowance Distribution and Use:</b> Half to DOE for competitive grants to states, tribes and local governments to support local electric vehicle infrastructure and deployment <i>[122 of ACES]</i> ; half to automobile manufacturers to facilitate the manufacture of plug-in electric drive vehicles <i>[123 of ACES]</i> .	<b>Total Allowance Value:</b> \$13.3 billion (0.4% of allowance revenue 2012-2050) <i>[771(a)(8) &amp; 771(b)(3)]</i> <b>Recipient:</b> Treasury to establish a Clean Vehicle Technology Fund <b>Allowance Distribution and Use:</b> 75% to EPA for grants to state, local, and tribal agencies; non-profit organizations; and institutions that reduce diesel emissions. 20% to EPA to provide assistance for the deployment, integration, and use of advanced technology vehicles. 5% for DOE develop and demonstrate a national transportation low-emissions energy plan and encourage the use of plug-in electric drive vehicles. <i>[201 of Division B]</i>

# Climate Provisions of ACES and CEJAPA

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	<b>ACES (H.R. 2454)</b>	<b>CEJAPA (S. 1733)</b>
<b>Research and Development for Clean Energy</b>	<p><b>Total Allowance Value:</b> ARPA-E: \$30.3 billion (1.02% of allowance revenue 2012-2050); Hubs: \$13.0 billion (.44% of allowance revenue 2012-2050) <i>[782(h)]</i></p> <p><b>Recipient:</b> DOE for two research and development programs: Advanced Research Projects Agency – Energy (ARPA-E) and new Clean Energy Innovation Hubs.</p> <p><b>Allowance Uses:</b> ARPA-E: to research, develop, and demonstrate new energy efficiency manufacturing technologies. Hubs: to promote commercial application of clean, indigenous alternatives to fossil fuels. <i>[171 &amp; 172 of ACES]</i></p>	<p><b>Total Allowance Value:</b> ARPA-E: \$29.6 billion (1.00% of allowance revenue 2012-2050) <i>[771(a)(12)]</i>; Hubs: \$10.3 billion (.35% of allowance revenue 2012-2050) <i>[771(a)(11)]</i></p> <p>Same recipients as ACES Same allowance use to ACES. <i>[Section 204 &amp; 205 of Division B]</i></p>

*The Alliance to Save Energy is a coalition of prominent business, government, environmental and consumer leaders who promote the efficient use of energy worldwide to benefit consumers, the environment, the economy, and national security. For more information please contact Alliance policy staff at (202)857-0666 or [info@ase.org](mailto:info@ase.org).*

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