

# Economic Impact of the American Clean Energy and Security Act of 2009 on the West Virginia Economy 2009-2030

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## Executive Summary

The growing concern about the effect of greenhouse gas emissions on global warming has led to a number of proposals and bills aimed at reducing greenhouse gas emissions. This report examines the impact of the American Clean Energy and Security Act of 2009 (ACESA) on the West Virginia economy. The ACESA has four major components: promote clean energy, increase energy efficiency, reduce greenhouse gas emissions, and provide rebates, refunds, and tax credits to mitigate the effects of transitioning to a “clean energy economy”. There are numerous provisions within the ACESA that will impact West Virginia. The impacts of the ACESA on the West Virginia economy were simulated using the West Virginia REMI model.

The impacts of the ACESA on the West Virginia economy are of particular interest due to the role that coal mining and energy intensive industries play in the state. While coal mining employment accounted for less than 0.06 percent of total employment in the nation in 2008, coal mining employment accounted for 2.4 percent of total employment in West Virginia. West Virginia is also home to many energy-intensive firms that rely on the availability of low-cost electricity. West Virginia’s residential, commercial, and industrial electricity prices are 25 percent or more below national rates.

The provisions in the ACESA will potentially affect West Virginia’s economy in a number of ways. First, the ACESA will impact the national economy and that will have an impact on the West Virginia economy. Second, the ACESA will result in higher electricity prices in the state. Third, the ACESA will result in decreased coal production in the state. Fourth, the ACESA will result in decreased state and local government spending as government revenues decline due to reduced coal production and the general decline in economic activity in the state. Finally, energy efficiency provisions within the ACESA may increase spending on goods and services that provide greater energy efficiency and decrease the demand for electricity in the state. In addition, there may be an increase in energy-related investment spending.

The ACESA will result in a negative impact on the West Virginia economy due, primarily, to a significant decline in coal production in the state and the associated decrease in state and local government expenditures that are a result of lower government revenues. The following provide a summary of the results of the base scenario. These results compare, for the given year, the West Virginia economy with the ACESA to the state's economy without the ACESA.

- West Virginia's gross domestic product would be \$1.8 billion less in 2030.
- West Virginia would have 22,700 fewer jobs in 2030.
- West Virginia's population would be 24,600 lower by 2030.
- Every industry sector has fewer jobs with the ACESA.
- The largest declines in employment are in government, health care and social assistance, mining, and retail trade.
- The average annual wage in the state is 1.1 percent lower in 2030.
- West Virginia residents' share of income from earnings declines.
- West Virginia residents become more reliant on transfer payments as both transfer payments per capita and the share of income from transfer payments both increase.

## American Clean Energy and Security Act of 2009

The growing concern about the effect of greenhouse gas emissions on global warming<sup>1</sup> has led to a number of proposals and bills aimed at reducing greenhouse gas emissions. Bills aimed at reducing greenhouse gas emissions have been introduced in both the U.S. House of Representatives and U.S. Senate. The House bill, the American Clean Energy and Security Act of 2009 (H.R. 2454), was passed by a narrow majority (219-212) on June 26<sup>th</sup>. The Senate bill, the Clean Energy Jobs and American Power Act of 2009, has been introduced and is currently before the Senate. While both bills are very similar, this report examines the impact of the American Clean Energy and Security Act (ACESA) on the West Virginia economy.

The ACESA includes a number of programs and standards beyond the regulation of greenhouse gas emissions. The goal of the ACESA is to “create clean energy jobs, achieve energy independence, reduce global warming pollution, and transition to a clean energy economy”. The following is a brief overview of the ACESA. More detailed summaries and the full text of the ACESA can be obtained from the Library of Congress website<sup>2</sup> or the U.S. Government Printing Office website<sup>3</sup>.

The ACESA has four major components: promote clean energy, increase energy efficiency, reduce greenhouse gas emissions, and provide rebates, refunds, and tax credits to mitigate the effects of transitioning to a “clean energy economy”. The following is a brief summary of the major components of the ACESA. A detailed section-by-section summary of the ACESA by the U.S. House of Representatives’ Committee on Energy and Commerce is included in Appendix A.

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<sup>1</sup> The role that greenhouse gases play in global warming and even the extent to which global warming is seen as a serious issue have come under attack in recent months. These renewed attacks on the theory of man-made global warming are due to the release of an internal EPA report where one of EPA’s long-time employees questions the science behind man-made global warming and due to numerous leaked emails by leading climatologists that suggest that data were changed or added to obtain results that supported global warming. While some view these events as a reason to stop current public policy on global warming, others insist that the problem of man-made global warming is real and that a cap and trade program for the emissions of greenhouse gases should still be enacted.

<sup>2</sup> <http://thomas.loc.gov/cgi-bin/query/z?c111:H.R.2454>:

<sup>3</sup> [http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=111\\_cong\\_bills&docid=f:h2454eh.txt.pdf](http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=111_cong_bills&docid=f:h2454eh.txt.pdf)

Title I of the ACESA addresses clean energy by:

- establishing a Combined Efficiency and Renewable Electricity Standard (CERES);
- establishing a Renewable Electricity Standard (RES) for federal agencies;
- promoting carbon capture and sequestration technologies;
- requiring new coal-fired power plants to meet new performance standards for the emissions of greenhouse gases;
- providing financial assistance to promote clean transportation;
- establishing State Energy and Environment Development (SEED) Accounts;
- promoting Smart Grid advancement;
- establishing a federal policy on electric grid planning to address distribution of the increased renewable energy;
- supporting clean energy innovation and research centers; and,
- by establishing the Clean Energy Deployment Administration (CEDA) to increase access to financing for clean energy technologies.

Title II of the ACESA addresses energy efficiency by:

- establishing higher targets for energy efficiency building codes;
- providing allowances to states for retrofitting buildings that result in improved energy efficiency;
- promoting tree planting that results in reduced energy use;
- adopting standards for lighting and other appliances;
- identifying Best-in-Class appliances;
- labeling and providing incentives for water-efficient products and services;
- improving the Energy Star program by providing more comparative information among Energy Star products;
- establishing greenhouse gas emissions standards for heavy-duty vehicles;
- expanding the SmartWay Transport Partnership;
- establishing standards for industrial energy efficiency; and,
- by providing financing to promote community and neighborhood energy efficiency.

Title III of the ACESA is aimed at reducing global warming by establishing a cap and trade program for the emission of greenhouse gases that are believed to contribute to global warming.

Title III is intended to reduce global warming by:

- setting emission targets of covered sources to 97 percent of 2005 levels by 2012, 83 percent by 2020, 58 percent by 2030, and 17 percent by 2050;
- increasing covered sources from 66.2 percent in 2012 to 75.7 percent in 2014 to 84.5 percent in 2016 (Table 1 shows the covered emissions and emission targets used to generate the emissions cap.);
- providing incentives to reduce international deforestation;
- conducting analysis of the science of climate change and the progress in reducing global warming;
- establishing a list of greenhouse gases and their associated carbon dioxide equivalent value;
- establishing greenhouse gas registry and emissions reporting system;
- establishing emissions limits and allowances equal to limit;
- providing for trading, banking, and borrowing of allowances;
- creating Strategic Reserve to limit the costs of meeting the reduced emissions;
- providing for the use of domestic and international offsets in meeting the reduction in emissions;
- providing allocation of allowances to protect consumers from electricity, natural gas, and home heating oil price increases;
- establishing greenhouse gas standards for emissions from stationary sources not subject to the cap and trade program; and,
- by providing oversight and regulation of the markets for emission allowances.

Title IV addresses the transition to a clean energy economy by:

- promoting international reductions of emissions;
- providing grants to develop clean energy curriculum;
- establishing a program to provide supplemental income to workers displaced as a result of the cap and trade program;
- creating energy refund program (from funds generated through the sale of emission allowances) to protect low-income families;
- exporting clean energy technologies to developing countries; and,
- by establishing programs to facilitate states in adapting to climate change impacts.

Title V of the ACESA addresses the use of agriculture and forestry related offsets in meeting the reduction in emissions.

**Table 1: Calculating the Emissions Cap by Year (2012-2050)**

| Year | 2005 GHG Emissions | Percent of Emissions Subject to Cap | Emissions Subject to Cap | Emissions Target as a Percent of 2005 Levels | Emissions Cap |
|------|--------------------|-------------------------------------|--------------------------|--|---------------|
| 2012 | 7,206              | 66.2%                               | 4,770                    | 97.0%  | 4,627         |
| 2013 | 7,206              | 66.2%                               | 4,770                    | 95.3%  | 4,544         |
| 2014 | 7,206              | 75.7%                               | 5,455                    | 93.5%  | 5,100         |
| 2015 | 7,206              | 75.7%                               | 5,455                    | 91.8%  | 5,005         |
| 2016 | 7,206              | 84.5%                               | 6,089                    | 90.0%  | 5,480         |
| 2017 | 7,206              | 84.5%                               | 6,089                    | 88.3%  | 5,374         |
| 2018 | 7,206              | 84.5%                               | 6,089                    | 86.5%  | 5,267         |
| 2019 | 7,206              | 84.5%                               | 6,089                    | 84.8%  | 5,160         |
| 2020 | 7,206              | 84.5%                               | 6,089                    | 83.0%  | 5,054         |
| 2021 | 7,206              | 84.5%                               | 6,089                    | 80.5%  | 4,902         |
| 2022 | 7,206              | 84.5%                               | 6,089                    | 78.0%  | 4,749         |
| 2023 | 7,206              | 84.5%                               | 6,089                    | 75.5%  | 4,597         |
| 2024 | 7,206              | 84.5%                               | 6,089                    | 73.0%  | 4,445         |
| 2025 | 7,206              | 84.5%                               | 6,089                    | 70.5%  | 4,293         |
| 2026 | 7,206              | 84.5%                               | 6,089                    | 68.0%  | 4,141         |
| 2027 | 7,206              | 84.5%                               | 6,089                    | 65.5%  | 3,988         |
| 2028 | 7,206              | 84.5%                               | 6,089                    | 63.0%  | 3,836         |
| 2029 | 7,206              | 84.5%                               | 6,089                    | 60.5%  | 3,684         |
| 2030 | 7,206              | 84.5%                               | 6,089                    | 58.0%  | 3,532         |
| 2031 | 7,206              | 84.5%                               | 6,089                    | 56.0%  | 3,407         |
| 2032 | 7,206              | 84.5%                               | 6,089                    | 53.9%  | 3,282         |
| 2033 | 7,206              | 84.5%                               | 6,089                    | 51.9%  | 3,157         |
| 2034 | 7,206              | 84.5%                               | 6,089                    | 49.8%  | 3,032         |
| 2035 | 7,206              | 84.5%                               | 6,089                    | 47.8%  | 2,908         |
| 2036 | 7,206              | 84.5%                               | 6,089                    | 45.7%  | 2,783         |
| 2037 | 7,206              | 84.5%                               | 6,089                    | 43.7%  | 2,658         |
| 2038 | 7,206              | 84.5%                               | 6,089                    | 41.6%  | 2,533         |
| 2039 | 7,206              | 84.5%                               | 6,089                    | 39.6%  | 2,408         |
| 2040 | 7,206              | 84.5%                               | 6,089                    | 37.5%  | 2,283         |
| 2041 | 7,206              | 84.5%                               | 6,089                    | 35.5%  | 2,159         |
| 2042 | 7,206              | 84.5%                               | 6,089                    | 33.4%  | 2,034         |
| 2043 | 7,206              | 84.5%                               | 6,089                    | 31.4%  | 1,909         |
| 2044 | 7,206              | 84.5%                               | 6,089                    | 29.3%  | 1,784         |
| 2045 | 7,206              | 84.5%                               | 6,089                    | 27.3%  | 1,659         |
| 2046 | 7,206              | 84.5%                               | 6,089                    | 25.2%  | 1,534         |
| 2047 | 7,206              | 84.5%                               | 6,089                    | 23.2%  | 1,410         |
| 2048 | 7,206              | 84.5%                               | 6,089                    | 21.1%  | 1,285         |
| 2049 | 7,206              | 84.5%                               | 6,089                    | 19.1%  | 1,160         |
| 2050 | 7,206              | 84.5%                               | 6,089                    | 17.0%  | 1,035         |

## Estimating the Economic Impacts of the ACESA

Numerous government agencies, as well as private sector organizations and firms, have estimated the economic impacts of the ACESA. Nearly all of these studies have focused on the impacts to the national economy. The results of the impacts vary widely due to the different versions of the ACESA (e.g. discussion draft, introduced, reported, passed) that were modeled, only portions of the ACESA being modeled, or starting with different assumptions.

The ACESA, as with most legislation, was added to as it went through the U.S. House of Representatives. This is readily evident from the number of pages of text added to the bill. The discussion draft of the legislation began with 648 pages of text on March 31, 2009 and continued to grow – H.R. 2454 Introduced and Referred to Committee on Energy and Commerce (932 pages on May 15<sup>th</sup>); H.R. 2454 Reported from Committee on Energy and Commerce (1,092 pages on June 19<sup>th</sup>); and H.R. 2454 Passed U.S. House of Representatives (1,428 pages on June 26<sup>th</sup>).

The Congressional Budget Office (CBO) provided a cost estimate of H.R. 2454 as ordered reported by the House Committee on Energy and Commerce on May 21, 2009. The CBO's cost estimate was released on June 5, 2009 and can be obtained from the CBO website<sup>4</sup>. The U.S. Environmental Protection Agency (EPA) also conducted an analysis of the same version of H.R. 2454. The EPA's analysis was released on June 23, 2009 and can be obtained from the EPA website<sup>5</sup>. The Energy Information Administration (EIA) also conducted an analysis of H.R. 2454 that focused on the energy market and economic impacts of the proposed legislation. EIA's analysis and subsequent report, unlike the reports from the CBO and EPA, utilized the final version of the legislation that was passed by the U.S. House of Representatives on June 26, 2009. The EIA's report was released in August 2009 and can be obtained from the EIA website<sup>6</sup>.

