



## MEMORANDUM

June 16, 2010

**Subject:** Comparison of Selected Senate Energy and Climate Change Proposals

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**This memorandum was prepared to enable distribution to more than one congressional office.**

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This memorandum provides a short summary and comparison of three legislative proposals that may receive attention in the Senate. While all three proposals fall within the broad category of energy and climate change policy, the specifics of the three proposals vary significantly, and their approaches vary in many ways.

- S. 1462, the American Clean Energy Leadership Act (ACELA) of 2009, was introduced by Senator Bingaman and reported by the Senate Committee on Energy and Natural Resources on July 16, 2009 (S.Rept. 111-48). S. 1462 is a broad energy bill aimed at promoting the development of clean energy technologies, increasing energy efficiency, and promoting domestic energy resources.<sup>1</sup> Incentives for new technology include a renewable energy standard (RES) for electric utilities. The bill does not directly address greenhouse gas emissions: provisions for a greenhouse gas cap-and-trade system were instead included in S. 1733, the Clean Energy Jobs and American Power Act, sponsored by Senators Kerry and Boxer, and reported by the Senate Committee on Environment and Public Works on February 2, 2010.<sup>2</sup>
- S. 2877, the Carbon Limits and Energy for America's Renewal (CLEAR) Act, was introduced by Senators Cantwell and Collins on December 11, 2009 and has been referred to the Senate Committee on Finance. S. 2877 would establish a program to control only carbon dioxide (CO<sub>2</sub>) emissions (covering 80% of U.S. GHG emissions), requiring fossil fuel producers (e.g., coal mines, gas wellheads) and importers to submit "carbon shares" for the CO<sub>2</sub> emissions related to the fossil fuels they produce or import. The President would limit (or cap) the quantity of carbon shares available for submission each year, and the Department of Treasury would distribute all of the carbon shares through monthly auctions.

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<sup>1</sup> For a more detailed analysis of S. 1462, see CRS Report R40837, *Summary and Analysis of S. 1462: American Clean Energy Leadership Act of 2009, As Reported*, coordinated by Mark Holt and Gene Whitney.

<sup>2</sup> For a comparison of the greenhouse gas provisions in S. 1733 with other proposals in the 111<sup>th</sup> Congress, see CRS Report R40556, *Market-Based Greenhouse Gas Control: Selected Proposals in the 111th Congress*, by Larry Parker, Brent D. Yacobucci, and Jonathan L. Ramseur.

- A discussion draft of the American Power Act (APA) was released on May 12, 2010 by Senators Kerry and Lieberman. A comprehensive energy and climate change policy proposal, the draft would set GHG reduction goals similar to those in H.R. 2454 (the bill most comparable to the APA draft),<sup>3</sup> which passed the House in June 2009. The APA employs a market-based cap-and-trade scheme for electric generators and industry with a separate price mechanism to cover emissions from transportation fuels. The draft proposal would allocate a significant amount of allowance value to energy consumers, low-income households, and the promotion of low-carbon energy technologies. In addition, the draft would provide incentives for the expansion of nuclear power, carbon capture and storage technology, and advanced vehicles.

CRS has selected nine key topics relevant to some or all of the proposals. For each topic, a short summary and comparison of the proposals' provisions is included. The nine topics are listed below, along with the author's contact information:

1. Mandatory Carbon Dioxide/Greenhouse Gas Emissions Controls—Larry Parker, Specialist in Energy and Environmental Policy, x7-7238 and Brent Yacobucci, Specialist in Energy and Environmental Policy, x7-9662;
2. Carbon Capture and Sequestration—Peter Folger, Specialist in Energy and Natural Resources Policy, x7-1517;
3. Nuclear Energy—Mark Holt, Specialist in Energy Policy, x7-1704;
4. Oil and Gas—Neelesh Nerurkar, Specialist in Energy Policy, x7-2873;
5. Renewable Energy—Richard Campbell, Specialist in Energy Policy, x7-7905;
6. Energy Efficiency—Fred Sissine, Specialist in Energy Policy, x7-7039;
7. Vehicles and Transportation—Brent Yacobucci, Specialist in Energy and Environmental Policy, x7-9662;
8. Tax Incentives—Molly Sherlock, Analyst in Economics, x7-7797; and
9. Jobs/Workforce Development—Richard Campbell, Specialist in Energy Policy, x7-7905.

