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*Omnibus Energy Efficiency and Renewable Energy
Legislation: A Side-by-Side Comparison of Major Major
Provisions in House-Passed H.R. 3221 with Senate-Passed
H.R. 6*

Fred Sissine, Resources, Science, and Industry Division

December 5, 2007

Abstract. In the first session of the 110th Congress, the House and the Senate passed two markedly different versions of omnibus energy efficiency and renewable energy legislation. This report compares major provisions in House-passed H.R. 3221 and Senate-passed H.R. 6. Key legislative challenges remain. First, there are significant differences between the two bills. Second, because the House and Senate have passed different measures, further action will be required in at least one chamber before a conference committee could be arranged. Third, concerns about certain oil and natural gas provisions, and the lack of measures to support increased oil and gas production, have led the Administration to threaten to veto each bill.

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Omnibus Energy Efficiency and Renewable Energy Legislation: A Side-by-Side Comparison of Major Provisions in House-Passed H.R. 3221 with Senate-Passed H.R. 6

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December 5, 2007

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Summary

In the first session of the 110th Congress, the House and the Senate passed two markedly different versions of omnibus energy efficiency and renewable energy legislation. This report compares major provisions in House-passed H.R. 3221 and Senate-passed H.R. 6. Key legislative challenges remain. First, there are significant differences between the two bills. Second, because the House and Senate have passed different measures, further action will be required in at least one chamber before a conference committee could be arranged. Third, concerns about certain oil and natural gas provisions, and the lack of measures to support increased oil and gas production, have led the Administration to threaten to veto each bill. Highlights of major provisions include:

- *Renewable Fuels Standard (RFS)*. The Senate bill would set a modified standard that starts at 8.5 billion gallons in 2008 and rises to 36 billion gallons by 2022. The House bill has no RFS provision.
- *Corporate Average Fuel Economy (CAFE)*. The Senate bill would set a target of 35 miles per gallon for the combined fleet of cars and light trucks by model year 2020. The House bill has no CAFE provision.
- *Renewable Energy Portfolio Standard (RPS)*. The House bill would set a minimum standard that would start at 2.75% in 2010 and rise steadily to a peak of 15% in 2020. The Senate bill has no RPS provision.
- *Offshore Oil and Gas Royalties*. The House bill would establish royalties, or alternative payments, for certain federal leases established in 1998 and 1999. The Senate bill has no provision.
- *Repeal of Oil and Gas Tax Incentives*. The House bill would obtain tax revenue offsets by reducing subsidies for oil and natural gas production. The Senate bill has no provision.
- *Renewable Energy Electricity Production Tax Credit (PTC)*. The House bill would extend the PTC for four years, and expand it to include some additional resources. The Senate bill has no provision.
- *Other Tax Incentives*. The House bill would extend several investment tax credits covering solar energy and energy efficiency in residential and commercial sectors. The Senate bill has no provision.
- *Energy Efficiency Equipment Standards*. Key differences involve standards for residential refrigerators, freezers, refrigerator-freezers, metal halide lamps, and commercial walk-in coolers and freezers.
- *Loan Guarantees*. The House bill would give new loan authority to a wider variety of projects. The Senate bill would prevent appropriations acts from limiting the use of non-appropriated funds.

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Introduction

In the first session of the 110th Congress, the House and the Senate passed two markedly different versions of omnibus energy efficiency and renewable energy legislation.

The Senate version of H.R. 6, the proposed *Renewable Fuels, Consumer Protection, and Energy Efficiency Act of 2007*, passed the Senate on June 21, 2007. The key provisions of the Senate-passed H.R. 6 are appliance efficiency standards, an increase of the renewable fuel standard (RFS) to 36 billion gallons by 2022, and an increase of the combined corporate average fuel economy (CAFE) standards to 35 miles per gallon (mpg) by 2020. Tax provisions and a renewable energy portfolio standard (RPS) were not included.

The House passed H.R. 3221 on August 4, 2007. H.R. 3221 has two divisions. Division A contains the *New Direction for Energy Independence, National Security, and Consumer Protection Act*, which has nine titles. An adopted floor amendment (H.Amdt. 748) added a 15% renewable portfolio standard (RPS). Division B, the *Renewable Energy and Energy Conservation Tax Act of 2007*, contains the House-approved version of H.R. 2776. It adds four titles to H.R. 3221 that include a four-year extension of the renewable electricity production tax credit and other efficiency and renewables incentives.