The question then becomes, "If we have all of these studies conducted at the national level by federal government agencies, why can't we assume a similar proportional impact for WV?" In fact, each of the reports from the CBO, EPA, and EIA answer this question. The CBO's report states that the impacts do "not include the costs that some current investors and workers in sectors of the economy that produce energy and energy-intensive goods and services would incur as the economy moved away from the use of fossil fuels." The CBO's report continues by stating that: "jobs [created] might be in different regions of the country or require different skills than the jobs being lost"; workers in some regions "would face higher risk of unemployment as jobs in some sectors were eliminated"; and, "the costs of unemployment would probably be concentrated

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<sup>4</sup> <http://www.cbo.gov/ftpdocs/102xx/doc10262/hr2454.pdf>

<sup>5</sup> [http://www.epa.gov/climatechange/economics/pdfs/HR2454\\_Analysis.pdf](http://www.epa.gov/climatechange/economics/pdfs/HR2454_Analysis.pdf)

<sup>6</sup> [http://www.eia.doe.gov/oiaf/servicerpt/hr2454/pdf/sroiaf\(2009\)05.pdf](http://www.eia.doe.gov/oiaf/servicerpt/hr2454/pdf/sroiaf(2009)05.pdf)

among relatively few households and, by extension, their communities.” Similarly, the EPA’s analysis of H.R. 2454 does not include the distributional consequences of H.R. 2454 as well as a great number of other uncertainties due to time limitations to complete the analysis. Finally, EIA’s report, while examining some regional impacts, states that “the largest changes in prices...would be expected in regions that are most reliant on coal”. Therefore, while the impacts to the nation may be “modest”, the impacts to a particular state may be quite significant. In other words, if you lose \$1,000 and your neighbor finds \$1,000, then on-average you and your neighbor broke even.

The impacts of the ACESA on the West Virginia economy are of particular interest due to the role that coal mining and energy intensive industries play in the state. While coal mining employment accounted for less than 0.06 percent of total employment in the nation in 2008, coal mining employment accounted for 2.4 percent of total employment in West Virginia. West Virginia is also home to many energy-intensive firms that rely on the availability of low-cost electricity. West Virginia’s residential, commercial, and industrial electricity prices are 25 percent or more below national rates.

### *Modeling the ACESA*

There are numerous provisions within the ACESA that will impact West Virginia. The impacts of the ACESA on the West Virginia economy were simulated using the West Virginia REMI model. The impacts are estimated by developing a control forecast of the West Virginia economy without the ACESA (the reference case) through 2030 and a forecast of the West Virginia economy with the ACESA (the ACESA forecast or Base Scenario). The difference between the control and the ACESA forecasts represents the economic impact of the ACESA on the West Virginia economy.

The economy of a state depends on a multitude of factors within the state, but also relies on what is happening in the economies of other states or countries. As such, the economic forecast of a state begins with a national forecast and then adds a number of state-specific assumptions. The following summarizes how the control and ACESA forecasts of the West Virginia economy were modeled.

The first step in modeling the ACESA was choosing a national forecast. The EIA’s analysis of the ACESA was selected as the basis for this report. The EIA’s analysis was chosen for a number of factors including: detailed analysis of the *final version* of the ACESA; detailed results reported for the nation; some regional results provided; and experience with analyzing the impacts of energy policy. The provisions in the ACESA will potentially affect West Virginia’s economy in a number of ways. First, the ACESA will impact the national economy and that will have an impact on the West Virginia economy. Second, the ACESA will result in higher electricity prices in the state. Third, the ACESA will result in decreased coal production in the state. Fourth, the ACESA will result in decreased state and local government spending as government revenues decline due

to reduced coal production and the general decline in economic activity in the state. Finally, energy efficiency provisions within the ACESA may increase spending on goods and services that provide greater energy efficiency and decrease the demand for electricity in the state. In addition, there may be an increase in energy-related investment spending.

There are uncertainties associated with every proposed public policy. The number of uncertainties associated with the ACESA creates numerous scenarios that could be modeled. This report presents the results of one base scenario and two alternative scenarios.

The specific values of the policy variables used in modeling the base (and alternative) scenario follow the EIA Basic Case where possible, while values for the remaining policy variables were estimated by the author using published research and discussions with individuals in both state government and private sector energy companies. The final decision on how to model the ACESA was the responsibility of the author.

The base scenario estimates the impacts to the West Virginia economy from:

- the change in overall U.S. economic activity caused by the ACESA (EIA basic case estimate);
- the change in the price of West Virginia electricity relative to the U.S.;
- the change in West Virginia coal production;
- and, the change in state and local government spending in West Virginia that results from changes in government revenues.

Modeling the change in overall U.S. economic activity caused by the ACESA was captured by changes in U.S. GDP between the reference case and the basic case in EIA's analysis of the ACESA. EIA's basic case estimates that U.S. GDP will be 0.8 percent lower in 2030 with the ACESA than in the no-ACESA reference case.

The effect of the ACESA on electricity prices in the state was modeled for residential, commercial, and industrial consumers. The price of electricity in West Virginia has historically been below the national average. This analysis assumes that this trend continues, but that West Virginia loses some of its competitive advantage in providing cheap electricity. Residential customers see the least change in electricity prices as the price for residential electricity is held to 70 percent of the national average through 2025 before rising to 75.8 percent of the national average for the 2026 to 2030 time period. The price of electricity for commercial and industrial customers is assumed to be 70 percent of the national average through 2015 before rising to 80 percent of the national average through 2025 and finally increasing to 90 percent of the national average for the 2026 to 2030 time period.

EIA's analysis of the ACESA does not provide coal production results down to the state level. Coal production for the Appalachian region is provided. This analysis assumes that West Virginia coal production will decline by the same percent as for the whole Appalachian region. The decline in West Virginia coal production for the base scenario is 28.8 percent below 2030 levels.

The change in state and local government revenues is of particular interest when modeling the impact of the ACESA on the West Virginia economy. The coal mining industry is a significant source of government revenues both directly through severance and property taxes, among others, and more indirectly through the income taxes paid by coal mining employees. The severance and property taxes alone can provide \$500 million dollars or more to state and local governments in West Virginia. Government spending was reduced by the same amount government revenues were expected to decline. The decline in government revenues was estimated to be 8.9 percent of coal mining output. Government spending was further reduced due to lower state tax revenues that result from the decline in economic activity across other sectors of the state economy.

Two provisions of the ACESA that were not modeled separately for the West Virginia impacts include energy efficiency and energy-related investment spending. These provisions are indirectly included in this analysis to the extent that they are modeled in EIA's analysis and thus influence U.S. GDP and coal production changes. Energy efficiency provisions in the ACESA were not directly modeled in this analysis since the net effect of these provisions is difficult to estimate and could conceivably exert a positive or negative impact on the state.

One example of this may be the purchase of a more energy efficient appliance for the home. This appliance will likely be manufactured outside of West Virginia creating a significant leakage of those dollars. To estimate the true impact of this purchase, it would be necessary to know what the individual would have spent the money on had they not purchased the new energy efficient appliance. If the individual would have spent all of the money outside of the state, then this could lead to a small positive impact, however, if the individual would have spent that money on a good manufactured in West Virginia, then this could result in a net negative impact on the state. Other questions arise from the decreased demand for electricity due to the improved energy efficiency. What will the customers do with this money that would have gone towards paying for electricity that was generated in the state? Will there be sufficient demand from outside the state to offset the decreased demand from consumers or will the electric utilities in the state decrease generation?

Energy-related investment spending also creates a number of uncertainties. West Virginia has already passed a renewable and alternative energy portfolio that requires 25 percent of electricity be generated by a renewable or alternative energy source by 2025. The Combined Efficiency and Renewable Electricity Standard established in the ACESA requires 20 percent of electricity be generated from renewable energy or efficiency savings by 2020. EIA's no-ACESA reference case

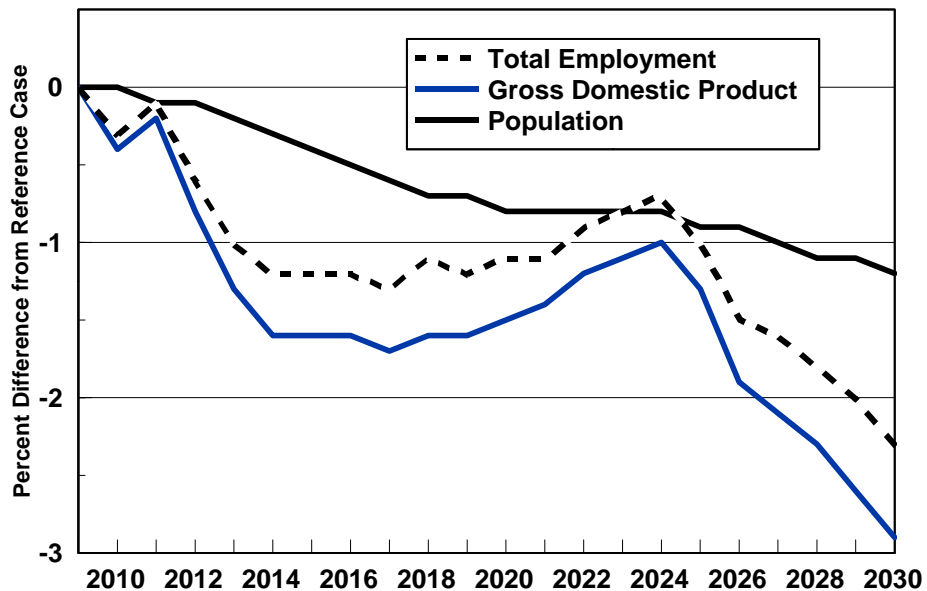
exceeds this requirement and it is possible that the ACESA may not create significant investments in renewable energy.

In addition to the base scenario described above, there are two alternative scenarios that are forecast. The first alternative scenario looks at the effect of coal production being 34 percent below production in the control forecast in 2030 (the average reduction in coal production from EIA’s alternative scenarios) compared to 28.8 percent in the base scenario. The second alternative scenario looks at the effect of coal production being 69.5 percent below production in the control forecast in 2030 (the decline in coal production from EIA’s *No International/Limited Alternatives* scenario).

## Economic Impacts the ACESA on the West Virginia Economy

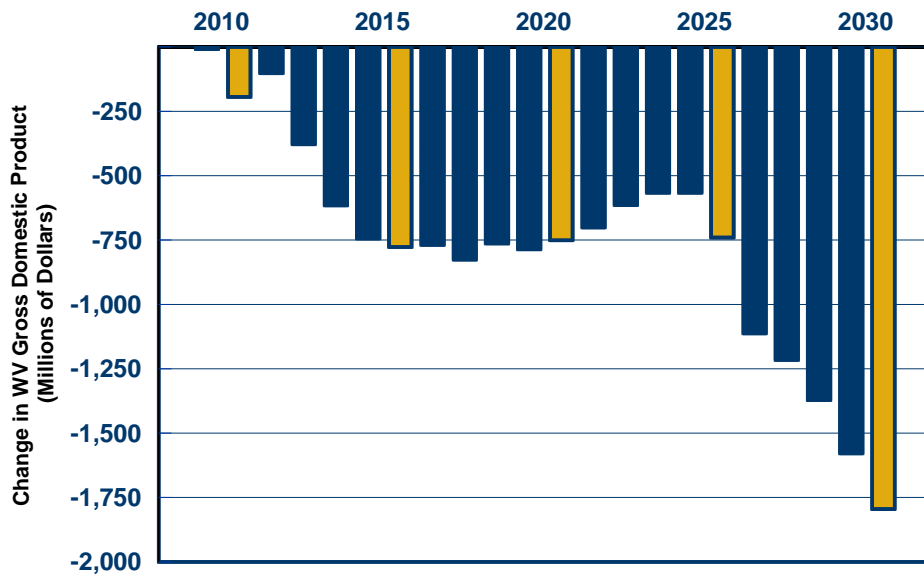
The ACESA will result in a negative impact on the West Virginia economy. The decrease in coal production in the state with the ACESA and the associated decline in state and local government revenues has the largest effect on the state economy. Figure 1 shows the percent change in total employment, gross domestic product, and population through 2030 attributable to the ACESA. West Virginia’s gross domestic product will be \$1.8 billion less (-2.9 percent) in 2030 due to the ACESA. There will be 22,700 fewer jobs (-2.3 percent) in the state in 2030 with the ACESA relative to the reference case (no ACESA). The state’s population will be 1.2 percent (24,600 residents) less in 2030 with the ACESA than it would be in 2030 without the ACESA.

**Figure 1: Impact of the ACESA on the W.Va. Economy 2009-2030 (Base Scenario)**



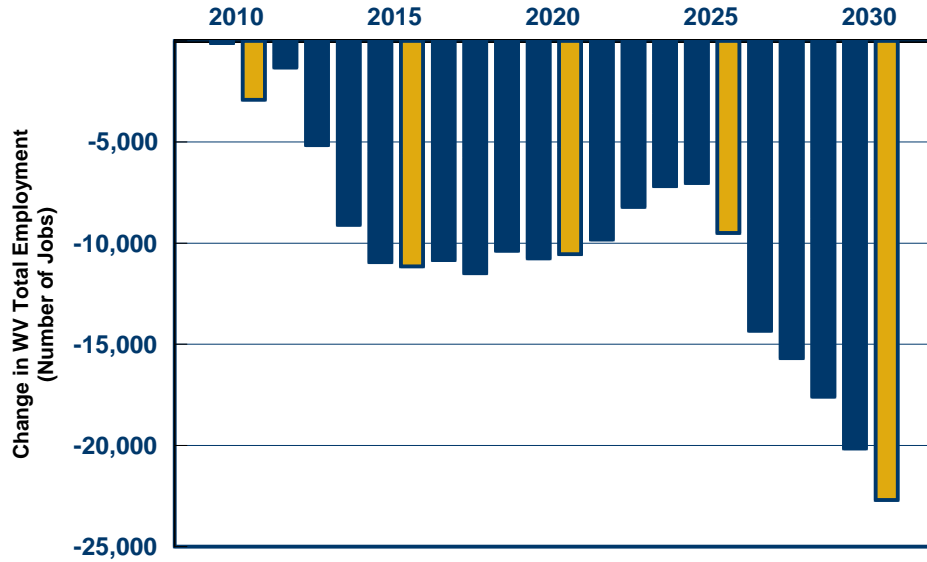
Gross domestic product by state is the sum of income earned by labor and capital in the state. Gross domestic product or value-added is one of the best measures of economic activity for a state. Figure 2 shows the change in West Virginia gross domestic product due to the ACESA relative to the reference case (control forecast). West Virginia gross domestic product is lower than the reference case in all years. The largest impact in gross domestic product relative to the reference case is in the last five years (after 2025) of the forecast as programs (e.g. free allocation of allowances to electricity companies) are phased out.

**Figure 2: Change in W.Va. Gross Domestic Product with ACESA Relative to the Reference Case 2009-2030 (Base Scenario)**



Employment in the state with the ACESA is also well below the reference case for each year. The number of jobs in the state from 2012 through 2025 range from 5,000 to 11,500 below the associated reference case levels (Figure 3). The impact on jobs in the state escalates quickly after 2025 with employment in 2030 nearly 23,000 below the reference case employment.

**Figure 3: Change in W.Va. Total Employment with ACESA Relative to the Reference Case 2009-2030 (Base Scenario)**



Employment losses are not restricted to just mining. Every industry sector has fewer jobs with the ACESA relative to the reference case. Table 1 shows the change in employment for each industry sector with the ACESA relative to the reference case in 2030. The largest declines are in government, health care and social assistance, mining, and retail trade.