## **Mandatory Carbon Dioxide/Greenhouse Gas (GHG) Emission Controls<sup>4</sup>**

S. 1462 does not set mandatory greenhouse gas emission reduction targets or include a greenhouse gas emission reduction scheme. S. 2877 would create a program that seeks to combine emission limits and price controls. The President would limit (or cap) the quantity of carbon shares available to covered entities for submission each year, and the Department of Treasury would distribute all of the carbon shares through monthly auctions. The auctions would have a price floor and a price ceiling (i.e., safety valve). If the price ceiling were reached in a given auction, additional carbon shares would be sold to accommodate all bids, and the additional funds collected would be used to buy domestic emission offsets.

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<sup>3</sup> CRS has written several reports on various aspects of H.R. 2454. For an overview, see CRS Report R40643, *Greenhouse Gas Legislation: Summary and Analysis of H.R. 2454 as Passed by the House of Representatives*, coordinated by Mark Holt and Gene Whitney. Reports on specific topics include cap-and-trade provisions, carbon capture and sequestration, electricity and natural gas, and climate change adaptation (search "H.R. 2454" on the crs.gov website).

<sup>4</sup> This section was written by Larry Parker and Brent Yacobucci. For a more detailed comparison of proposals in the 111<sup>th</sup> Congress to control greenhouse gases, see CRS Report R40556, *Market-Based Greenhouse Gas Control: Selected Proposals in the 111th Congress*, by Larry Parker, Brent D. Yacobucci, and Jonathan L. Ramseur.

The draft American Power Act would set GHG reduction goals similar to those of H.R. 2454. The American Power Act proposal would employ a market-based cap-and-trade scheme for electric generators and industry with a separate price mechanism to cover emissions from transportation fuels. Key features of the emissions reduction schemes are described below.

### **Emissions Reduction/ Limitation Scheme**

- S. 1462 does not set mandatory greenhouse gas emission reduction targets or include a greenhouse gas emission reduction scheme.
- S. 2877 creates a hybrid cap/tax approach requiring fossil fuel producers (e.g., coal mines, wellheads) and importers to submit “carbon shares” for the CO<sub>2</sub> emissions associated with the use of the fossil fuels. The mandatory scheme only covers carbon dioxide emissions from these sources. The President is directed to establish (in 2011) a 2012 CO<sub>2</sub> emissions limit for the covered entities that equals the expected emissions for 2012; the annual limit begins to decline in 2015 at an increasing rate each year; in 2020, the CO<sub>2</sub> limit would be approximately 9% below 2005 CO<sub>2</sub> levels; in 2030, 32% below 2005 levels; in 2050, 83% below 2005 levels.
- The APA draft creates a cap-and-trade allowance scheme similar to H.R. 2454 that covers about 85% of all emissions of seven greenhouse gases,<sup>5</sup> including carbon dioxide. Emissions caps for the covered entities are specified in the bill as follows: In 2013, 4.75% below 2005 emissions from covered sources; in 2020, 17% below 2005 emissions from covered sources; in 2030, 42% below 2005 emissions from covered sources; in 2050, 83% below 2005 emissions from covered sources. Transportation fuel producers may not participate in the allowance market, but must instead purchase allowances at a set price (the prevailing auction price from the previous quarter) from a designated pool of allowances set aside for that purpose.

### **Cost Control Mechanisms**

- S. 1462 does not set mandatory greenhouse gas emission reduction targets or include a greenhouse gas emission reduction scheme.
- S. 2877 would allocate its carbon shares or allowances solely by auction. The auction would have a price ceiling (and price floor), starting at \$21/share in 2012; the ceiling would increase annually by a rate related to inflation and capital investment; if the price ceiling is reached in a given auction, additional carbon shares would be sold to accommodate all bids. This is commonly known as a safety valve mechanism.
- The APA draft contains no specific provision to control prices overall, but the draft includes a cost containment reserve of allowances available at a set price. Allowances from the cost containment reserve, a pool of allowances borrowed from future years, would be sold at \$25/allowance in 2013 (in \$2009); the cost containment price grows at 5% real (adjusted for inflation) annually thereafter. A covered entity may meet up to 15% of its allowance obligation using allowances from this reserve, with certain other restrictions.

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<sup>5</sup> Carbon dioxide, methane, nitrous oxide, hydrofluorocarbons emitted as a byproduct, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride, as well as any other substance subsequently designated by EPA.