This report compares the major provisions of the House version of H.R. 3221, and the Senate version of H.R. 6. (For more details on the provisions in these two bills, see the appendices to this report. For more details on the legislation that led to the omnibus bills, see CRS Report RL33831, *Energy Efficiency and Renewable Energy Legislation in the 110th Congress*. For more details on the tax provisions, see CRS Report RL33578, *Energy Tax Policy: History and Current Issues*.)

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Senate Action on H.R. 6

The Senate version of H.R. 6, the proposed *Renewable Fuels, Consumer Protection, and Energy Efficiency Act of 2007*, was derived primarily from S. 1419, which, in turn, was composed from four major bills: the *Energy Savings Act* (S. 1321), the *Public Buildings Cost Reduction Act* (S. 992), the *Ten-in-Ten Fuel Economy Act* (S. 357), and the *Energy Diplomacy and Security Act* (S. 193). A summary of the Senate-passed version of H.R. 6 is presented in CRS Report RL33831, *Energy Efficiency and Renewable Energy Legislation in the 110th Congress*. That report also contains descriptions of all the bills that composed the Senate version of H.R. 6.

An RPS amendment (S.Amdt. 1537) was introduced during Senate floor action on the proposed substitute (S.Amdt. 1502) to H.R. 6. The RPS amendment proposed setting a target of 15% by 2020. No action was taken on S.Amdt. 1537 before a successful cloture vote on the substitute. That cloture vote caused S.Amdt. 1537 to be ruled non-germane, and it fell from consideration.

A package of tax provisions (S.Amdt. 1704) was considered during Senate floor action on the proposed substitute to H.R. 6. The proposed tax package amendment included oil and natural gas revenue offset provisions, as well as incentives for renewable energy and energy efficiency. The proposed revenue offsets were similar to, but more extensive than, the offsets proposed in Title XIII, Subtitle A, of H.R. 3221. However, S.Amdt. 1704 failed by a vote of 57-36 on a cloture motion to limit debate. (For more details, see CRS Report RL33578, *Energy Tax Policy: History and Current Issues*.)

House Action on H.R. 3221

H.R. 3221 has two divisions. Division A contains the *New Direction for Energy Independence, National Security, and Consumer Protection Act*, which has nine titles that represent the integration of H.R. 364, H.R. 2304, H.R. 2313, H.R. 2337, H.R. 2389, H.R. 2420, H.R. 2635, H.R. 2701, H.R. 2773, H.R. 2774, H.R. 2847, and a draft bill by the Committee on Energy and Commerce. Division B, the *Renewable Energy and Energy Conservation Tax Act of 2007*, contains the House-approved version of H.R. 2776, and adds four titles to H.R. 3221. A summary of the bill is presented in CRS Report RL33831, *Energy Efficiency and Renewable Energy Legislation in the 110th Congress*. That report also contains descriptions of all the bills that composed the House-passed version of H.R. 3221.

Challenges and Next Steps

One challenge involves key differences between the provisions of the two bills. There are several provisions where the two bills are very similar. One example is energy efficiency standards, where the House and Senate provisions have more similarities than differences. However, especially among the more controversial provisions, many either have major differences or the provision appears only in one bill. One key challenge will be to resolve such differences.

A second challenge involves additional action that will be required to get a bill to conference committee. Because the House and Senate have passed different measures, constitutionally-required congressional procedures prevent the two bills (H.R. 3221 and H.R. 6) from going to conference in their current form. Further action will be needed on at least one of the two bills in at

least one of the two chambers. For example, one option could be that the Senate takes up H.R. 3221, amends it however it wishes, and then pass the bill as the Senate version of H.R. 3221. Then, a conference could be held to resolve any remaining differences between the two versions of H.R. 3221.¹

A third challenge involves opposition to the bills expressed by the Administration. In a June 12, 2007, *Statement of Administration Policy on H.R. 6*, the Administration expressed several points of opposition to the Senate bill.² Its primary concerns involved issues related to oil and natural gas. The Administration stated that the bill “does nothing to increase domestic supplies of oil and natural gas.” Moreover, it threatened to veto the bill if it retained a price gouging provision, which it feels would lead to problematic gasoline price controls. Another veto threat was focused on the proposal to subject foreign oil cartels to the jurisdiction of U.S. courts. Additional concerns were identified. One concern focused on the explicit 35 mpg fuel economy target in the CAFE provision and the proposal to set standards for medium- and heavy-duty trucks. For the RFS provision, the Administration strongly urged expansion to include fossil-based alternative fuels. Regarding loan guarantees, the Administration stated opposition to loosening of controls over program size and “special” treatment that would allow guarantees for biofuels projects to be increased to from 80% to cover up to 100% of project costs.