**Table 2: Change in W.Va. Employment by Industry with ACESA Relative to the Reference Case in 2030 (Base Scenario)**

| Industry Sector                | Employment Change | Industry Sector                     | Employment Change |
|--------------------------------|-------------------|-------------------------------------|-------------------|
| Forestry and Fishing           | -14               | Real Estate and Rental and Leasing  | -854              |
| Mining                         | -2,262            | Professional and Technical Services | -910              |
| Utilities                      | -163              | Management of Companies             | -104              |
| Construction                   | -1,296            | Administrative and Waste Services   | -794              |
| Manufacturing                  | -321              | Educational Services                | -443              |
| Wholesale Trade                | -312              | Health Care and Social Assistance   | -3,175            |
| Retail Trade                   | -2,243            | Arts, Entertainment, and Recreation | -395              |
| Transportation and Warehousing | -601              | Accommodation and Food Services     | -1,395            |
| Information                    | -148              | Other Services                      | -1,230            |
| Finance and Insurance          | -317              | Government                          | -5,719            |

The decrease in private (non-government) employment arises from:

- a decline in demand from W.Va. businesses<sup>7</sup> (19.6% of total employment change)
- a decline in demand from W.Va. consumers (29.1% of total employment change)
- a decline in demand from W.Va. state and local government (1.7% of total employment change)
- a decrease in business investment activity (4.7% of total employment change)
- a decrease in domestic exports; and, (18.5% of total employment change)
- a decrease in foreign exports (1.3% of total employment change).

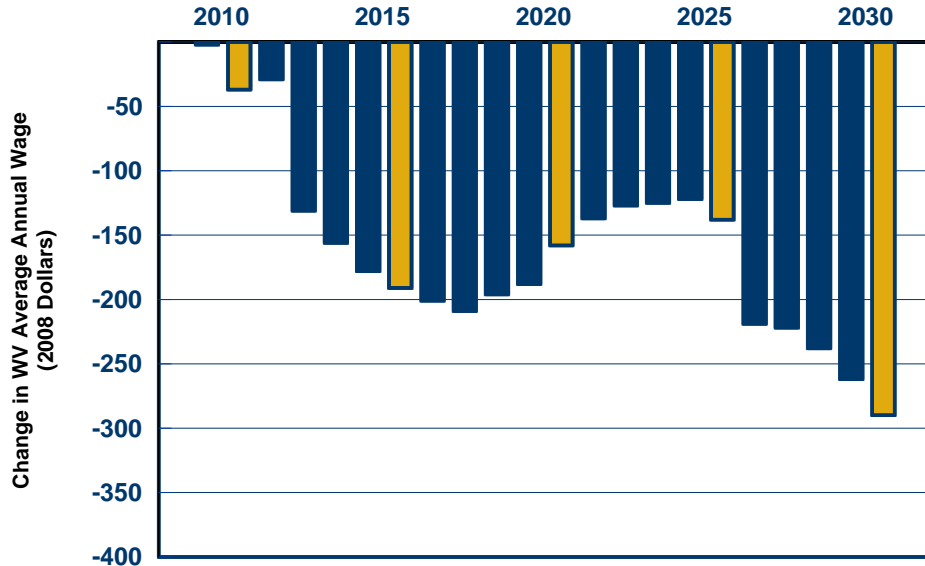
The remaining 25.2 percent change in total (private and government) employment is job losses in state and local government due to decreases in government revenues (and thus expenditures).

The decline in economic activity (GDP) in the state and the associated decline in job opportunities lead to increased competition for jobs in the state. This increased competition puts downward pressure on wages in the state. The average annual wage per employee is lower every year with the ACESA (Figure 4). By 2030, the average annual wage is 1.1 percent lower, averaging nearly \$300 less per employee.

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<sup>7</sup> This includes a 3.4 % decline in direct coal mining jobs and a average 16.2% decline in jobs across all sectors due to lower intermediate demand from firms in West Virginia.

**Figure 4: Change in W.Va. Average Annual Wage with ACESA Relative to the Reference Case 2009-2030 (Base Scenario)**



The lower wages affects both businesses and employees. The lower wages paid by businesses buffers the increase in the cost of production relative to the nation as input prices increase due to higher energy prices. The cost of production in West Virginia relative to the nation increases by 0.3 percent or less throughout the 2009 to 2030 time period.

The effect of the lower wages on households drives down personal income from earnings and increases the state's reliance on transfer payments. By 2030, per capita personal income is \$174 lower, reflecting a decrease in earnings of \$303 and an increase in transfer payments of \$113 per person. The job losses and lower wages result in a decline in the state's population. The decrease in population is driven mainly by the increase in economic migrants leaving the state. The state's population is 24,600 lower in 2030 with the ACESA than without. Economic migrants account for 79.5 percent of the population loss with the remaining 20 percent due to the effect on the state's natural increase (births minus deaths).

### *Alternative Scenarios*

There risks inherent to every forecast or analysis of a proposed public policy. The largest risk of this analysis concerns the impact on coal production and the associated taxes generated. While it is certainly possible that the impact on coal production from the ACESA could be less severe than the base scenario, the more likely scenario is that the impact on coal production is more severe than in the base scenario. Two alternative scenarios were modeled, both examining the impacts to the state economy if coal production and the associated government spending declined by more than what is forecast in the base scenario.

Figure 5 shows the employment impacts of Alternative Scenario 1. Alternative Scenario 1 uses all of the same assumptions as the base scenario, except that the percent decline in coal production is based on the average of Appalachian coal from EIA’s ten main and alternative cases (not including the basic case used in the base scenario). Employment, relative to the no-ACESA reference case, declines by more than 10,000 jobs beginning in 2013, with the state losing 25,200 jobs by 2030.

**Figure 5: Change in W.Va. Total Employment with ACESA Relative to the Reference Case 2009-2030 (Alternative Scenario 1)**

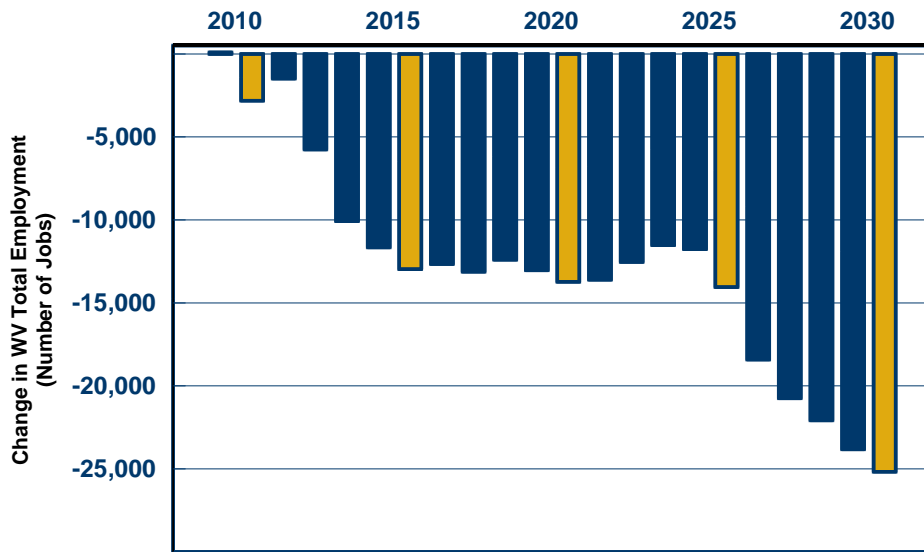
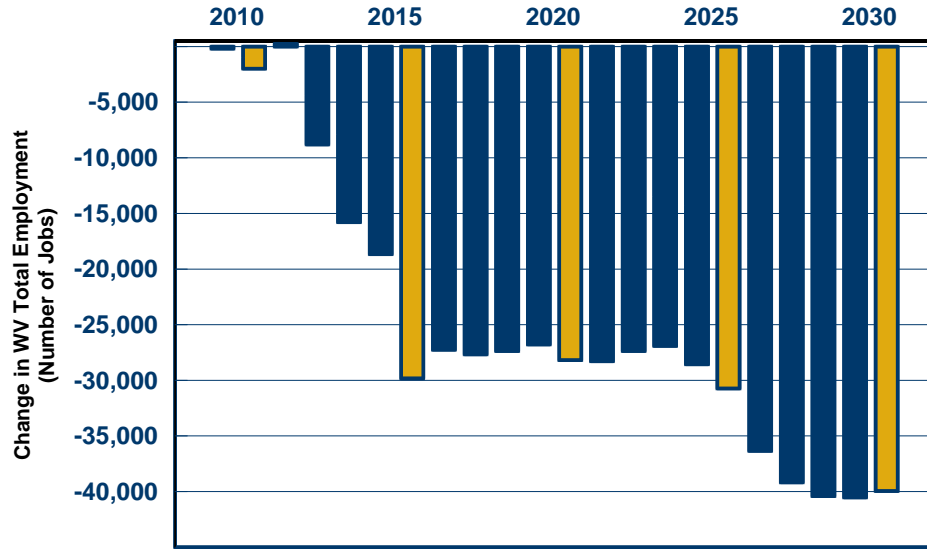


Figure 6 shows the employment impacts of Alternative Scenario 2. Alternative Scenario 2 uses all of the same assumptions as the base scenario, except that the percent decline in coal production is based on the percent change in Appalachian coal from EIA’s No International/Limited Alternatives Case. The No International/Limited Alternatives Case was the most severe case with respect to changes in Appalachia coal production. Employment is 15,800 lower in 2013 relative to the no-ACESA reference case and is 27,000 to 30,000 lower for most years until 2025. Employment losses escalate after 2025 when there are 40,500 fewer jobs in the ACESA case compared to the no-ACESA reference case.

**Figure 6: Change in W.Va. Total Employment with ACESA Relative to the Reference Case 2009-2030 (Alternative Scenario 2)**



## Risks to the Analysis

Estimating the impacts of a proposed public policy involves a certain amount of risk. This report provides the results of a study that estimated the economic impacts of the ACESA on the West Virginia economy. There are a number of assumptions in both the national and state models that could change the results of this study. It is useful to examine these assumptions to consider how the conclusions may change if the underlying assumptions change.

All of the scenarios examined in this study rely on a forecast of U.S. economic growth with and without the ACESA, typically summarized by expected growth in real gross domestic product (GDP). EIA uses economic forecasts produced by IHS Global Insight to generate its projections. The EIA's analysis of the ACESA resulted in alternative forecasts of U.S. GDP growth. If the ACESA results in a larger (smaller) decline in U.S. GDP than was forecast by EIA, then we should expect the impact on the West Virginia economy to be more (less) severe than is estimated in this report. It should be noted, however, that the overall impact of the ACESA on the West Virginia economy is driven mainly by the changes in coal production, government spending, and relative electricity prices, and to a lesser extent by the changes in U.S. GDP.

The ACESA includes an array of programs and regulation, many of which are difficult to model or the direct effect is uncertain. While EIA's analysis of the ACESA includes most of the provisions in the bill, their analysis (as well as all of the analyses of the ACESA performed by other agencies and organizations) does not model every program and regulation within the ACESA. If the omitted programs or regulations would have a positive (negative) impact on the national and/or state economies, then excluding them from the analysis would overstate (understate) the actual impact of the ACESA. The provisions excluded from EIA's analysis include: Clean Energy Deployment Program; Strategic Allowance Reserve; regulations covering HFC emissions; GHG standards for activities not covered by cap and trade; allowances to coal merchant plants; efficiency standards for transportation equipment; and, investment in energy research and development. The omitted programs and regulations, while albeit important, are not likely to significantly change the underlying results of this study.

While the assumptions mentioned above are important considerations, the effect of the assumptions used in modeling the cap and trade portion of the ACESA play a much more important role in the overall impacts of the legislation. The major areas of uncertainty revolve around two critical aspects of the cap and trade program.

The first issue is the extent to which domestic and international offsets are economically available and, in the case of international offsets, agreements between the United States and the associated foreign country are reached in a timely manner. The second issue involves the many uncertainties associated with low-carbon and no-carbon electric generation technologies. The availability of

these technologies as the cap on GHG emissions is tightened, as well as the cost, public acceptance, and restrictions of state and local laws, play a critical role in assessing the impact of the ACESA.

EIA's Basic Case assumes that "key low-emissions technologies, including nuclear, fossil with CCS, and various renewable, are developed and deployed on a large scale in a timeframe consistent with the emissions reduction requirements of ACESA without encountering any major obstacles." EIA further assumes that the "use of offsets, both domestic and international, is not overly constrained by cost, regulation, or the pace of negotiations with key countries covering key sectors." Since EIA's Basic Case is the scenario used as a starting point for the analysis presented in this report, these assumptions are also adopted in the Base Scenario of this report.

One result of the above assumptions is that nuclear power electricity generation in the U.S. doubles by 2030. If nuclear plays a major role in complying with the legislation, this could result in a more negative impact on West Virginia's economy since West Virginia currently prohibits nuclear power plants from being constructed and operated in the state. The feasibility, timing, and costs of carbon capture and sequestration are also assumed not to create any major obstacles in adopting CCS. If any of these factors slow the adoption of CCS, this would also result in a more negative impact on West Virginia's economy. It is with these considerations in mind, among others, that led to further declines in coal production being assumed in both of the alternative scenarios.

It is important to note that the impacts could be less severe than those estimated in this report. One scenario that would positively impact the results presented here would be the development of new technologies that result in increased adoption of CCS technologies for electricity generation or advancements that result in new coal-to-liquids plants that offset the drop in demand for coal.

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U.S. Department of Energy, Energy Information Administration. *Assumptions to the Annual Energy Outlook 2009*, DOE/EIA-0554(2009), March 2009.

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## **Appendix A – Section-by-Section Summary of the ACESA**



July 14, 2009

## THE AMERICAN CLEAN ENERGY AND SECURITY ACT (H.R. 2454): SECTION-BY-SECTION

Committee on Energy and Commerce

### **Title I – Clean Energy**

#### **Subtitle A – Combined Efficiency and Renewable Electricity Standard**

*Section 101, Combined Efficiency and Renewable Electricity Standard:* Amends the Public Utility Regulatory Policies Act to require retail electric suppliers — defined as utilities that sell more than 4 million megawatt hours (MWh) of electricity to consumers for purposes other than resale — to meet a certain percentage of their load with electricity generated from renewable resources and electricity savings. The combined renewable electricity and electricity savings requirement begins at 6% in 2012 and gradually rises to 20% in 2020. Up to one quarter of the 20% requirement automatically may be met with electricity savings. Upon petition of the governor of any state, the Federal Energy Regulatory Commission is authorized to increase the proportion of the requirement that can be met with electricity savings to up to two fifths for electric suppliers located within that state. This would reduce the renewable requirement for such suppliers to a minimum of 12% renewables by 2020, with the remaining 8 % of the combined target satisfied through electricity savings.