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## Distribution of Allowance Value/Auction Revenues

- S. 1462 does not set mandatory greenhouse gas emission reduction targets or include a greenhouse gas emission reduction scheme.
- S. 2877 would allocate 75% of auction revenue (subject to the appropriations process) to a Carbon Refund Trust Fund, which would be used to distribute monthly (non-taxable) dividends to all (legally residing) individuals in the United States. The remaining 25% would be allotted (subject to the appropriations process) to the Clean Energy Reinvestment Trust Fund (CERT Fund), which could be used to support a myriad of policy objectives: e.g., worker transition assistance, adaptation, technology development, energy efficiency, biological sequestration, and deficit reduction. Revenue from carbon shares purchased at the price ceiling (“safety valve”) would be devoted to supporting (1) efforts to reduce non-CO<sub>2</sub> GHG emissions; and (2) domestic biological sequestration activities, such as agriculture or forestry projects.
- The APA draft would allocate allowances and/or auction revenues to various purposes with the precise allocations changing in future years. In 2016, allowance value is allocated as follows: 30% (at minimum) to electric Local Distribution Companies (LDCs); 9% for natural gas LDCs; 1.5% to states for home-heating oil and propane consumers; 12.3% directly to low-income consumers; 15% to trade-exposed industries; up to 0.5% to merchant coal units; 3.75% to petroleum refineries; up to 4.5% to long-term power contract operators; 2% to states to support renewable energy and energy efficiency efforts; 4% to promote technological advances; 9.2% to support transportation infrastructure and efficiency; 6.75% for deficit reduction; and 1.5% auctioned to help mitigate against high allowance prices.

## Carbon Capture and Sequestration<sup>6</sup>

S. 1462 would authorize the Secretary of Energy to enter into cooperative agreements to provide financial and technical assistance to large-scale carbon capture and sequestration (CCS) demonstration projects. The demonstration projects would focus on the sequestration stage of CCS to foster the commercial application of long-term geologic storage of CO<sub>2</sub>. S. 1462 would also authorize the Secretary to indemnify the operator from liability for up to \$10 billion per project, except in instances of gross negligence or willful misconduct, in addition to financial assurances and protections provided by the operator of a sequestration project.

S. 2877 would provide carbon shares—in excess of the aggregate quantity established under subsection (a)(2) of the bill—to an operator of a CCS facility in a quantity that corresponds to the quantity of fossil carbon that is verifiably sequestered in compliance with appropriate laws and regulations. S. 2877 would also provide excess carbon shares to operators of oil and gas reinjection projects, and to manufacturers who embed fossil carbon in products that prevent the embedded carbon from reaching the atmosphere and having a negative impact.

The draft American Power Act would create a funding mechanism to support the development and deployment of CCS technologies for mid- and large-scale projects (at least 100 megawatts). The proposal would also promote the commercial deployment of CCS technologies, similar to H.R. 2454, by

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<sup>6</sup> This section was written by Peter Folger. For more information on CCS, see CRS Report RL33801, *Carbon Capture and Sequestration (CCS)*, by Peter Folger.

distributing emission allowances from the cap and trade program to qualifying electric generating plants and industrial facilities.

### **Funding for Development and Demonstration of CCS Technologies**

- S. 1462 would authorize funding for the Department of Energy (DOE) to support up to 10 CCS projects to demonstrate large-scale integrated capture, transportation, and sequestration of CO<sub>2</sub> from industrial sources. To qualify for selection, applicants would need to demonstrate that they meet all the qualifications to geologically sequester CO<sub>2</sub> over the long term, including possessing the land or interests in the land, permits and authorizations for constructing and operating injection wells, monitoring the injected CO<sub>2</sub>, and meeting the long-term care requirements after injection has ceased.
- S. 2877 does not establish a demonstration program for CCS.
- The APA discussion draft would establish a funding mechanism for large scale demonstration CCS projects by assessing a “wires charge” on the amount of electricity provided by fossil fuel-based electricity generators. The “wires charge” would collect approximately \$2 billion per year over 10 years. The charge would be proportional to the amount of CO<sub>2</sub> released per unit of energy produced (i.e., highest charge for coal, lowest charge for natural gas). The Secretary, through the program director, would make the funds available for grants, contracts, cooperative agreements, and other awards to eligible entities.