In an August 3, 2007, *Statement of Administration Policy on H.R. 2776 and H.R. 3221*, the Administration expressed several points of opposition to the House bill.³ Its primary concerns were focused on oil and natural gas. It stated that because the two bills “would lead to less domestic oil and gas production, higher energy costs, and higher taxes, the President’s senior advisors would recommend that he veto these bills.” Other concerns included the proposed repeal of the manufacturing tax deduction for the oil and gas industry, the application of royalty requirements for certain offshore oil and gas leases issued in 1998 and 1999, increased authorization for clean renewable energy bonds, and expansion of the Davis-Bacon prevailing wage requirements.

Informal House-Senate Negotiations

After the House completed action on H.R. 3221, informal bipartisan negotiations over the omnibus energy bills began between the House and Senate. Key issues seem to include the RPS provision (Title IX, Subtitle H) in the H.R. 3221, differences over proposals for increasing the renewable fuels standard (RFS), and a proposal to offset costs by repealing certain oil and natural gas subsidies. In November 2007, EIA issued a report on the impacts of the RPS and oil and gas provisions in H.R. 3221.⁴ On December 1, 2007, the Ranking Member of the Senate Committee on Energy and Natural Resources stated that the House Leadership’s intent to include an RPS led

¹ For more information about procedural requirements to bring a bill to conference, see CRS Report 96-708, *Conference Committee and Related Procedures: An Introduction*, by Elizabeth Rybicki.

² Executive Office of the President. Office of Management and Budget. *Statement of Administration Policy on H.R. 6*. June 13, 2007. 3 p.

³ Executive Office of the President. Office of Management and Budget. *Statement of Administration Policy on H.R. 2776 and H.R. 3221*. August 3, 2007. 2 p.

⁴ EIA. *Oil and Natural Gas Market Supply and Renewable Portfolio Standard Impacts of Selected Provisions of H.R. 3221*. November 2007. 11 p. <http://www.eia.doe.gov/oiaf/servicerpt/bmy/pdf/bmy.pdf>.

him to cease negotiations.⁵ Further, on December 3, 2007, the White House announced that it may veto the negotiated bill, if it includes an RPS, oil tax increases, and certain other provisions.⁶ On December 4, 2007, United Press International reported that, in a press conference, DOE Secretary Bodman warned against the inclusion of “a narrow, one-size-fits-all renewable portfolio standard,” and said “taxes should not be raised or tax breaks reversed for the oil and gas sector.”⁷

Comparing the House and Senate Bills

This report compares the major provisions of the House-passed version of H.R. 3221 and the Senate-passed version of H.R. 6. **Table 1** shows a list of the major provisions that are reviewed in this report. Some provisions are contained wholly under one title or subtitle. For example, the RPS provision in the House bill is contained wholly under Subtitle H of Title IX. However, some provisions are scattered throughout several titles or subtitles. For example, in the House bill, the most extensive provision for loan guarantees is found in Title IX, Subtitle C, but additional provisions for loan guarantees appear under Titles IV (Subtitle E), V, IX (Subtitle A) and IX (Subtitle E). Similarly, Senate provisions for loan guarantees appear in both Title I (Subtitle B), and Title II (Subtitle C).

Table 1. List of Provisions

	Provision	Category	Location
1	Renewable Fuel Standard	regulation	page 6
2	Corporate Average Fuel Economy (CAFE)	regulation	page 7
3	Renewable Energy Portfolio Standard (RPS)	regulation	page 7
4	Royalties Under Offshore Oil and Gas Leases	regulation	page 8
5	Repeal of Oil and Natural Gas Tax Incentives	tax incentives	page 8
6	Renewable Energy Production Tax Credits	tax incentives	page 9
7	Transportation Tax Incentives	tax incentives	page 9
8	Energy Efficiency Tax Incentives	tax incentives	page 10
9	Energy Efficiency - Equipment Standards	regulation	page 10
10	Loan Guarantees	loans	page 11
11	Energy Efficiency - Federal	regulation	page 12
12	Energy Efficiency - Congressional	regulation	page 12
13	Energy Efficiency - Vehicle Transportation	authorization	page 12
14	Renewable Fuel Infrastructure	authorization	page 13

⁵ The statement is available on the Committee’s website, at http://energy.senate.gov/public/index.cfm?FuseAction=PressReleases.Detail&PressRelease_id=235405&Month=12&Year=2007.