Defines renewable energy resources to include wind, biomass, solar, geothermal, certain hydropower projects, marine and hydrokinetic renewable energy, and biogas and biofuels derived exclusively from eligible biomass. Other qualifying energy resources include landfill gas, wastewater treatment gas, coal mine methane, and qualified waste-to-energy. An electric supplier's requirement is reduced in proportion to any portion of its electricity sales that is generated from certain existing hydroelectric facilities, new nuclear generating units, and fossil-fueled units that capture and geologically sequester greenhouse gas emissions.

Requires retail electric suppliers to submit Federal renewable electricity credits and electricity savings each year equal to the combined target for that year times the supplier's retail sales. One renewable electricity credit is given for each MWh of electricity produced from a renewable or other qualifying energy resource. To encourage greater deployment of distributed generation, like small wind and rooftop solar, these projects meeting certain criteria are eligible for three credits for each MWh produced. Retail electric suppliers may submit, in lieu of a renewable electricity credits and demonstrated electricity savings, an alternative compliance payment equal to \$25 per MWh (2.5 cents per kilowatt hour). Allows states with preexisting renewable electricity standards that rely on state (instead of utility) procurement of renewable electricity credits to assume responsibility, on behalf of retail electric suppliers in such states, for meeting the new federal standard.

Electric suppliers choosing to use efficiency for a portion of their compliance are required to demonstrate achievement of electricity savings relative to business-as-usual projections through efficiency measures, including savings achieved through reductions in end-use electricity consumption attributable to measures or technologies such as equipment or facility upgrades, combined heat and power, energy recycling (waste heat recovery), and fuel cells. Electric suppliers may meet the efficiency standards either by achieving electricity savings directly or by using bilateral contracts to acquire savings achieved within the same state by other suppliers or distribution companies, states, or third-party efficiency providers.

*Section 102, Clarifying State Authority to Adopt Renewable Energy Incentives:* Provides that, notwithstanding any provision to the contrary in the Public Utility and Regulatory Policies Act of 1978 (PURPA), any state may establish rates to be paid by state-regulated utilities intended to provide incentives for development of renewable energy. In the past, some have interpreted PURPA to bar such incentive rates to the extent they exceed the “avoided cost” of power a utility could generate or procure from any other source, denying states the ability to account for the additional benefits of renewable energy.

*Section 103, Federal Renewable Energy Purchases:* Establishes a Renewable Electricity Standard (RES) for federal agencies. By 2020, federal agencies must get 20% of their electricity from renewable and other qualifying resources. Provides federal agencies with the authority to enter into renewable energy power purchase agreements for up to 20 years.

### **Subtitle B – Carbon Capture and Sequestration**

*Section 111, National Strategy:* Requires the EPA Administrator, in consultation with the heads of other relevant federal agencies, to submit to Congress a report setting forth a unified and comprehensive strategy to address the key legal and regulatory barriers to the commercial-scale deployment of carbon capture and sequestration.

*Section 112, Regulations for Geologic Sequestration Sites:* Amends the Clean Air Act to require the Administrator to establish a coordinated approach to the certification and permitting of sites where geologic sequestration of carbon dioxide will occur. Requires the Administrator to promulgate regulations to minimize the risk of escape to the atmosphere of carbon dioxide injected for geologic sequestration and details the requirements of such regulations. Amends the Safe Drinking Water Act to establish a deadline for promulgation of regulations for carbon dioxide geologic sequestration wells and to clarify financial responsibility requirements to be established under such regulations.

*Section 113, Studies and Reports:* Requires the Administrator to establish a multi-stakeholder task force to conduct a study of the legal framework for geologic sequestration sites. Directs the Administrator to conduct a study that examines how the multiple environmental statutes that EPA administers, including but not limited to the Comprehensive Environmental Response, Compensation, and Liability Act and the Resource Conservation and Recovery Act, would apply to geologic sequestration activities.

*Section 114, Carbon Capture and Sequestration Demonstration and Early Deployment Program:* Establishes a program for the demonstration and early deployment of carbon capture and sequestration (CCS) technologies. Authorizes fossil-based electricity distribution utilities to hold a referendum on

the establishment of a Carbon Storage Research Corporation. If approved by entities representing two-thirds of the nation's fossil fuel-based delivered electricity, the Corporation would be established and would be authorized to collect assessments on distribution utilities for all fossil fuel-based electricity delivered directly to retail consumers. The Corporation would be operated as a division or affiliate of the Electric Power Research Institute and would assess fees totaling approximately \$1 billion annually for ten years, to be used by the Corporation to fund the large-scale demonstration of CCS technologies in order to accelerate the commercial availability of the technologies.

*Section 115, Commercial Deployment of Carbon Capture and Sequestration Technologies:* Amends the Clean Air Act to direct the EPA Administrator to establish an incentive program to distribute allowances to support the commercial deployment of CCS technologies in both electric power generation and industrial applications. Establishes eligibility requirements for facilities to receive allowances based on the number of tons of carbon dioxide sequestered. The allowance disbursement program is structured to provide greater incentives for facilities to deploy CCS technologies early in the program and for facilities to capture and sequester larger amounts of carbon dioxide.

*Section 116, Performance Standards for Coal-Fueled Power Plants:* Amends the Clean Air Act to establish performance standards for new coal-fired power plants permitted in 2009 or thereafter. Describes eligibility criteria, applicable emission standards, and the schedule upon which such standards must be met. Plants permitted in 2020 or thereafter are required to meet specified standards upon commencement of operations. Plants permitted from 2009-2020 are required to meet the specified standard within four years after certain technology deployment criteria are met but no later than 2025.

### **Subtitle C – Clean Transportation**

*Section 121, Electric Vehicle Infrastructure:* Amends the Public Utility Regulatory Policies Act to require utilities to consider developing plans to support electric vehicle infrastructure and to consider establishing protocols for integration with smart grid systems.

*Section 122, Large-Scale Vehicle Electrification Program:* Authorizes the Secretary of Energy to provide financial assistance for regional deployment and integration of grid-connected vehicles. Funds may be used for offsetting the incremental cost of purchasing new plug-in electric drive vehicles, deployment of electric charging stations or battery exchange locations, or facilitating the integration of smart grid equipment with plug-in electric drive vehicles. Makes data and results from the regional deployments publicly available.

*Section 123, Plug-In Electric Drive Vehicle Manufacturing:* Authorizes the Secretary of Energy to provide financial assistance for the reconstruction or retooling of facilities for the manufacture of plug-in electric drive vehicles or batteries for plug-in electric drive vehicles.

*Section 124, Investment in Clean Vehicles:* Provides for distribution of allowances for plug-in electric drive vehicle manufacturing and deployment and advanced technology vehicles.

*Section 125, Advanced Technology Vehicle Manufacturing Incentive Loans:* Increases the authorization for loan guarantees under section 136 of the Energy Independence and Security Act of 2007 to \$50,000,000,000. Loan guarantees are for reequipping, expanding or establishing

manufacturing facilities for advanced technology vehicles or their components, as well as the engineering integration work for such vehicles.

*Section 126, Amendment to Renewable Fuels Standard:* Amends the definition of “renewable biomass” in section 211 of the Clean Air Act to include residues and byproducts from wood, pulp, and paper products facilities, and expand the types of biomass eligible from federal lands, including dead, severely damaged, and badly infested trees from late-successional stands.

*Section 127, Open Fuel Standard:* Provides the Secretary of Transportation with the authority to require light-duty automobile manufacturers to make vehicles capable of operating on ethanol and methanol-based fuels if the Secretary determines that such requirements are a cost-effective way to achieve the nation’s energy independence and environmental objectives.

*Section 128, Diesel Emissions Reduction:* Amends the diesel emission reduction grant program established by Subtitle G of title VII of the Energy Policy Act of 2005 (42 U.S.C. 16131 et seq.) by adding American Samoa, Guam, the Commonwealth of the Northern Mariana Islands, Puerto Rico, and the Virgin Islands to the list of states eligible to receive grants, adjusting the grant distribution formula accordingly, and extending the authorization for state grants from 2011 to 2016.

*Section 129, Loan Guarantees for Projects to Construct Renewable Fuel Pipelines:* Amends title XXII of the Energy Policy Act of 2005 to add renewable fuel pipelines to the list of projects and technologies available for loan guarantees under the title.

*Section 130, Fleet Vehicles:* Amends the Energy Policy Act of 2005 to allow the Department of Energy to provide Alternate Fueled Vehicle credits to state fleets for the purchase of retrofitted or converted AFVs (including medium and heavy duty vehicles), and allows these vehicles to be included for purposes of meeting federal fleet requirements.

*Section 130A, Report on Natural Gas Vehicle Emissions Reductions:* Requires the EPA Administrator, with other agencies, to issue a report to Congress on the contribution of natural gas vehicles to reducing greenhouse gas emissions and on additional measures that could maximize this contribution.

#### **Subtitle D – State Energy and Environment Development Accounts**

*Section 131, Establishment of SEED Accounts:* Creates a program for each state to establish a State Energy and Environment Development (SEED) Account, to serve as a state-level repository for managing and accounting for all emission allowances designated primarily for renewable energy and energy efficiency purposes.

*Section 132, Support of State Renewable Energy and Energy Efficiency Programs:* Distributes emission allowances among states for energy efficiency programs and renewable energy deployment and manufacturing support. At least 12.5% of the allowances are distributed to local governments for these purposes and 0.5% of allowances are distributed for tribal renewable energy programs under Section 133. States are permitted to use up to 10% of their allowances for the nonfederal share of transportation programs that reduce greenhouse gas emissions, such as transit and bicycle facilities.

*Section 133, Support for Tribal Renewable Energy and Energy Efficiency Programs:* Establishes a new program in the Department of Energy to distribute allowances, on a competitive basis, to support renewable energy and energy efficiency programs administered by Indian tribes.

### **Subtitle E – Smart Grid Advancement**

*Section 141, Definitions:* Provides relevant definitions.

*Section 142, Assessment of Smart Grid Cost Effectiveness in Products:* Instructs the Department of Energy and the Environmental Protection Agency to assess products evaluated for Energy Star ratings for benefits of Smart Grid capability.

*Section 143, Inclusions of Smart Grid Capability on Appliance ENERGY GUIDE Labels:* Instructs Federal Trade Commission to include relevant information on the ENERGY GUIDE labels for those products that include cost-effective Smart Grid capability.

*Section 144, Smart Grid Peak Demand Reduction Goals:* Requires the Federal Energy Regulatory Commission to coordinate and support a national program to reduce peak electric demand for load-serving electric utilities with peak loads in excess of 250 megawatts.

*Section 145, Reauthorization of Energy Efficiency Public Information Program to Include Smart Grid Information:* Amends the Energy Policy Act of 2005 to reauthorize the joint Department of Energy and Environmental Protection Agency energy efficiency public information initiative and expands the initiative to include information on smart grid technologies, practices, and benefits.

*Section 146, Inclusion of Smart Grid Features in Appliance Rebate Program:* Amends the Energy Policy Act of 2005 to expand energy efficient appliance rebate program to include rebates for efficient appliances with smart grid features and capability. Clarifies program cost-sharing requirements from states.

### **Subtitle F – Transmission Planning**

*Section 151, Transmission Planning and Siting:* Amends the Federal Power Act to establish a federal policy on electric grid planning that recognizes the need for new transmission capacity to deploy renewable energy as well as the potential for more efficient operation of the current grid through new technology, demand-side management, and storage capacity. Enhances existing regional transmission planning processes by incorporating this federal policy. Charges the Federal Energy Regulatory Commission with supporting, coordinating, and integrating regional planning efforts. Limits the existing federal backstop siting authority under section 216 of the Federal Power Act to the Eastern interconnection and to interstate lines and intrastate segments that are integral to a proposed interstate line. Establishes federal backstop siting authority for the Western interconnection for multistate lines that emerge from the regional planning process with no conflicts between relevant regional plans concerning the need for the line and were identified in such plans as needed in significant measure to meet demand for renewable energy. In addition, the federal backstop siting authority would only be available if the developer of the line filed an application for siting of the line with the relevant state authority and such state authority did not issue a decision on the application within 1 year, denied the application, or authorized the siting of the facility subject to conditions that unreasonably interfere with the development of the facility.

*Section 152, Net Metering for Federal Agencies:* Adopts a standard requiring utilities (that sell in excess of 4,000,000 megawatt hours of electricity) to interconnect with and to provide net metering of power deliveries to and receipts from Federal agencies that own, operate or site facilities generating renewable energy. The net metering service is to be offered to such Federal agencies on the basis of non-discriminatory time-sensitive rates.

*Section 153, Support for Qualified Advanced Electric Transmission Manufacturing Plants, Qualified High Efficiency Transmission Property, and Qualified Advanced Electric Transmission Property:* Amends Title XVII of the Energy Policy Act of 2005 to extend the loan guarantee authority in that Title to cover the development, construction, or integration of high-efficiency or superconductive high-voltage electricity transmission technologies. It also provides such loan guarantees for manufacturing plants producing such technologies. It separately authorizes the Secretary of Energy to make grants for up to 50% of the cost of the first project incorporating such technologies, up to a maximum of \$100,000,000.

### **Subtitle G – Technical Corrections to Energy Laws**

*Sections 161-162, Technical Corrections to Energy Independence and Security Act of 2007 and Energy Policy Act of 2005:* Makes technical corrections to the Energy Independence and Security Act of 2007 and the Energy Policy Act of 2005.

### **Subtitle H – Clean Energy Innovation Centers**

*Section 171, Energy Innovation Hubs:* Establishes a program to support development and commercialization of clean energy technologies through eight regional Energy Innovation Hubs selected competitively by the Secretary of Energy. Emission allowances to support the establishment of Centers may be awarded to consortiums consisting of research universities, private research entities, industry, and relevant state institutions. Each Center has a unique technology focus to which at least 40% of support would be directed. Requires the Secretary to give special consideration to consortium applicants that include at least one Land Grant Institution, one Predominantly Black Institution, and one Hispanic Serving Institution.

*Section 172, Advanced Energy Research:* Provides for distribution of allowances each year under the bill by the Director of the Advanced Research Projects Agency-Energy (ARPA-E), to support research and development on innovative energy technologies.

*Section 173, Building Assessment Centers:* Requires the Secretary of Energy to create building assessment centers at institutions of higher education to identify opportunities to optimize the energy and environmental performance of buildings. The centers would also promote emerging technologies and research and development to improve buildings' energy and environmental performance. Additionally, the centers would train engineers, architects, and building technicians in energy efficient building design and operation.