### **Incentives for the Commercial Deployment of CCS**

- S. 1462 is limited to demonstration projects and does not include revenues or allowances from a cap and trade program to support the commercial deployment of CCS.
- S. 2877 provides carbon shares, in excess of the aggregate quantity established in the bill, to the operator of a CCS facility that would correspond to the quantity of fossil carbon sequestered by the CCS facility. These “bonus shares” could be considered as an incentive for commercial deployment of CCS, although the CCS facility would have to be already established and in compliance with appropriate laws and regulations.
- The APA discussion draft would create a program that would distribute emission allowances from the cap and trade provisions to qualifying electric generating plants (200 megawatts or more) and industrial facilities (that emit 50,000 tons of CO<sub>2</sub> per year or more) that capture and sequester CO<sub>2</sub>. Eligible facilities would be required to capture 50% or more of the emissions from the electric generating unit or emission point at the industrial facility. The higher the rate of capture, the greater the number of emission allowances awarded, together with a bonus for “early movers.” Emission allowances would be awarded to up to 72 gigawatts of total cumulative electric generating capacity that employs CCS.

### **Legal and Regulatory Framework for CCS**

- S. 1462 would require financial assurances from the operator of the CCS facility during injection, closure, and post-closure activities. The bill would require that the operator meet all post-closure requirements, and maintain the financial assurances and protection, such as insurance, before the federal government would accept title and long-term stewardship responsibilities for the site. In addition to these financial assurances, the
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legislation would authorize the Secretary to indemnify the operator from liability arising from a project that is in excess of the liability covered by the operator. The legislation would authorize up to \$10 billion per project, except for instances of liability from gross negligence or intentional misconduct.

- S. 2877 does not address legal or regulatory aspects of CCS.
- The APA discussion draft requires a report from the EPA Administrator, within one year of enactment, that establishes a unified and comprehensive strategy to address key legal, regulatory, and other barriers to the commercial-scale deployment of CCS. In addition, the legislation would establish a task force to conduct a study of existing laws that apply to CCS, including environmental laws that apply to sites where CO<sub>2</sub> was used for enhanced oil recovery. Also, the bill would require a study of how the laws for which EPA has responsibility would apply to CCS activities.

## Nuclear Energy<sup>7</sup>

S. 1462 would establish a Clean Energy Deployment Administration (CEDA) to provide loan guarantees and other assistance to energy technologies that would reduce greenhouse gas emissions, such as nuclear power, and establish a National Commission on Nuclear Waste. S. 2877 would broadly authorize funding for energy technologies that reduce greenhouse gas emissions with no specific mention of nuclear energy. The APA discussion draft would provide extensive incentives for new nuclear power plants, including increased loan guarantees, regulatory risk insurance, licensing modifications, and tax credits.

### Loan Guarantees

- S. 1462 would require the Secretary of Energy to transfer authority over energy loan guarantees established by Title XVII of the Energy Policy Act of 2005 (P.L. 109-58) to CEDA.
- S. 2877 would authorize funding from the Clean Energy Reinvestment Trust Fund for CEDA activities.
- The APA discussion draft would increase the current ceiling on nuclear power plant loan guarantees from \$18.5 billion to \$54 billion, close to the level in the President's FY2011 budget request, and establish a fee to encourage refinancing of guaranteed loans after plants are completed.

### Other Assistance

- S. 1462 would authorize CEDA to provide broader assistance to "clean" energy technologies, in addition to the loan guarantee authority transferred from the Secretary of Energy. The new CEDA assistance would include "direct loans, letters of credit, loan guarantees, insurance products, or other credit enhancements."
- S. 2877 authorizes direct funding of projects that would reduce greenhouse gas emissions.

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<sup>7</sup> This section was written by Mark Holt. For more information, see CRS Report RL33558, *Nuclear Energy Policy*, by Mark Holt.

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- The APA discussion draft would increase the existing Standby Support Program, which provides insurance coverage for regulatory delays in licensing new nuclear plants, from six to 12 reactors, allow payments of up to \$500 million for each reactor, and allow unused coverage from a completed plant to be “rolled over” to the next plant in line for coverage. Changes in the licensing process would include removal of mandatory hearings on non-contested issues. Import duties on certain nuclear plant components not available in the United States would be suspended for an additional 10 years. Tax incentives for nuclear plants would include a five-year accelerated depreciation period, a 10% investment tax credit, expansion of the existing nuclear energy production tax credit, and grants to public power providers in lieu of tax credits.