⁶ The White House. *Letter to House Speaker Nancy Pelosi from Allan B. Hubbard*. December 3, 2007. 2 p.; also see E&E News PM. *Energy Policy: White House Attacks Energy Bill Compromise*. December 3, 2007. <http://www.eenews.net/eenewspm/print/2007/12/03/1>.

⁷ UPI. *U.S. Energy Chief: Energy Bill Concerns*. December 4, 2007. http://www.upi.com/International_Security/Emerging_Threats/Analysis/2007/12/04/us_energy_chief_energy_bill_concerns/3426/.

	Provision	Category	Location
15	Rail, Sea, and Air Transportation	authorization	page 13
16	International Energy Cooperation	treaties	page 14
17	International Climate Cooperation	treaties	page 15
18	Carbon Storage	authorization	page 15
19	Carbon Neutral Government	authorization	page 16
20	Energy Efficiency - Buildings	authorization	page 16
21	Energy Efficiency - State and Local	authorization	page 16
22	Energy Efficiency - Small Business	authorization	page 17
23	Green Jobs	authorization	page 17
24	Transmission/Smart Grid	authorization	page 17
25	Wind Impacts on Wildlife	regulation	page 17
26	Renewable Energy R&D	authorization	page 18
27	Hydrogen Award	authorization	page 18
28	Price Gouging	regulation	page 18
29	Agriculture Energy	authorization	page 18
30	ARPA-E	authorization	page 19

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Table 2. Comparison of House-Passed H.R. 3321 and Senate-Passed H.R. 6

House-Passed H.R. 3321	Senate-Passed H.R. 6	Key Differences
Renewable Fuel Standard (RFS)	<p>Title I, Subtitle A. This Subtitle would extend and increase the renewable fuel standard (RFS) set by P.L. 109-58. The RFS requires minimum annual levels of renewable fuel in gasoline. The current standard is 4.7 billion gallons for 2007. The modified standard would start at 8.5 billion gallons in 2008 and rise to 36 billion gallons in 2022. Starting in 2016, an increasing portion of the requirement would have to be met with advanced biofuels, defined as cellulosic ethanol and other biofuels derived from feedstocks other than corn starch. Renewable fuels produced from new biorefineries would be required to achieve at least a 20% reduction in life cycle greenhouse gas emissions relative to life cycle emissions from gasoline. A voluntary labeling program would be established for renewable fuels, based on life cycle greenhouse gas emissions. Fuel produced from biorefineries that displace more than 90% of the fossil fuels used in a biofuel production facility would qualify for additional credits under the RFS. (For more details, see CRS Report RL33928, <i>Ethanol and Biofuels: Agriculture, Infrastructure, and Market Constraints Related to Expanded Production.</i>)</p>	No House provision.

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Corporate Average Fuel Economy (CAFE)

No provision.

Title V would establish a single CAFE standard for a combined passenger car and light truck fleet, beginning in model year (MY) 2011. The existing standard is 27.5 miles per gallon (mpg) for passenger cars and 22.2 mpg for light trucks in MY2007. H.R. 6 would set a CAFE target of 35 mpg for the combined fleet by MY2020. The CAFE standards during each of the interim years (MY2011-MY2019) would be required to be 4% higher than the previous model year, or at "maximum feasible" levels. Within 18 months after enactment, the Department of Transportation (DOT) would be required to initiate analysis for the purpose of establishing a commercial medium- and heavy-duty on-highway vehicle fuel efficiency improvement program. Other provisions would require that a percentage of automakers' new vehicles be alternative fuel-capable starting in 2012, and that CAFE fines be used to develop alternative fuel infrastructure. (For additional information, see CRS Report RL33982, *Corporate Average Fuel Economy (CAFE): A Comparison of Selected Legislation in the 110th Congress*, and CRS Report RL33413, *Automobile and Light Truck Fuel Economy: The CAFE Standards*.)

No House provision.