*Section 174, Centers for Energy and Environmental Knowledge and Outreach:* Provides for the establishment of not more than 10 regional centers for energy and environmental knowledge and outreach (CEEKO) to coordinate various energy-related research centers. Operating in coordination with each CEEKO would be one or more industrial research and assessment center, building

assessment center, and clean energy application center located in that CEEKO's region. Institutions of higher education would compete to house such centers and would operate internship programs to train students in energy efficiency with Federal funding supporting up to 50% of the costs.

*Section 175, High Efficiency Gas Turbine Research, Development, and Demonstration:* Authorizes the Secretary of Energy to establish a multiyear, multiphase research and development program to improve the efficiency of gas turbines used on combined cycle power generation systems and to identify improvements that will ultimately lead to gas turbine combined cycle efficiency of 65%.

### **Subtitle I – Nuclear and Advanced Technologies**

*Sections 181-191.* Establishes a self-sustaining Clean Energy Deployment Administration (CEDA) as an independent corporation wholly owned by the U.S. government to promote the domestic development and deployment of clean energy technologies. CEDA would partner with and support private capital markets to promote access to affordable financing for a range of clean energy technologies that might otherwise be unable to secure financing. Provides for the initial capitalization of CEDA through the issuance of green bonds. CEDA ensures support for a variety of next generation technologies by limiting to 30% the amount of financial assistance provided to any one technology and by prohibiting CEDA financial support for individual projects receiving support from the Title XVII loan guarantee program. This subtitle also includes several reforms to the loan guarantee program established by Title 17 of the Energy Policy Act of 2005.

### **Subtitle J - Miscellaneous**

*Section 195, Increased Hydroelectric Generation at Existing Federal Facilities:* Requires that a study required by section 1834 of the Energy Policy Act of 2005 be updated.

*Section 196, Clean Technology Business Competition Grant Program:* Provides for grants by the Secretary of Energy to nonprofit organizations that conduct competitive programs to identify and support start-up businesses proposing products or services in areas of energy efficiency, renewable energy, air quality, water quality and conservation, transportation, smart grid, green building, and waste management.

*Section 197, National Bioenergy Partnership:* Requires the Secretary of Energy to establish a National Bioenergy Partnership to support the institutional and physical infrastructure necessary to promote the deployment of sustainable biomass fuels and bioenergy technologies.

*Section 198, Office of Consumer Advocacy:* Establishes an Office of Consumer Advocacy at the Federal Energy Regulatory Commission to identify and defend the consumer interest in proceedings before the Commission. The office would be headed by a Presidentially-appointed Director, and would represent energy customers through investigations of rates, in complaints, and as *amicus curiae* on appeal of Commission decisions concerning such matters.

*Section 199, Development Corporation for Renewable Power Borrowing Authority:* Requires the Secretaries of Energy and Commerce to make recommendations to Congress regarding the need for new federal lending authority for renewable energy in areas of the United States not served by a federal power marketing authority.

*Section 199A, Study:* Requires the Department of Energy to study the use of thorium-fueled nuclear reactors for national energy needs.

## **Title II – Energy Efficiency**

### **Subtitle A – Building Energy Efficiency Programs**

*Section 201, Greater Energy Efficiency in Building Codes:* Amends the Energy Conservation and Production Act to establish upon enactment and in 2014 (or 2015 for new commercial buildings), respectively, targets for improved energy efficiency building codes to achieve 30% and 50% reductions in energy use in new buildings and further reductions thereafter. Provides that states and localities are responsible for adopting and enforcing energy efficiency building codes that meet the targets. Requires the Secretary of Energy to support consensus code-setting organizations in developing and publishing codes meeting the targets and to support state and local adoption of the consensus-based codes or other codes that meet the targets. States and local governments receive allowances to use to cover the costs of developing, adopting, implementing, and enforcing such energy efficiency building codes. The Secretary of Energy also must provide a federal backstop in the event that no consensus-based code is adopted that meets a target or if a state declines to enforce codes meeting the targets. Nothing would require a homeowner to audit or retrofit their home to ensure that it meets building code requirements.

*Section 202, Building Retrofit Program:* Establishes the Retrofit for Energy and Environmental Performance program to provide allowances to states to conduct cost-effective building retrofits. Provides that states may use local governments or other agencies or entities to carry out the work and may use flexible forms of financial assistance providing up to 50% of the costs of retrofits, with funding increasing in proportion to efficiency achievement. Provides additional assistance for the retrofitting of historic buildings. Directs the Administrator of EPA to establish standards and guidelines for the program, in consultation with the Secretary of DOE. Allows federal funds provided to disaster victims to qualify as a building owner's contribution toward matching requirements. Requires states to offer preferential access to at least 10% of dedicated program funding to public and assisted housing. Nothing would require a homeowner to audit or retrofit their home to ensure that it meets building code requirements.

*Section 203, Energy Efficient Manufactured Homes:* Establishes a program to provide federal rebates of up to \$7,500 toward purchases of new Energy Star-rated manufactured homes for low-income families residing in pre-1976 manufactured homes.

*Section 204, Building Energy Performance Labeling Program:* Requires EPA to develop a model program for states to voluntarily adopt to label new buildings for their energy performance characteristics, using building type and consumption data to be developed by the Energy Information Administration. The Administrator is directed to work with states to encourage adoption of the program and to make labeled information publicly accessible in a manner that does not hinder real estate transactions. The program is limited to new construction only. Nothing would require a homeowner to audit or retrofit their home to ensure that it meets building code requirements.

*Section 205, Tree Planting Programs:* Authorizes a grant program through the Department of Energy to provide technical and financial assistance to retail power providers that carry out targeted tree planting programs, which reduce energy use and demand peaks in residential and small office settings.

*Section 206, Energy Efficiency for Data Center Buildings:* Establishes a deadline for the designation by the Secretary of Energy and the Administrator of the Environmental Protection Agency of the information technology organization to consult and coordinate with them on data center energy efficiency required by section 453(c)(1) of the Energy Independence and Security Act of 2007. The deadline would effectively be set at December 19, 2009.

*Section 207, Community Building Code Administration Grants:* Creates a grant program in the Department of Housing and Urban Development to support local building code agency enforcement of fire, safety, electrical, plumbing, access, and other codes, including energy efficiency codes.

*Section 208, Solar Energy Systems Building Permit Requirements for Receipt of Community Development Block Grant Funds:* Amends the Housing and Community Development Act of 1974 to limit the cost of a permit of license for construction or installation of a solar energy system. Provides that noncompliance with the permit cost requirements disqualifies an entity from Community Development Block Grants.

*Section 209, Prohibition of Restrictions on Residential Installation of Solar Energy System:* Requires the Secretary of Energy to issue regulations prohibiting private covenants that restrict or prohibit the installation of solar energy systems.

### **Subtitle B – Lighting and Appliance Energy Efficiency Programs**

*Section 211, Lighting Efficiency Standards:* Amends the Energy Policy and Conservation Act to adopt negotiated agreements on technical standards for lighting, including outdoor lighting – street lights, parking lot lights, and parking structure lights – and portable light fixtures such as typical household and commercial plug-in lamps.

*Section 212, Other Appliance Efficiency Standards:* Amends the Energy Policy and Conservation Act to adopt consensus agreements on technical standards for hot food holding cabinets, bottle-type drinking water dispensers, portable spas (hot tubs), and commercial-grade natural gas furnaces.

*Section 213, Appliance Efficiency Determinations and Procedures:* Amends the Energy Policy and Conservation Act to improve the Department of Energy process for setting energy-efficiency standards by enabling adoption of consensus testing procedures; requiring the adoption of a new television standard; improving standard-setting cost-effectiveness formula; authorizing the Secretary to obtain product-specific information as needed; authorizing state injunctive enforcement of standards violations; changing the role of appliance efficiency in building codes; and including greenhouse gas emissions, smart grid capability, and availability of more-efficient models among factors affecting efficiency standard ratings.

*Section 214, Best-in-Class Appliances Deployment Program:* Creates a Department of Energy program to provide rewards to retailers for successful marketing of high-efficiency appliances, designating top performers as “best-in-class,” and providing bonuses based on efficiency improvement compared to average product. Provides additional rewards to retailers when best-in-class sale includes return and recycling of inefficient appliances. Creates program to reward manufacturers of new high-efficiency best-in-class models representing significant incremental energy efficiency gain, and provides additional rewards for incorporation of Smart Grid capability.

*Section 215, Water Sense:* Authorizes the EPA's WaterSense program, a voluntary labeling program that labels water-efficient high-performance products and services. This will provide the same type of labeling for water efficient products and services as is already done for energy efficient products under the existing Energy Star program.

*Section 216, Federal Procurement of Water Efficient Products:* Directs federal agencies to make cost-effective water-efficient procurement decisions by purchasing WaterSense or Federal Energy Management Program certified products whenever possible.

*Section 217, Early Adopter Water Efficient Product Incentive Programs:* Authorizes grants to eligible entities that establish programs that offer incentives to consumers who purchase and install water-efficient products and services such as those labeled by WaterSense.

*Section 218, Certified Stoves:* Directs the EPA to establish a program to assist in the replacement of old polluting inefficient wood stoves or pellet stoves with cleaner burning units. Authorizes the Administrator to accept wood stove or pellet stove replacements as supplemental environment projects pursuant to settlement agreements, under specified conditions.

*Section 219, Energy Star Standards:* Amends section 324A(c) of Energy Policy and Conservation Act to provide additional direction to EPA and DOE in implementing the Energy Star program, including consideration of ways of providing more detailed comparative information among Energy Star products, consideration of cost-effectiveness and payback periods, review of product qualifications on a regular basis, updating qualifications as necessary, and providing proof of performance through testing of products purchased in the market.

### **Subtitle C – Transportation Efficiency**

*Section 221, Emissions Standards:* Amends Title VIII of the Clean Air Act to require EPA to establish greenhouse gas emissions standards for new heavy-duty vehicles and engines, and for nonroad vehicles and engines.

*Section 222, Greenhouse Gas Emissions Reductions through Transportation Efficiency:* Integrates new greenhouse gas reduction planning measures into the existing transportation planning process.

*Section 223, SmartWay Transportation Efficiency Program:* Amends Title VIII of the Clean Air Act to expand an existing EPA loan and fuel saving technology deployment program, the SmartWay Transport Partnership, to help American truckers upgrade to more fuel efficient and less polluting vehicles.

*Section 224, State Vehicle Fleets:* Requires the Secretary of Energy to update state fleet rules to be consistent with current law.

### **Subtitle D – Industrial Energy Efficiency Programs**

*Section 241, Industrial Plant Energy Efficiency Standards:* Requires the Secretary of Energy to establish standards for industrial energy efficiency and to seek recognition of result by American National Standards Institute.

*Section 242, Electric and Thermal Waste Energy Recovery Award Programs:* Establishes an award program for innovation in increasing the efficiency of thermal electric generation processes, including encouragement for utilities to capture and separately market excess thermal energy.

*Section 243, Clarifying Election of Waste Heat Recovery Financial Incentives:* Clarifies section 451 of the Energy Independence and Security Act of 2007 to ensure that those who recover waste energy can elect to receive the incentive grants provided in that section, or tax credits provided for combined heat and power, but not both.

*Section 244, Motor Market Assessment and Commercial Awareness Program:* Requires the Secretary of Energy to assess the stock and usage of electric motors and motor-driven equipment from an energy efficiency perspective and to identify opportunities for upgrading such motors to improve energy efficiency. The Secretary must establish a national program targeted at motor end-users to inform them of the potential energy efficiency gains that could be realized by using more efficient motors and motor control equipment.

*Section 245, Motor Efficiency Rebate Program:* Amends the Energy Policy and Conservation Act to establish a rebate program for replacement of low efficiency industrial-scale electric motors with high-efficiency motors. The rebate amount is \$25 per unit of nameplate horsepower of the new motor to the purchaser of that motor, and \$5 to the distributor of that motor.

*Section 246, Clean Energy Manufacturing Revolving Loan Fund Program:* Amends the National Institute of Standards and Technology Act to require the Secretary of Commerce to establish a program to award grants to states to establish revolving loan funds for small and medium-sized manufacturers to improve energy efficiency and produce clean energy technology.

*Section 247, Clean Energy and Efficiency Manufacturing Partnerships:* Amends the National Institute of Standards and Technology Act to create partnerships to help manufacturers find new markets, improve competitiveness, reduce greenhouse gas emissions, and adopt innovative manufacturing technologies.

*Section 248, Technical Amendments:* Makes technical corrections to the National Institute of Standards and Technology Act to conform with section 247.

#### **Subtitle E – Improvements in Energy Savings Performance Contracting**

*Section 251, Energy Savings Performance Contracts:* Amends the National Energy Conservation Policy Act to establish competition requirements for specific energy savings performance contract task orders.

#### **Subtitle F – Public Institutions**

*Section 261, Public Institutions:* Amends the Energy Independence and Security Act to include non-profit hospitals and public health facilities among public institutions eligible for grants and loans and clarifies loan and cost-share conditions.

*Section 262, Community Energy Efficiency Flexibility:* Amends the Energy Independence and Security Act to remove limits on funds received by communities through the Energy Efficiency and Conservation Block Grant program that can be used to fund revolving loan accounts or through subgrants for purposes of the program.

*Section 263, Small Community Joint Participation:* Amends the Energy Independence and Security Act to allow small communities to join with other neighboring small communities in a joint program of sufficient size to be defined as an eligible local government recipient under the Energy Efficiency and Conservation Block Grant program.

*Section 264, Low-Income Community Energy Efficiency Program:* Authorizes grants to community development organizations to provide financing to improve energy efficiency, develop alternative, renewable, and distributed energy supplies, promote opportunities for low-income residents, and increase energy conservation in low income rural and urban communities.

*Section 265, Consumer Behavior Research:* Authorizes the Secretary of Energy to establish a research program to identify factors affecting consumer adoption of energy conservation practices and efficiency improvements.

#### **Subtitle G – Miscellaneous**

*Section 271, Energy Efficient Information and Communications Technologies:* Amends the National Energy Conservation Policy Act to require the Director of the Office of Management and Budget to collaborate with each federal agency to create an implementation strategy for the purchase and use of energy efficiency information and communication technologies and practices, establishing performance goals for each agency. Such technologies and practices include advanced metering infrastructure, efficient data center strategies, updated applications, building systems energy efficiency, and telework.

*Section 272, National Energy Efficiency Goals:* Declares a national energy efficiency goal of improving overall energy productivity of the United States by 2.5% per year beginning in 2012 and continuing through 2030. Instructs the Secretary of Energy, the Administrator of EPA, and other relevant federal agencies to collaborate on a strategic plan to achieve such a national goal, detailing the regulatory, funding, and policy priorities required to do so, and to update that plan biennially.