## Nuclear Waste

- S. 1462 would create a National Nuclear Waste Commission to study alternative waste management strategies, including spent fuel reprocessing and recycling. A similar commission, the Blue Ribbon Commission on America’s Nuclear Future, was established by the Secretary of Energy in March 2010 at the direction of the White House. New requirements would be established for DOE’s spent nuclear fuel recycling research program.
- S. 2877 does not have any specific provisions on nuclear waste.
- The APA discussion draft would require the Secretary of Energy to designate a national laboratory as a “spent fuel recycling research and development center of excellence.”

## Oil and Gas<sup>8</sup>

S. 1462 deals most extensively with oil and gas topics, including measures addressing offshore drilling, the Strategic Petroleum Reserve (SPR), and oil and gas markets. The APA discussion draft also addresses offshore drilling issues including revenue sharing and state control of nearby leasing. It includes place holders for a series of issues that have come under greater focus in the wake of the Deepwater Horizon incident such as new offshore safety measures and drilling liability. (The APA Draft was released May 12, 2010, soon after the April 20 incident). S. 2877 would impact oil and gas as part of broader climate measures discussed above.

## Offshore Drilling

- S. 1462 would open parts of the eastern Gulf of Mexico (GOM), mostly areas 45 miles and further from the Florida coastline, to oil and gas leasing. It requires seismic study of potential resources in the eastern GOM, Atlantic, and Alaska. It would also repeal royalty relief for shallow water deep gas and for deepwater oil and gas (sections 344 and 345 of the Energy Policy Act of 2005).
- S. 2877 does not include offshore provisions.
- The APA draft would create a temporary moratorium on offshore drilling, and give states the right to cancel oil and gas development within 75 miles of their shore. It would set up federal revenue sharing with coastal states for new areas opened to leasing, and direct

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<sup>8</sup> This section was written by Neelesh Nerurkar.

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some of the remaining revenue towards deficit reduction. The bill includes place holders for new safety, liability, remediation, and accident preparedness mechanisms related to offshore drilling.

### Cost and Price Related Measures

- S. 1462 includes a series of measures improving energy market transparency aimed at moderating oil and gas costs, including creation of new groups to address challenges such as price volatility and oil import dependence. It would also direct the SPR to hold 30 million barrels in refined products, and permit use of the SPR when a severe price increase could damage the economy. Also, the Federal Energy Regulatory Commission (FERC) would be given new authorities to address emergencies and market manipulation.
- S. 2877 includes distributions from the Carbon Refund Trust Fund in S. 2877 to help offset the higher costs for using oil and other fossil fuels due to the pricing carbon emissions. The bill's allowance price ceiling (i.e., safety valve) limits cost risks to oil and gas producers who must buy carbon shares to cover the GHG emissions from the burning of their products.
- The APA draft would provide emissions allowances for the benefit of residential and commercial users of heating oil, propane, and natural gas that might otherwise face higher energy costs from pricing of GHG emissions. To cover GHG emissions from combustion of transportation fuels, petroleum refiners and importers would have sufficient allowances provided to them at a set price. Petroleum refiners would also receive an allocation of allowances to help cover their direct GHG emissions.

### Renewable Energy<sup>9</sup>

S. 1462 would establish a Federal Renewable Electricity standard (RES) for electric utilities selling power to end-use customers. These utilities must obtain an annual percentage of their supplies from renewable energy sources or energy efficiency ranging from 3% in 2011 to 15% by 2021. Renewable sources are defined as wind, solar, geothermal, and ocean energy; biomass, landfill gas, qualified hydropower (i.e., incremental additions since 1992), marine and hydrokinetic energy, coal-bed methane, and qualified waste-to-energy. S. 2877 supports the concept of federal renewable energy and energy efficiency standards but does not propose an RES, or offer specific goals to advance such programs. The APA discussion draft proposes a number of state and local programs to forward goals for energy efficiency and renewable energy development but does not contain an RES. The APA draft details several "findings" of Congress, but does not propose a comprehensive program for promotion of renewable energy and energy efficiency.

### Renewable Electricity Standard

- S. 1462 would establish an RES for electric utilities selling power to end-use customers, requiring energy efficiency measures or renewable energy sources to range from 3% in 2011 to 15% of all resources by 2021.
- S. 2877 does not contain an RES.

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<sup>9</sup> This section was written by Richard Campbell.

- The APA draft does not contain an RES.