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Federal Renewable Energy Portfolio Standard (RPS)

Title IX, Subtitle H, would establish an RPS administered by DOE for retail suppliers (electric utilities). For each retail supplier that sells more than one billion kilowatt-hours (kwh) per year, the RPS would set a minimum electricity production requirement from renewable resources. The standard would start at 2.75% in 2010 and then rise annually until reaching a peak of 15% in 2020. Electricity savings from energy efficiency measures would be allowed to compose a maximum of 25% of the standard in any given year. The energy efficiency share would rise to a peak of 4% in 2020, of the 15% total. (For more details, see CRS Report RL34116, *Renewable Energy Portfolio Standard (RPS): Background and Debate Over a National Requirement*.)

In Senate floor action on its proposed substitute (S.Amdt. 1502) to H.R. 6, S.Amdt. 1537 to the substitute proposed adding an RPS with a target of reaching 15% by 2020. After a successful cloture motion on S.Amdt. 1502, S.Amdt. 1537 was ruled non-germane.

No Senate provision.

House-Passed H.R. 3221**Senate-Passed H.R. 6****Key Differences**

Royalties Under Offshore Oil and Gas Leases

Title VII, Subtitle E, would require that the Secretary of the Interior accept a lessee's request to modify certain leases established in 1998 and 1999 without price thresholds ("covered leases") to set price thresholds. Lessees holding "covered leases" would not be eligible for new oil and gas leases in the Gulf of Mexico unless the covered leases are modified to include price thresholds or the lessee would agree to pay a newly established "conservation of resources fee." The Subtitle would repeal royalty relief provisions established by the Energy Policy Act of 2005 (P.L. 109-58, §344 and §345). This Subtitle is nearly identical to Title II of the House-passed version of H.R. 6. The Congressional Budget Office estimates that the proposed changes to the royalty system for oil and natural gas could generate \$6.3 billion over 10 years for the U.S. Treasury.

No provision.

No Senate provision.

Repeal of Oil and Natural Gas Tax Incentives

Title XIII, Subtitle A, proposes tax revenue offsets that would be obtained by reducing subsidies for oil and natural gas production.

Section 13001 would repeal the IRS §199 domestic manufacturing deduction for oil and gas companies starting in 2008. (Note: In 2007, this deduction would amount to about 6% of the income from domestic production of oil, gas, or primary products.)

Under Section 13002, the geological and geophysical costs (G&G) of a major integrated oil company would be amortized (deducted proportionally) over a 7 year period instead of the current 5 years. (Note: A major integrated oil company is one with an average world production of at least 500,000 barrels per day, with 2005 gross receipts exceeding \$1 billion, and which has at least a 15% interest in refinery operations.)

Section 13003 would restrict oil and gas companies from claiming foreign tax credits by changing the method used to calculate "Foreign Oil and Gas Extraction Income."

The Joint Committee on Taxation estimates this Title

No provisions.

However, in Senate floor action on its proposed substitute (S.Amdt. 1502) to H.R. 6, S.Amdt. 1704 to the substitute proposed tax revenue offsets that were similar to, but more extensive than, the offsets proposed in Title XIII, Subtitle A of H.R. 3221. However, S.Amdt. 1704 failed by a vote of 57-36 on a cloture motion to limit debate. (For more details, see CRS Report RL33578, *Energy Tax Policy: History and Current Issues*, by Salvatore Lazzari.)

No Senate provision.

S.Amdt. 1704 had more revenue offsets than Title XIII, Subtitle A of H.R. 3221. The estimated dollar value of the revenue offset provisions in S.Amdt. 1704 was more than double that estimated for H.R. 3221.