*Section 273, Affiliated Island Energy Independence Team:* Requires the Secretary of Energy to establish a team of technical, policy, and financial experts to address the energy needs of the islands that make up U.S. territories or otherwise affiliated with the United States. The team will assess the means of reducing these islands' reliance on imported fossil energy, increasing the use of indigenous energy, and increasing the efficiency of energy use on the islands. The team will also develop an energy action plan for each island based on that assessment.

*Section 274, Product Carbon Disclosure Program:* Requires the Administrator of EPA to establish a voluntary product carbon disclosure program. Requires EPA to issue a report to Congress regarding whether a national product carbon disclosure program and labeling program would be effective in reducing greenhouse gas emissions and other related matters. Requires EPA to establish a voluntary national product carbon disclosure program, which may include a voluntary product carbon labeling program.

*Section 275, Industrial Energy Efficiency Education and Training Initiative:* Requires the Secretary of Energy to establish a program to educate commercial and industrial consumers about the merits of mechanical insulation as an energy efficiency technology.

*Section 276, Sense of Congress:* Expresses the sense of Congress that the United States should work with the International Civil Aviation Organization to develop a comprehensive international framework for regulating greenhouse gas emissions from civil aircraft and to work with other nations to avoid duplicative requirements for the aviation industry.

### **Subtitle H – Green Resources for Energy Efficient Neighborhoods**

*Sections 281-299I, Green Resources for Energy Efficient Neighborhoods:* Promotes green and energy efficiency housing programs and initiatives. After the Secretary of Housing and Urban Development determines standards for energy efficiency and other green attributes for HUD-related buildings, the Secretary is instructed to develop energy efficient building demonstration projects for multi-family assisted housing projects. Enhances Fannie Mae and Freddie Mac energy-efficient mortgage facilities, authorizes energy-efficient mortgages for underserved areas, native American and native Hawaiian areas, and creates an education and outreach program. Further provisions provide for energy efficiency support to manufactured homes, an energy efficiency block grant program, and sustainable development and transportation strategies.

### **Title III – Reducing Global Warming**

*Section 301, Short Title:* Title III and sections 112, 115, 116, 221, 222, 223, and 401 of the American Clean Energy and Security Act shall be known as the Safe Climate Act.

#### **Subtitle A – Reducing Global Warming Pollution**

*Section 311, Section 312, and Section 321, Reducing Global Warming Pollution:* Amends the Clean Air Act to add Title VII to establish a declining limit on global warming pollution and to hold industries accountable for reducing global warming pollution pursuant to this limit.

#### **Title VII – GLOBAL WARMING POLLUTION REDUCTION PROGRAM**

##### **Part A – Global Warming Pollution Reduction Goals and Targets**

##### **Section 701, Findings and Purposes**

*Section 702, Economy-wide Reduction Goals:* States that the goals of Title VII and Title VIII are to reduce economy-wide global warming pollution to 97% of 2005 levels by 2012, 80% by 2020, 58% by 2030, and 17% by 2050.

*Section 703, Reduction Targets for Specified Sources:* Requires that the regulations issued under section 721 reduce emissions of covered sources to 97% of 2005 levels by 2012, 83% by 2020, 58% by 2030, and 17% by 2050.

Section 704, Supplemental Pollution Reductions: Directs the Administrator to achieve additional low-cost reductions in global warming pollution equal to an additional 10 percentage points of reductions from U.S. emissions in 2005 by using a small portion of the emissions allowances to provide incentives to reduce emissions from international deforestation.

Section 705, Review and Program Recommendations: Directs the Administrator to submit a report to Congress every four years. These reports will include: an analysis of the latest science relevant to climate change, an analysis of capacity to monitor and verify greenhouse gas reductions, and an analysis of worldwide and domestic progress in reducing global warming pollution. The reports will identify steps that could be taken to better improve our understanding of climate impacts, improve monitoring and verification, and any additional reductions in emissions that may be needed to avoid dangerous climate change.

Section 706, National Academy Review: Directs the Administrator to commission reports from the National Academy of Sciences every four years. These reports will include: an update on the progress of various clean technologies, and an evaluation of the most recent EPA report submitted under Section 705 . The reports will identify steps that could be taken to better improve our understanding of climate impacts, improve monitoring and verification, speed the deployment of clean technology, and any additional reductions in emissions that may be needed to avoid dangerous climate change.

Section 707, Presidential Response and Recommendations: Directs the President to use existing authority to respond to recommendations in the reports issued under sections 705 and 706. If the National Academy review confirms that further emissions reductions are needed, either domestically or globally, the President must submit a report to Congress recommending steps (including legislation) to achieve those reductions.

#### Part B – Designation and Registration of Greenhouse Gases

Section 711, Designation of Greenhouse Gases: Establishes a list of greenhouse gases regulated under this title: carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, hydrofluorocarbons (HFCs) emitted as a byproduct, perfluorocarbons, and nitrogen trifluoride. The Administrator may designate additional anthropogenic greenhouse gases by rule.

Section 712, Carbon Dioxide Equivalent Value of Greenhouse Gases: Lists carbon dioxide equivalents for each gas. Requires periodic review of equivalence values by the Administrator.

Section 713, Greenhouse Gas Registry: Directs EPA to establish a federal greenhouse gas registry and comprehensive reporting system for greenhouse gas emissions.

#### Part C - Program Rules

Section 721, Emission Allowances: Establishes an annual tonnage limit on greenhouse gas emissions from specified activities. Directs the Administrator to establish allowances equal to the tonnage limit for each year (with one allowance representing the permission to emit one ton of greenhouse gases, measured in tons of carbon dioxide equivalent).

Section 722, Prohibition of Excess Emissions: Prohibits covered entities from emitting or having attributable greenhouse gases in excess of their allowable emissions level, which is determined by the number of emission allowances and offset credits they hold on the specified date. Electricity generators, refiners and importers of petroleum-based and other specified liquid fuels, fluorinated gas manufacturers, and emitters of nitrogen trifluoride are covered entities starting with emissions in 2012. Specified industrial sources are covered starting with emissions in 2014. Local distribution companies that deliver natural gas are covered starting with emissions in 2016.

Allows covered entities to use up to 2 billion tons of domestic and international offset credits in lieu of allowances to demonstrate compliance for a portion of their emissions. The ability to use these offsets is divided pro rata among all covered entities. The 2 billion tons of offset credits is divided equally between domestic and international offsets. If the Administrator determines that an insufficient number of domestic offsets are available, the number of international offsets available may be increased up to 1.5 billion metric tons. Starting with the 2018 compliance obligation, covered entities using offset credits must submit five tons of international offset credits for every four tons of emissions being offset.

Allows the use of term offset credits in lieu of domestic offset credits to demonstrate temporary compliance with the Act. When the crediting term of a term offset credit expires, the covered entity must either submit a term offset credit to continue to demonstrate compliance temporarily or submit an allowance or domestic offset credit to demonstrate final compliance.

Covered entities may also submit an international emission allowance or compensatory allowance in place of a domestic emission allowance.

Section 723, Penalty for Noncompliance: Establishes penalties for parties that fail to comply with the requirements of Title VII.

Section 724, Trading: Clarifies that the legislation does not restrict who can hold an allowance, nor does it restrict the purchase, sale, or other transaction involving allowances.

Section 725, Banking and Borrowing: Permits unlimited banking of allowances for use during future compliance years. Establishes a two-year rolling compliance period by allowing covered entities to borrow an unlimited number of allowances from one year into the future. Covered entities may also satisfy up to 15% of their compliance obligations by submitting emission allowances with vintage years 2 to 5 years in the future, but must pay an 8% premium (in allowances) to do so.

Section 726, Strategic Reserve: Directs the Administrator to create a “strategic reserve” of emission allowances that will be available to help contain the costs of meeting the annual tonnage limits. The “strategic reserve” of 2.5 billion metric tons will be established by setting aside a small number of allowances from each year’s tonnage limit. Establishes rules for releasing allowances from the reserve and for refilling the reserve if allowances from the reserve are sold. Under specified circumstances, allows international offset credit holders to request the Administrator to sell those credits through the strategic reserve auction.

Section 727, Permits: Clarifies the obligations of stationary sources under the Clean Air Act's Title V operating permit program under the newly-established Title VII program.

Section 728, International Emission Allowances: Establishes criteria that must be met before allowances from foreign programs can be used for compliance by covered entities.

#### Part D – Offsets

Section 731, Offsets Integrity Advisory Board: Establishes an independent Offsets Integrity Advisory Board composed of scientists and others with relevant expertise. The Advisory Board is charged with providing recommendations to the Administrator on: the types of offset project types that should be listed by EPA as eligible; potential levels of scientific uncertainty associated with certain offset types; appropriate methodologies to quantify reductions and implement other program requirements; and other aspects of the offset program and the program to reduce deforestation. The Board is also charged with conducting a regular review of the offsets and deforestation reduction programs.

Section 732, Establishment of Offsets Program: Directs the Administrator to establish an offsets program and requires that regulations ensure offsets are verifiable, additional, and permanent.

Section 733, Eligible Project Types: Requires the Administrator to establish a list of offset project types that are eligible under the program, taking into account the recommendations of the Offsets Integrity Advisory Board. Provides guidelines for establishing and updating the list.

Section 734, Requirements for Offset Projects: Requires that for each offset project type, the Administrator establish standardized methodologies for determining additionality; establishing activity baselines; measuring performance; accounting for and mitigating potential leakage. Establishes requirements regarding the permanence of offset projects and crediting periods.

Sections 735, Approval of Offset Projects: Establishes procedures for approval of offset projects.

Section 736, Verification of Offset Projects: Directs the Administrator to establish requirements for the verification of offset project performance, and requires that verification reports be prepared by accredited third-party verifiers.

Section 737, Issuance of Offset Credits: Establishes procedures for the issuance of offset credits and directs the Administrator to issue offset credits only if the emissions reduction or sequestration has already occurred and other specified conditions are met.

Section 738, Audits: Requires the Administrator to conduct, on an ongoing basis, random audits of offset projects, offset credits, and practices of third-party verifiers.

Section 739, Program Review and Revision: Requires the periodic evaluation and updating of specified areas and components of the offsets program.

Section 740, Early Offset Supply: To ensure a supply of offset credits in the early years of the program, allows for the issuance of offset credits for offsets from state or other programs that meet specified criteria. Limits the issuance of offset credits under this section to reductions that occur between January 1, 2009, and three years after enactment or the effective date of federal offset regulations, whichever is sooner.

Section 741, Environmental Considerations: Requires additional environmental considerations for forestry and other land management-related offset projects.

Section 742, Trading: Provides that the trading provisions applicable to allowances are also applicable to offset credits.

Section 743, International Offset Credits: Allows the Administrator to issue international offset credits for activities that take place in developing countries. Requires that all international offset credits meet the criteria established for all offsets under sections 732-742, as well as the requirements specific to international offsets established under section 743. In addition, requires that the United States be a party to a bilateral or multilateral agreement or arrangement with the country where an offset activity would take place before any international offset credits can be issued.

Subsections 743(c), (d) and (e) provide additional specifications for three potential categories of international offset credits that are distinct from the issuance of international offset credits for international offset project types listed under section 733. Subsection 743(c) requires the Administrator, in consultation with the Secretary of State, to identify sectors in specific countries for which the issuance of international offset credits on a sector-wide, rather than project-specific, basis is appropriate.

Subsection 743(d) establishes the terms under which the Administrator may issue international offset credits in exchange for other international instruments, including a determination that the issuing international body has requirements for the relevant project type that provide equal or greater assurance of environmental integrity as the requirements established under Part D.

Subsection 743(e) establishes procedures and requirements regarding the issuance of international offset credits for activities that reduce deforestation. Provides that, for major emitting nations, international offset credits may only be issued for national-scale activities, or for state or province-level activities in states or provinces that would themselves be considered major emitters. Allows smaller-scale offset projects are only in countries with relatively low greenhouse gas emissions . After an initial period, requires all countries to transition to national baselines to continue generating credits.

#### Part E – Supplemental Emissions Reductions from Reduced Deforestation

Section 751-752, Definitions and Findings: Defines forest carbon activities and finds that land use change, primarily deforestation, accounts for roughly 20% of global greenhouse gas emissions.

Section 753, Supplemental Emissions Reductions through Reduced Deforestation: Directs the Administrator, in consultation with the Administrator of the U.S. Agency for International

Development, to establish a program to build capacity in developing countries to reduce emissions from deforestation (including preparation to participate in international markets for deforestation reduction offset credits), to achieve emissions reductions in addition to those achieved under the domestic emissions limit, and to protect intact forest from any shifts in land use as a result of reduced deforestation in other areas. Requires the program to achieve 720,000,000 of CO<sub>2</sub>-equivalent tons of reductions in 2020, and cumulative reductions of 6,000,000,000 tons by 2025.

Section 754, Requirements for International Deforestation Reduction Program: Directs the Administrators of EPA and USAID to support a broad range of activities to reduce deforestation, build capacity to measure, monitor and enforce reductions in deforestation, and reduce the leakage of emissions. Requires activities supported through this program to be environmentally sound and should protect the rights of indigenous peoples and local communities.

Section 755, Reports and Reviews: Directs the Administrators of EPA and USAID to report annually to Congress on progress in reducing deforestation through this program and to perform a review of the program every four years.

Section 756, Legal Effect of Part: Clarifies that this program does not supersede or limit any other federal or international law.

*Section 312, Definitions:*

Section 700, Definitions: Defines key terms for Titles VII and VIII of the Clean Air Act.

**Subtitle B – Disposition of Allowances**

*Section 321, Disposition of Allowances for Global Warming Pollution Reduction Program:* Provides for emission allowances to be distributed for three primary goals: to protect consumers from energy price increases, to assist industry in the transition to clean energy, and to spur energy efficiency and the deployment of clean energy technology. Also allocates allowances to prevent deforestation and support national and international adaptation efforts and for other purposes.

**Part H – Disposition of Allowances**

Section 781, Allocation of Allowances for Supplemental Reductions: Directs the Administrator to allocate allowances for the program under part E to achieve supplemental emissions reductions from reduced deforestation. Allocates 5% of allowances for the years 2012-2025, 3% for 2026-2030, and 2% for 2031-2050.

Section 782, Allocation of Emission Allowances: Provides for allocation of allowances to benefit or promote electricity consumers; natural gas consumers; home heating oil and propane consumers; low-income consumers; trade-vulnerable industries; carbon capture and sequestration technologies; energy efficiency and renewable energy; energy research and development; clean vehicle technology; domestic fuel production, including small business refiners; workers; domestic adaptation, including public health issues; wildlife and natural resources adaptation; international adaptation; international clean technology transfer; deficit

reduction; consumer refunds; early emissions reductions; and agricultural and renewable energy incentives programs.