### Other Renewable Energy Provisions

- S. 1462 would modify the requirement established in the Energy Policy Act of 2005 that federal agencies purchase and/or produce and use renewable electricity. The bill also promotes renewable energy development on federal lands and requires the establishment of Renewable Energy Permit Coordination Offices in field offices of the Bureau of Land Management in a pilot project to coordinate federal permits for renewable energy and electricity transmission.
- S. 2877 would allow the use of Clean Energy Reinvestment Trust Fund (CERT) monies (see above) for renewable projects, among other purposes. CERT would be empowered to finance programs of a Clean Energy Deployment Administration, provide incentives, or make grants and loans. (The bill does not establish a Clean Energy Deployment Administration. It appears to assume that one already exists, for example, as proposed in S. 1462).
- The APA discussion draft allocates emissions allowances to states for renewable energy, energy efficiency, smart grid and other programs. The draft also requires a report to Congress from the Comptroller General (within two years of enactment) on the “efficacy” of voluntary renewable energy markets in promoting renewable energy and reducing carbon dioxide emissions. The draft requires a study of the use of renewable biomass, and gas or fuel derived from renewable biomass regarding the quantity of greenhouse gas (GHG) emissions, net GHG benefits from renewable biomass, and other related issues in each region of the United States. A National Academy of Sciences report is also required within one year of enactment to evaluate how sources of renewable biomass contribute to U.S. energy independence, environmental protection, and reduction of GHG pollution.

### Energy Efficiency<sup>10</sup>

S. 1462 has a broad array of energy efficiency provisions that include a major financing agency and a variety of programs that covering several sectors.<sup>11</sup> S. 2877 includes two energy efficiency provisions: a consumer loan program and a trust fund that may be used for energy efficiency projects. The APA draft proposes to use emission control allowances to support consumer-oriented energy efficiency provisions – offered mainly through states and energy utility companies.

### Clean Energy Deployment Administration

- S. 1462 would establish a Clean Energy Deployment Administration (CEDA), as a quasi-independent agency at the Department of Energy (DOE). The new agency would promote the commercial deployment of clean energy technologies (including energy efficiency) by modifying the Loan Guarantee Program and increasing DOE’s authority to offer additional financial incentives. CEDA would draw upon a new Clean Energy Investment

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<sup>10</sup> This section was written by Fred Sissine.

<sup>11</sup> For more information on the energy efficiency provisions in S. 1462, see CRS Report R40837, *Summary and Analysis of S. 1462: American Clean Energy Leadership Act of 2009, As Reported*, coordinated by Mark Holt and Gene Whitney.

Fund, which would be simultaneously established as a \$10 billion revolving fund at the Department of the Treasury.

- S. 2877 would allow the use of Clean Energy Reinvestment Trust Fund (CERT) monies (see above) for energy efficiency projects, among other purposes.
- The APA discussion draft has no provision related to a CEDA-type entity.

### **Energy Efficiency in Buildings**

- S. 1462 contains the most extensive building efficiency provisions. First, S. 1462 would require that DOE update the residential and commercial energy codes every three years with increasing energy savings targets. Federal training and funding assistance would be available to states that adopt advanced building efficiency codes. Appropriations of \$100 million per year would be authorized for five years. Second, the bill would direct EPA to establish a broad program of criteria and financial support for retrofits of residential buildings and direct DOE to establish a parallel program for commercial buildings. Third, the bill would provide a low-income rebate for energy-efficient manufactured housing. S. 1462 also proposes a zero-net-energy initiative for residential buildings, federal facility energy efficiency requirements, and several other buildings policies. It does not have a provision for building energy labeling.
- S. 2877 has no similar provisions.
- The APA discussion draft would direct the EPA Administrator to distribute allowances to states (2% in 2016) and Indian tribes (0.01% in 2016) that would be used for energy efficiency and renewable energy purposes. The energy efficiency purposes include programs for building energy codes, manufactured homes, building energy performance labeling, and retrofits of existing buildings. Cost-effective energy efficiency programs administered by local governments and entities may also be eligible.

### **Energy Efficiency Consumer Loan Programs**

- S. 1462 does not create a consumer loan program.
- S. 2877 would establish an Energy Efficiency Consumer Loan Program. Under the program, any qualified individual (a lawful resident of the United States) would be allowed to borrow against any future energy security dividend (an individual's pro-rated share of carbon rebate auction proceeds) to invest in energy efficiency or clean energy technologies and services that would reduce energy bills and greenhouse gas emissions.
- The APA discussion draft would direct the USDA's Administrator of the Rural Utilities Service to distribute allowances to eligible entities (public power companies and electric cooperatives) that would preserve or create jobs by providing loans to qualified consumers that will use the loans to implement energy efficiency measures to reduce energy costs, energy use, or greenhouse gas emissions. The Administrator would also be empowered to establish agreements with eligible entities to conduct energy efficiency loan demonstration projects. Such sums as necessary would be authorized for this section.