Section 783, Electricity Consumers: Directs the Administrator on how to distribute the approximately 30% of allowances allocated for the benefit of consumers to local electricity distribution companies (LDCs), whose retail rates are regulated by states or other entities. Requires half of the allowances to be distributed based on historic emissions and half based on retail sales, but prohibits any electricity LDC from receiving allowances whose value exceeds the LDC's direct and indirect costs of complying with this Title. Requires that these allowances be used exclusively for the benefit of the LDC's retail ratepayers, and prohibits the Administrator from releasing an LDC's allowances until after a ratemaking or similar proceeding has been conducted regarding the appropriate use of the allowances.

Directs the Administrator on how to distribute the approximately 3.5% of allowances for merchant coal generators and the approximately 1.5% of allowances for certain generators with long-term power purchase agreements.

Directs the Administrator on how to distribute the approximately 0.5% of allowances to small local electricity distribution companies to support renewable electricity deployment, energy efficiency programs, and consumer assistance for low-income ratepayers. Directs the Administrator on how to distribute the specified number of allowances to avoid disincentives to the continued use of existing energy-efficient cogeneration facilities at industrial parks.

Section 784, Natural Gas Consumers: Directs the Administrator on how to distribute the approximately 9% of allowances allocated for the benefit of consumers to local natural gas distribution companies, whose retail rates are regulated by states or other entities.

Section 785, Home Heating Oil, Propane, and Kerosene Consumers: Directs the Administrator on how to distribute the approximately 1.5% of allowances to states for programs to benefit residential and commercial users of home heating oil, propane, and kerosene.

Section 787, Allocations to Refineries: Directs the Administrator on how to distribute the approximately 2% of allowances to domestic refiners and the approximately 0.25% of allowances to small business refiners.

*Section 788, Supplemental Agriculture and Renewable Energy Incentives Programs:* Directs the Administrator on how to distribute the specified amount of allowances allocated for activities in the agricultural sector that reduce greenhouse gases or sequester carbon and deployment of renewable energy infrastructure.

Section 789, Climate Change Consumer Refunds: Directs the Secretary of the Treasury to use proceeds from the sales of specified 2026 and later year allowances to provide rebates to consumers.

Section 790, Exchange for State-Issued Allowances: Provides for fair compensation and exchange of allowances issued by the State of California, the Regional Greenhouse Gas Initiative and the Western Climate Initiative prior to commencement of federal program.

Section 791, Auction Procedures: Establishes single-round, sealed-bid, uniform-price auction procedures, which may be modified by the Administrator. Provides that a specified percentage of allowances will be made available for small business refiners to purchase for compliance for that year at the average auction price.

Section 792, Auctioning Allowances for Other Entities: Establishes rules by which the Administrator may auction allowances on behalf of other entities.

Section 793, Establishment of Funds: Establishes the Strategic Reserve Fund and the Climate Change Consumer Rebate Fund in the U.S. Treasury.

Section 794, Oversight of Allocations: Requires the Comptroller General to prepare biannual reviews of the programs administered by the Federal Government that distribute emission allowances or funds from Federal auctions of allowances.

Section 795, Exchange for Early Action Offset Credits: Provides allowances for the exchange of qualifying early action offset credits. Owners of qualifying offset credits will receive allowances in an amount equivalent to the monetary value of the offset credits, defined as the average monetary value of such credits from 2006-2009.

### **Subtitle C – Additional Greenhouse Gas Standards**

*Section 331, Greenhouse Gas Standards:* Establishes Title VIII of the Clean Air Act to achieve additional greenhouse gas reductions outside of Title VII.

#### **Title VIII – ADDITIONAL GREENHOUSE GAS STANDARDS**

##### **Section 801, Definitions**

##### **Part A – Stationary Source Standards**

Section 811, Standards of Performance: Directs the Administrator to establish minimum standards of performance under section 111 of the Clean Air Act as a means of achieving reductions of greenhouse gas emissions from certain stationary sources of air pollution not subject to title III of the Clean Air Act. Precludes the Administrator from using existing Clean Air Act section 111 authority to issue standards for entities covered by Title VII that directly emit greenhouse gases.

##### **Part C – Exemptions from Other Programs**

Section 831, Criteria Pollutants: Provides that greenhouse gases may not be added to the list of criteria air pollutants on the basis of their effect on climate change.

Section 832, International Air Pollution: Provides that section 115 of the Clean Air Act shall not apply to an air pollutant with respect to that pollutant's contribution to global warming.

Section 833, Hazardous Air Pollutants: Provides that greenhouse gases may not be listed as hazardous air pollutants on the basis of their effect on climate change.

Section 834, New Source Review: Provides that New Source Review shall not apply to a major emitting facility that is initially permitted or modified after January 1, 2009, on the basis of its emissions of any greenhouse gases.

Section 835, Title V Permits: Provides that greenhouse gases shall not be considered when determining whether a stationary source is required to operate pursuant to a permit under Title V.

*Section 332, HFC Regulation:* Amends Title VI of the Clean Air Act by adding a new section 619 to phase down the consumption of hydrofluorocarbons (HFCs), many of which are extremely potent greenhouse gases, under a separate limit and reduction schedule. Using a market-based regulatory approach, requires HFC consumption to be phased-down to 15% of the baseline by 2032. Requires allowances to be distributed through a combination of annual auctions and non-auction sales. Allows offset credits for destruction of chlorofluorocarbons (CFCs).

*Section 333, Black Carbon:* Directs the Administrator to report on existing efforts to reduce domestic black carbon pollution. Includes in Title III of the Clean Air Act a provision directing the Administrator to use existing authority to achieve further reductions and, in coordination with the Secretary of State, to report to Congress on current and potential future assistance to foreign nations to help reduce black carbon pollution.

*Section 334, States:* Amends section 116 of the Clean Air Act to preserve states' existing authority to adopt and enforce standards or limitations on air pollution under the Clean Air Act, including greenhouse gas emissions.

*Section 335, State Programs:* Includes in Title VIII of the Clean Air Act section 861, barring states from implementing or enforcing a cap-and-trade program to control on greenhouse gas emissions covered by Title VII between the years 2012 to 2017, but allowing regulation of such emissions by other means during this period. Includes section 862, which authorizes the Administrator to make grants to air pollution control agencies under section 105 of the Clean Air Act to implement global warming programs established under the Clean Air Act.

*Section 336, Enforcement:* Amends section 307 of the Clean Air Act to provide that for petitions for review under the Clean Air Act, the court may remand an action of the Administrator without vacatur under specified circumstances. Requires the Administrator to take final action on a petition for reconsideration under the Clean Air Act within 150 days of receipt. Sets a deadline for the Administrator to respond to a court remand.

*Section 337, Conforming Amendments:* Provides for conforming amendments to Clean Air Act enforcement and administrative provisions to incorporate titles VII and VIII.

*Section 338, Davis-Bacon Compliance:* Requires that recipients of emission allowances or funding under this Act provide reasonable assurances that all laborers and mechanics employed by contractors and subcontractors on projects funded directly by or assisted in whole or in part by the Federal Government pursuant to this Act will be paid at least prevailing wages as determined by the Secretary of Labor in accordance with what is commonly known as the Davis-Bacon Act (subchapter IV of

chapter 31 of title 40, United States Code). Excludes application of these provisions to retrofitting of residential buildings (apart from large apartment buildings) and smaller nonresidential buildings.

*Section 339, National Strategy for Domestic Biological Carbon Sequestration:* Requires an interagency report examining the barriers to maximizing biological sequestration of carbon in the United States.

*Section 340, Reducing Acid Rain and Mercury Pollution:* Requires the Administrator to assess and report to Congress the effects of different carbon reduction strategies and technologies on emissions of mercury, sulfur dioxide, and nitrogen oxides.

#### **Subtitle D – Carbon Market Assurance**

*Sections 341-342, Carbon Market Assurance, Carbon Derivative Markets:* Amends the Federal Power Act to provide for strict oversight and regulation of the new markets for emission allowances, offset credits, and federal renewable electricity credits (RECs). Ensures market transparency and liquidity and allows trading in allowance, offset credit, and REC futures so that regulated entities can protect themselves against future cost increases and obtain the allowances or credits they need for compliance at a fair price. The Federal Energy Regulatory Commission is charged with regulating the cash market in allowances, offsets, and RECs and the Commodity Futures Trading Commission with regulating allowance, offset, and REC derivatives. Protects market participants from speculation and market manipulation by including strong criminal prohibitions on fraud and market manipulation for the cash market and by banning over-the-counter trading of allowance, offset credit, and REC derivatives.

#### **Subtitle E – Additional Market Assurance**

*Sections 351 through 357:* Amends the Commodity Exchange Act to provide greater oversight of energy commodity derivatives and credit default swaps. Enhances the independence of the Inspector General of the Commodity Futures Trading Commission under the Inspector General Act of 1978. Requires certain excluded derivatives, swaps, and exempt commodities transactions to be cleared through a derivatives clearing organization registered by the CFTC. Authorizes CFTC to collect fees from each registered clearing organization for cleared contracts in order to recover the cost of federal supervision and regulation of futures markets.

*Section 358, Regulation of Carbon Derivatives Markets:* Provides that, upon passage of legislation that includes derivatives regulatory reform, sections 351, 352, 354, 355, 356, and 356 shall be repealed and regulations promulgated under those sections shall be null and void.

*Section 360, Presidential Review of Regulations:* Requires the President to review the offset and derivatives regulations promulgated under the Act and to determine whether those regulations adequately protect the United States financial system from systemic risk.

### **Title IV – Transitioning to a Clean Energy Economy**

#### **Subtitle A – Ensuring Real Reductions in Industrial Emissions**

*Section 401, Ensuring Real Reductions in Industrial Emissions:* Creates a program within Title VII of the Clean Air Act, as established by this Act, to ensure real reductions in industrial greenhouse gas emissions through emission allowance rebates and an international reserve allowance program.

## Part F – Ensuring Real Reductions in Industrial Emissions

Section 761, Purposes: Outlines the purposes of Subtitle A and the additional purposes of Part 1 of Subtitle A. The purposes of Subtitle A include: promoting a strong global effort to significantly reduce greenhouse gas emissions and preventing an increase in greenhouse gas emissions in foreign countries as a result of compliance costs incurred under title VII of the Clean Air Act, as added by ACES of 2009. The additional purposes of Part 1 include: compensating eligible domestic industrial sectors and subsectors for costs incurred under Title VII; limiting such compensation to amounts that meet the goals of the program; and rewarding innovation and facility-level investments in energy efficiency upgrades and performance improvements.

Section 762, Definitions: Provides relevant definitions.

### Subpart 1 – Emission Allowance Rebate Program

Section 763, 764, Eligible Industrial Sectors, Distribution of Emission Allowance Rebates: Establishes a program that rebates emission allowances to eligible industrial sectors to compensate these sectors for the costs incurred as a result of compliance with Title VII of the Clean Air Act, as added by ACES of 2009.

Instructs the EPA Administrator to annually distribute rebates to the owners and operators of entities in eligible industrial sectors. Requires the Administrator to determine which sectors should be eligible for rebates through a rulemaking based on an assessment of the energy and greenhouse gas intensity of each sector and the trade intensity of each sector. Sectors meeting the listed threshold for these criteria would be deemed eligible to receive rebates.

Provides an opportunity for industrial sub-sectors to petition the Administrator for emission allowance rebates based upon evidence demonstrating that the industrial sub-sector meets the eligibility criteria, even if the sector, as defined by a 6-digit NAICS code, does not.

Provides that rebates will be distributed to entities in eligible industrial sectors based upon their direct carbon factor and their indirect carbon factor. The direct carbon factor is calculated by multiplying the annual domestic production of each entity by the sector average tonnage of greenhouse gas emissions per unit of output. The indirect carbon factor is calculated by multiplying the annual domestic production of each entity by the sector average electricity use per unit of output and the “emissions intensity” of each entity’s electric power supplier.

### Subpart 2 – Promoting International Reductions in Industrial Emissions

Section 765, International Negotiations: Finds that the purposes of this subtitle can be most effectively achieved through international agreements and states that it is the policy of the United States to work proactively under the UNFCCC and in other forums to establish binding agreements committing all major-emitting countries to contribute equitably to the reduction of global greenhouse gas emissions.

Section 766, U.S. Negotiating Objectives with Respect to Multilateral Environmental Negotiations: States that such negotiating objectives shall include (1) reaching an internationally binding agreement in which all major greenhouse gas-emitting countries contribute equitably to the reduction of global greenhouse gas emissions, (2) including provisions in such agreement that recognize and address the competitive imbalances that lead to carbon leakage that may be created between parties and non-parties to such agreement, (3) ensuring such agreement will not prevent parties from addressing competitive imbalances that lead to carbon leakage among parties to such agreement, and (4) include remedies for any party to the agreement that fails to meet its emission reduction obligations.

Section 767, Presidential Reports and Determinations: Requires the President to submit a report to Congress no later than January 1, 2017, and every two years thereafter, regarding the effectiveness of the distribution of emission allowance rebates under Subpart 1 in mitigating the risk of increased greenhouse gas emissions in foreign countries resulting from compliance costs incurred under title VII of the Clean Air Act, as added by ACES of 2009.

Requires the President to establish an International Reserve Allowance Program under 768 if a multilateral agreement consistent with the negotiating objectives in Section 766 has not entered into force with respect to the U.S. by January 1, 2018, unless the President determines that such program would not be in the national economic or environmental interest of the U.S. and Congress passes a joint resolution approving such determination.

If the President establishes an International Reserve Allowance Program, this section requires the President to make a determination, no later than June 30, 2018, and every four years thereafter, for each eligible industrial sector, of whether more than 85% of global output of that sector is produced in countries that meet at least one of the following criteria: (1) party to an international treaty to which the U.S. is a party that includes a nationally enforceable emissions reduction commitment that is at least as stringent as that of the U.S.; (2) party to an international sectoral agreement for that sector to which the U.S. is a party; (3) energy or greenhouse gas intensity for that sector that is equal or less than that of the U.S. If an affirmative determination is made, the International Reserve Allowance Program may not apply to such sector and the amount of emission allowance rebates to such sector will decline by 10% per year.

Section 768, International Reserve Allowance Program: Establishes an international reserve allowance program, which may be implemented by the President beginning in 2020 pursuant to a determination under section 767.

Section 769, Iron and Steel Sector: Requires the Administrator to consider steel made using integrated steel making technologies and steel made using electric arc furnace technologies as a single sector for the purposes of Subpart 2.

### **Subtitle B – Green Jobs and Worker Transition**

#### **Part 1 – Green Jobs**

*Section 421, Clean Energy Curriculum Development Grants:* Amends the Carl. D. Perkins Career and Technical Education Act of 2006 to authorize the Secretary of Education to award grants to

universities and colleges to develop programs of study that prepare students for careers in renewable energy, energy efficiency, and other forms of global warming mitigation and adaptation. These grants are peer reviewed by experts with relevant experience in the areas being considered for funding.

*Section 422, Increased Funding for Energy Worker Training Program:* Increases the authorization for the Green Jobs Act, authorized in the Energy Independence and Security Act, from \$125 million to \$150 million. Establishes a fund for worker training in the U.S. Treasury, which receives 0.75% of allowances in 2012 and 2013.

*Section 423, Development of Information and Resources Clearinghouse for Vocational Education and Job Training in Renewable Energy Sectors:* Requires the Secretary of Labor to establish an information and resources clearinghouse to aid career and technical education and job training programs for renewable energy sectors.

*Section 424, Monitoring Program Effectiveness:* Provides that the Secretary of Energy shall monitor the potential growth of displaced workers to ensure that necessary funding is available.

*Section 424A, Green Construction Careers Demonstration Project:* Requires the Secretary of Labor to establish a Green Construction Careers demonstration project to promote middle class careers and quality employment practices in the green construction sector.

## Part 2 – Climate Change Worker Adjustment Assistance

*Section 425-427, Petitions, Eligibility Requirements, and Determinations; Program Benefits; General Provisions:* Establishes a program pursuant to which any worker displaced as a result of the Title VII of the Clean Air Act would be entitled to 156 weeks of income supplement, 80% of their monthly health care premium, up to \$1,500 for job search assistance, up to \$1,500 for moving assistance, and additional employment services for skills assessment, job counseling, training, and other services. Payments under the program cannot exceed the proceeds from the auction of allowances set aside for this purpose.

## Subtitle C – Consumer Assistance

*Section 431, Energy Refund Program:* Amends the Social Security Act to establish an Energy Refund Program to provide monthly cash energy refunds to low-income individuals to compensate for any reduced purchasing power resulting from this Act. Provides that energy refunds shall not be considered taxable income.

The cost of this subtitle — including both the energy refund program and the modification of the earned income tax credit — are offset by the set aside of the proceeds from the sale of 15% of the emission allowances. The proceeds from the sale of these allowances are deposited into the U.S. Treasury. The amount of assistance provided is not, however, limited by the amount deposited into the Treasury.

*Section 432, Modification of Earned Income Credit Amount for Individuals with No Qualifying Children:* In the event of any reduced purchasing power as a result of this Act, provides tax credits to the lowest-income households to compensate for such losses.

## **Subtitle D – Exporting Clean Technology**

*Sections 441-443, Findings and Purposes, Definitions, Governance:* States that the purpose of this subtitle is to provide U.S. resources to encourage widespread deployment of clean technologies to developing countries. Establishes a Clean Technology Account administered by the State Department in consultation with an interagency group. The Account will supplement and not supplant other federal funding.

*Section 444, Determination of Eligible Countries:* Generally, only developing countries that have ratified an international treaty or agreement or have undertaken nationally appropriate mitigation activities achieving substantial greenhouse gas reductions are eligible for bilateral assistance. Least developed countries may use assistance to build capacity toward meeting eligibility criteria.

*Sections 445, Qualifying Activities:* Eligible projects must achieve substantial greenhouse gas reductions that are substantial, measurable, reportable, and verifiable. Eligible activities include deployment of carbon capture and storage, renewable electricity, efficiency projects, deployment of low-emissions technology, transportation reductions, black carbon reductions, and capacity building activities.

*Section 446, Assistance:* The Secretary of State is authorized to provide assistance through the distribution of allowances bilaterally, through an international fund, or through a multilateral institution pursuant to the UNFCCC. Preference is given to projects that promise to achieve large-scale greenhouse gas reductions, may catalyze widespread deployment of clean technology, build institutional capacity, and leverage private resources. Prohibits bilateral assistance for activities that would undermine intellectual property rights and directs the Secretary of State to seek to ensure similar protections for multilateral programs. To the extent practicable, assistance should reinforce other foreign policy goals.

## **Subtitle E – Adapting to Climate Change**

### **Part 1 – Domestic Adaptation**

#### **Subpart A – National Climate Change Adaptation Program**

*Section 451, National Climate Change Adaptation Program.* Repeals titles I and III of the Global Change Research Act of 1990 and establishes an interagency Global Change Research Program under the White House Office of Science and Technology Policy to manage funding for interagency research activities identified in the Research and Assessment Plan (authorized at \$10,000,000 per year from 2009-2014). Establishes an interagency committee composed of representatives from relevant agencies that will develop a National Global Change Research and Assessment Plan to establish goals and priorities for Federal climate change research; assess regional vulnerability to climate change; ensure research cooperation among federal agencies, states, academics, industries, and other countries; and facilitate communication among stakeholders. Requires various studies and reports to evaluate current research as well as effective policies for mitigation of climate change and adaptation to its effects, and provides guidelines for federal management of climate data.

*Section 452, Climate Services.* Establishes a National Climate Service within NOAA to develop climate information, data, forecasts, and warnings at national and regional scales and to distribute information on climate impacts to state and local decisionmakers.

*Section 453, State Programs to Build Resilience to Climate Change Impacts:* Distributes emission allowances to states for implementation of adaptation projects, programs, or measures to build resilience to the impacts of climate change, contingent on the completion of an approved State Adaptation Plan. Eligible projects include, but are not limited to, those designed to respond to extreme weather events such as flooding or hurricanes, changes in water availability, heat waves, sea level rise, ecosystem disruption, and air pollution. Sets aside one percent of allowances distributed under this section to support climate change adaptation programs administered by Indian tribes.

#### Subpart B – Public Health and Climate Change

*Sections 461. Sense of Congress on Public Health and Climate Change:* States that it is the sense of Congress that the federal government should take all means and measures to prepare for and respond to the public health impacts of climate change.

*Section 462, Relationship to Other Laws:* Clarifies that nothing in the subpart limits authorities or responsibilities conferred by other law.

*Section 463. National Strategic Action Plan:* Requires the Secretary of Health and Human Services to prepare a strategic plan to assist health professionals in preparing for and responding to the impacts of climate change on public health with disease surveillance, research, communications, education, and training programs. Authorizes the Secretary to implement these programs using authorities under this subpart and other federal laws.

*Sections 464-465, Advisory Board, Reports:* Establishes a science advisory board to advise the Secretary on science related to the health effects of climate change. Requires a needs assessment for health effects of climate change and periodic reports on scientific developments and recommendations for updating the national strategy.

*Sections 466, Definitions:* Provides relevant definitions for this subpart.

*Section 467, Climate Change Health Protection and Promotion Fund:* Establishes a fund in the Treasury for carrying out this subpart. Funding will be distributed by HHS but may be made available to other agencies and state and local governments. Funding will supplement, not replace other public health funding.

#### Subpart C – Natural Resource Adaptation

*Section 471-475, Purposes, Policy, Definitions, CEQ, Resources Adaptation Panel:* States that it is the policy of the federal government to use all practicable means and measures to assist natural resources to adapt to climate change. Establishes a Natural Resources Climate Change Adaptation Panel, chaired by the White House Council on Environmental Quality, as a forum for interagency coordination on natural resources adaptation. Provides relevant definitions for this subpart.

*Section 476, Natural Resources Climate Change Adaptation Strategy:* Requires the Panel to develop a strategy for making natural resources more resilient to the impacts of climate change and ocean acidification. The strategy must assess likely impacts to natural resources, strategies for helping wildlife adapt, and specific actions that federal agencies should take.

*Section 477, Natural Resources Adaptation Science and Information:* Establishes a process through NOAA and the U.S. Geological Survey National Global Warming and Wildlife Science Center to provide technical assistance, conduct research, and furnish decision tools, monitoring, and strategies for adaptation. Requires a survey of resources that are likely to be adversely affected and the establishment of a Science Advisory Board to advise the science program and recommend research priorities.

*Section 478, Federal Natural Resource Agency Adaptation Plans:* Requires federal agencies to develop natural resource adaptation plans, consistent with the National Strategy, including prioritized goals and a schedule for implementation of adaptation programs within their respective jurisdictions.

*Section 479, State Natural Resources Adaptation Plans:* Requires states to develop Natural Resources Adaptation Plans as a condition for receiving funds under the programs in this subtitle.

*Section 480, Natural Resources Climate Change Adaptation Fund:* Establishes a Natural Resources Climate Change Adaptation Fund. Allowances devoted to Natural Resources Adaptation are distributed to the states – 84.4% to state wildlife agencies and 15.6% to state coastal agencies. Funds placed in the Natural Resources Climate Change Adaptation Fund are distributed to Federal agencies: 27.6% to the Department of the Interior (DOI) for endangered species, bird, and Fish and Wildlife Service programs, wildlife refuges, and the Bureau of Reclamation; 8.1% to DOI for cooperative grant programs; 4.9% to DOI for tribal programs; 19.5% to the Land and Water Conservation Fund (1/6 to DOI for competitive grants, 1/3 for land acquisition under §7 of the Land and Water Conservation Fund Act, 1/3 to the Department of Agriculture for land acquisition, 1/6 to USDA for the Forestry Assistance Act); 5% to USDA for the Forest Service; 12.2% to EPA for freshwater ecosystems; 8.1% to the Army Corps of Engineers for freshwater ecosystems; and 11.5% to NOAA for coastal and marine ecosystems. All funds must be used for adaptation activities, consistent with federal plans.

*Section 481, National Wildlife Habitat and Corridors Information Program:* Establishes a program in the Department of the Interior to support states and tribes in the development of a GIS database of fish and wildlife habitat corridors, and to facilitate the use of database tools in wildlife management programs.

*Section 482, Additional Provisions Regarding Indian Tribes:* Clarifies that nothing in this subpart amends federal trust responsibilities to tribes, exempts information on Indian tribe sacred sites or cultural activities from FOIA, and clarifies that the Department of the Interior may apply the provisions of the Indian Self-Determination and Education Assistance Act as appropriate.

## Part 2 – International Climate Change Adaptation Program

*Sections 491 –493, Findings and Purposes, Definitions, International Climate Change Adaptation Program:* Establishes an International Climate Change Adaptation Program within USAID to provide U.S. assistance to the most vulnerable developing countries for adaptation to climate change.

Resources allocated to this program will supplement and not replace other international adaptation assistance.

*Section 494, Distribution of Allowances:* The Administrator of USAID shall distribute allowances bilaterally and through multilateral funds or institutions pursuant to the UNFCCC. Multilateral institutions must receive between 40 and 60% of allowances; multilateral fund eligibility is contingent on developing world participation, transparency requirements, and community engagement.

*Sections 495, Bilateral Assistance.* The Administrator of USAID shall distribute allowances through public or private organizations to provide assistance to the most vulnerable developing countries for adaptation efforts. The Administrator must prioritize assistance based on vulnerability to climate change. The bilateral assistance program must ensure community engagement and consultation, and will seek to align broader US foreign policy goals with its assistance. The program may use its assistance to support projects, policies, or programs, or to build program capacity in developing countries.

### **Subtitle F – Deficit Neutral Budgetary Treatment**

*Section 496, Deficit Neutrality:* Ensures that funds established in sections 422, 467, and 480 are treated as separate accounts in the Treasury.

### **Title V – Agriculture and Forestry Related Offsets**

#### **Subtitle A – Offset Credit Program From Domestic Agricultural and Forestry Sources**

*Section 501, Definitions:* Provides relevant definitions for this title.

*Section 502, Establishment of Offset Credit Program from Domestic Agricultural and Forestry Sources:* Directs the Secretary of Agriculture to establish a program governing the generation of offset credits from domestic agricultural and forestry sources, and issue rules to implement program requirements.

*Section 503, List of Eligible Domestic Agricultural and Forestry Offset Practice Types:* Requires the Secretary to prepare and publish a list of eligible offset practice types, specifies practice types, and specifies procedures for revising the list.

*Section 504, Requirements for Domestic Agricultural and Forestry Practices:* Requires the Secretary to establish methodologies for domestic agricultural and forestry offset practices, including standardized methodologies for activity baselines, additionality, quantification methods, and leakage. Directs the Secretary to establish requirements to account for and address reversals, and allows the Secretary to address reversals in the context of certain practices through the use of term offset credits. Includes provisions related to crediting periods.

*Section 505, Project Plan Submission and Approval:* Establishes procedures for project plan submission and approval.

*Section 506, Verification of Offset Practices:* Establishes procedures for offset project verification and for offset verifier accreditation.

*Section 507, Certification of Offset Credits:* Details the process for offset quantification and offset credit issuance by the Secretary.

*Section 508, Ownership and Transfer of Offset Credits:* Specifies conditions for offset credit ownership and transfer.

*Section 509, Program Review and Revision:* Directs the Secretary to periodically review, and based on new or updated information, update and revise various portions of the program.

*Section 510, Environmental Considerations:* Provides specific environmental considerations to be taken into account for forestry practices.

*Section 511, Audits:* Directs the Secretary to conduct audits.

*Section 531, Establishment of USDA Greenhouse Gas Emission Reduction and Sequestration Advisory Committee:* Establishes an independent USDA Greenhouse Gas Emission Reduction and Sequestration Advisory Committee and specifies its structure and responsibilities.

*Section 551, International Indirect Land Use Changes:* Amends section 211(o) of the Clean Air Act to exclude indirect land use changes that occur outside the country where the biofuel feedstock is produced from consideration in the lifecycle greenhouse gas emissions analysis for renewable fuels. Provides that the National Academy of Sciences will study models and methodologies for conducting such an analysis of indirect international land use changes.

Requires EPA and USDA to determine, within five years of enactment, whether valid scientific models exist to project the emissions impacts of international indirect land use changes. If such methodologies exist, EPA and USDA would jointly establish such methodologies by rule and EPA would include an analysis of indirect land use changes in the lifecycle greenhouse gas calculation for renewable fuels.

*Section 552, Biomass-Based Diesel:* Amends section 211(o) of the Clean Air Act to provide that up to one billion gallons of biomass-based diesel or the amount of biomass-based diesel that is mandated by EPA under the Renewable Fuel Standard (RFS), whichever is greater, is exempted from the lifecycle greenhouse gas calculation mandated by the RFS for biomass-based diesel.

*Section 553, Modification of Definition of Renewable Biomass:* Requires EPA, USDA, and FERC to arrange a National Academy of Sciences study to evaluate how sources of renewable biomass contribute to the goals of increasing America's energy independence, protecting the environment, and reducing global warming pollution. Allows revision of the definition of "renewable biomass" from non-federal lands for the Renewable Fuels Standard and the Combined Efficiency and Renewable Electricity Standard, with the concurrence of the Secretary of Agriculture. Also requires the Secretary of the Interior, Secretary of Agriculture, and Administrator of EPA to conduct a joint scientific review of how sources of biomass from federal lands contribute to the goals of increasing America's energy independence, protecting the environment, and reducing global warming pollution. Based on the scientific review, the agencies may promulgate a rule to modify the definition of "renewable biomass" from federal lands to advance these goals.