### **Energy Efficiency Programs with Cost-Effectiveness Criteria**

- S. 1462 does not create specific cost-effectiveness criteria for energy efficiency programs.
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- S. 2877 does not create specific cost-effectiveness criteria for energy efficiency programs.
- The APA discussion draft would establish a formula to allocate emission allowances to natural gas distribution companies and to states for the benefit of residential and commercial home heating oil and propane users. A share of allowances allocated to those groups (at least 20% for natural gas and at least 50% for heating oil and propane) would be required to be used for “cost-effective” energy efficiency programs for energy consumers. The draft would require that allowances allocated to electricity distribution companies be used for the benefit of residential ratepayers. The provision does not directly call for the establishment of an energy efficiency program. However, it calls on the Government Accountability Office to prepare an audit report that includes a description of how local distribution companies meet, or fail to meet, the benefit requirement – including investments made in cost-effective end-use energy efficiency programs.

### **Appliance, Motor, and Manufacturing Efficiency Provisions**

- S. 1462 contains several other energy efficiency provisions, including appliance efficiency standards, motor efficiency standards and incentives, and manufacturing efficiency.
- S. 2877 does not have other energy efficiency provisions.
- The APA draft does not have other energy efficiency provisions.

### **Vehicles and Transportation<sup>12</sup>**

S. 1462 would establish grant programs and require federal studies in support of advanced technology vehicles, especially plug-in vehicles; the bill does not authorize a specific amount of appropriations for these programs but instead authorizes “such sums as are necessary.” S. 2877 allows the use of funds from sales of carbon shares to provide incentives, loans, and grants for improvements in energy efficiency and greenhouse gas reductions; although the bill does not specifically mention vehicles or transportation, some transportation projects would likely meet the bill’s general criteria. The draft American Power Act would establish a separate program from the cap-and-trade system to address emissions from transportation fuels, requiring fuel providers to purchase allowances (at a set price) to cover the emissions from their fuels. The APA draft would also support advanced vehicles and clean transportation in several ways including: allocating auction revenue from the cap-and-trade system to automakers and parts suppliers for the production of advanced technology vehicles and to the Highway Trust Fund, states, metropolitan planning organizations for transportation sector emissions reductions and for transportation projects more generally; and providing incentives for the deployment of natural gas vehicles and infrastructure.

### **Transportation Sector Emissions Reductions**

- S. 1462 does not directly control transportation sector greenhouse gas emissions, but would provide support for the deployment of electric vehicles and infrastructure.

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<sup>12</sup> This section was written by Brent Yacobucci.

- S. 2877 does not directly address the transportation sector emissions, but puts a price on the carbon content of fuels, and broadly promotes efficiency and emissions reductions.
- The APA discussion draft would require petroleum refiners and importers to purchase allowances quarterly to cover the carbon emissions from fuels sold the previous quarter. Fuel providers would not be permitted to participate in the primary cap-and-trade allowance market but would instead pay a set price (determined based on the prior quarter's allowance auction price) per ton of emissions. The proposal would also auction a significant share of cap-and-trade allowances (6.1% in 2016) and direct the proceeds to various transportation projects, including transportation sector emission reductions.

### **Advanced Technology Vehicle Development**

- S. 1462 would provide incentives for the deployment of plug-in vehicle infrastructure, and would establish a pilot program to purchase plug-in vehicles for the federal fleet.
- S. 2877 does not directly address advanced vehicles but broadly promotes efficiency and emissions reductions.
- The APA discussion draft would auction a significant portion of cap-and-trade allowances (1% in 2016) to provide grants to automakers and parts suppliers to convert their facilities to produce advanced technology vehicles and components. The draft would also expand incentives for natural gas vehicles and infrastructure.

### **Tax Incentives<sup>13</sup>**

The APA discussion draft contains a number of tax incentives for nuclear power, would provide an additional allocation for the advanced energy project credit, and includes tax incentives for natural gas vehicles. S. 1462 and S. 2877 do not contain comparable tax incentives.

#### **Tax Incentives**

- S. 1462 contains no tax provisions.
- S. 2877 contains no tax provisions.
- The APA discussion draft includes several tax provisions. First, the draft would expand tax incentives for nuclear power. These provisions include a reduced depreciation period for nuclear investments, an investment tax credit for new nuclear plants, a provision allowing nuclear power to qualify for the advanced energy manufacturing credit, a modified credit for nuclear power production allowing a credit for private partnerships with public power, tax-exempt financing for public-private advanced nuclear projects, and a provision allowing nuclear facilities to qualify for the grant in lieu of tax credits. Aside from incentives for nuclear energy, the APA draft also contains a provision awarding an additional allocation for the advanced energy project credit. Tax incentives for natural gas vehicles in the APA draft include a credit for natural gas motor vehicles, tax credit bonds financing for natural gas vehicle projects, and expensing of natural gas vehicle manufacturing facilities.

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<sup>13</sup> This section was written by Molly Sherlock.

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## Jobs/Workforce Development<sup>14</sup>

S. 1462 recognizes the need for skilled workers to fill jobs associated with energy production and energy efficiency efforts, and would make available funds for education and training purposes. S. 2877 also recognizes career opportunities from clean energy technologies, and provides for jobs training and transition for U.S. workers who may be impacted by “economic dislocations” due to efforts to mitigate climate change. The APA discussion draft proposes job protection and growth programs in traditional U.S. energy-intensive industries, fossil energy production, and clean energy generation.

## Jobs Training & Protection

- S. 1462 establishes competitive grants for states to create or expand energy career academic programs. Appropriations authorized are \$14 million for fiscal year 2009, \$22.5 million for fiscal year 2010, and \$30 million for fiscal year 2011. The program provides for renewable, competitive grants for as much as \$500,000 each year to community colleges for programs of up to five years in duration. DOE is also required to submit a study of energy workforce training programs funded by federal agencies, and a plan for filling future needs. Additional funding of up to \$100 million is authorized for fiscal years 2010 through 2015 for training in alternative energy technologies, energy efficiency, sustainable energy technologies, recycling and waste reduction, water and energy conservation, and other energy technologies. The bill establishes direct hire authority for the Secretary of Energy upon a determination that there is a severe shortage of highly qualified scientists, engineers, or critical technical personnel in the agency. Compensation and terms of employment for such employees must follow prescribed guidelines. The bill also directs the Secretary of the Interior to provide research funds for 10 years to assist development of academic programs producing workers for subsurface geosciences and engineering in energy (including geological carbon storage), petroleum, groundwater, economic geology, mining, and mineral and geological engineering.
- S. 2877 establishes a “Clean Energy Reinvestment Trust Fund.” Funds may be used to provide targeted assistance to U.S. workers, communities, industries, and small businesses experiencing economic distress due to efforts under the bill to reduce greenhouse gas emissions. Training and development programs are targeted in clean energy industries to prepare workers for careers in renewable energy, energy efficiency, and other emerging clean technology industries.
- The APA discussion draft sets aside cap-and-trade allowances under “Job Protection and Growth” for trade-exposed industries to “protect and promote” manufacturing jobs in the United States which may be subject to “carbon leakage” to other countries. The draft authorizes funds for competitive grants for eligible partnerships described in the Carl D. Perkins and Technical Education Act of 2006 (20 U.S.C. 2342) to develop programs of study at secondary institutions for clean energy careers. The draft also establishes a “clean energy construction careers demonstration project” to promote “middle-class careers” in green construction for “targeted workers.” These demonstration projects will be funded in part or whole by the federal government, and are to be evaluated by the Secretary of Labor.

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<sup>14</sup> This section was written by Richard Campbell.

## Other Workforce Development Opportunities

- S. 1462 uses quality and number of jobs created as a criteria for awards for its State Energy Retrofit program. The bill also sees the potential for renewable energy development on brownfield sites and directs the U.S. Department of Energy to identify and prioritize such opportunities (focused on non-federal lands) in a report no later than one year after enactment. Allowances will be made available for such projects. Opportunities for jobs creation is a criterion for the study. S. 1462 also examines development of energy projects on U.S. “affiliated” islands, and carries a criterion for jobs creation.
  - S. 2877 contains no similar provisions.
  - The APA discussion draft’s Rural Energy Saving Program is designed to “create and save jobs” by providing loans to qualified consumers for energy efficiency projects to achieve “significant” energy savings and GHG emissions reductions.
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