House-Passed H.R. 3221	Senate-Passed H.R. 6	Key Differences
would increase revenue to the U.S. Treasury by about \$11 billion over 10 years.		
Title XIII, Subtitle B would clarify eligibility for the renewable diesel tax credit.	No provision.	No Senate provision.
Title XIV, Subtitle A, would call for a carbon audit of the IRS tax code and for a comprehensive study of biofuels. Subtitle B would require that, for a capital grant program to rehabilitate freight railroad tracks, all laborers and mechanics be paid at the “prevailing wage” rate.	No comparable provisions in Senate bill, nor in S.Amdt. 1704, which failed to be added to H.R. 6 on the Senate floor.	No Senate provisions.
Tax Incentives for Renewable Energy Production		
Title XI would extend the renewable electricity production tax credit (PTC) for 4 years and expand it to include ocean thermal and hydrokinetic (wave, tide, and current) energy. Also, it would extend the 30% business energy investment tax credit (ITC) for solar and fuel cell equipment for 8 years, authorize \$2 billion of clean renewable energy bonds (CREBs), and remove the cap on the investment tax credit for residential solar and fuel cell equipment.	No provisions in H.R. 6. However, S.Amdt. 1704 (Part I) would have extended the PTC for 5 years and expanded it to include ocean thermal and hydrokinetic (wave, tide, and current) energy. Also, it would have extended the 30% business energy tax credit for solar and fuel cell equipment for 8 years and repealed the public utility exclusion. It would have authorized \$3.6 billion of CREBs, and raised the cap on the tax credit for residential solar and fuel cell equipment. A new credit would have been created for residential wind equipment. Two incentives for electric transmission would have been established. S.Amdt. 1704 (Part V) would have extended the new energy-efficient homes credit for 3 years.	No Senate provisions, but: S.Amdt. 1704 proposed a 1-year longer PTC extension than the House bill. S.Amdt. 1704 proposed \$1.6 billion more for CREBs, and it would have expanded the business ITC to utilities. H.R. 3221 would remove the cap on the residential ITC. S.Amdt. 1704 would have raised the cap on the residential ITC. S.Amdt. 1704 would have created a credit for residential wind equipment. S.Amdt. 1704 (Part V) would have extended the new homes credit.
Tax Incentives for Energy Efficiency in Transportation		
Title XII, Subtitle A, would set a \$4,000 credit for plug-in hybrid vehicles, establish a 50 cent per gallon production tax credit for cellulosic ethanol fuel, extend the biodiesel production tax credit for two years, increase the alternative refueling stations tax credit, create a fringe benefit for bicycle commuters, and modify depreciation and expensing rules to close a loophole for gas guzzlers and make incentives available for fuel efficient vehicles.	No provisions. S.Amdt. 1704 would have created a credit for plug-in hybrids, capped at \$7,500 to \$15,000, depending on vehicle weight. The credit for alternative-fueled vehicles would have been extended for 2 years. An exclusion from heavy truck tax would have been established for idling reduction units and certain truck insulation measures.	No Senate provisions. S.Amdt. 1704 had a stronger credit for plug-in hybrids. H.R. 3221 provides some incentives that were not in S.Amdt. 1704.

http://wikileaks.org/wiki/H.R.3221

Tax Incentives for Other Energy Efficiency Measures

Title XII, Subtitle B, Section 12011, would create an energy conservation tax credit bond for state and local governments to reduce energy use in public buildings, promote renewables in rural areas, support R&D, mass transit facilities and vehicles, and technology demonstrations. Total (national) bond authority would be limited to \$3.6 billion.

Section 12012 would create an energy efficiency assistance tax credit bond for states to provide loans and grants for home improvements and residential equipment. Total bond authority would be limited to \$2.4 billion. The bond could support Energy Star equipment, renewable energy equipment, and certain targeted reductions in energy use. At least 20% of the project proceeds from each bond issue must be applied to low-income residential purposes.

Also, Subtitle B would provide a 5-year extension of the tax deduction for commercial buildings, an extension and modification of the appliance credit, and the establishment of a five-year depreciation period for smart electric meters.

Energy Efficiency - Equipment Standards

Title IX, Subtitle A, Part I, would set, by statute, new efficiency standards for residential clothes washers, dishwashers, dehumidifiers, refrigerators, refrigerator-freezers, freezers, electric motors, and residential boilers. DOE would be allowed to establish regional variations in standards for heating and air conditioning equipment. DOE would be required to complete a rulemaking process for furnace fans by 2013. Federal agencies would be directed to purchase devices that limit standby power use. DOE would be directed to issue a final rule that sets efficiency standards for battery chargers. Certain energy efficiency measures for walk-in coolers and walk-in freezers would be set by legislation. Also, several procedural changes would be made to expedite the DOE rulemaking process.

No provisions.

S.Amdt. 1704, Part V, would have extended the commercial building deduction for 5 years, and extended and expanded the home appliance credit.

Also, Part V would have extended the new home credit for 3 years and the existing home efficiency retrofit credit for 2 years. A credit would have been created for commercial installation of certain combined heat and power (CHP) equipment.

Part I would have expanded the 7-year depreciation period to include energy management devices.

Title II, Subtitle B, would set, by statute, new standards for residential boilers, electric motors, and some home appliances. DOE would be directed to set standards by rulemaking for furnace fans. Also, DOE would be allowed to set standards for multiple components and regional standards for heating and cooling equipment. Further, this Subtitle would provide incentives for the manufacture of high-efficiency consumer products. Other provisions would expedite rulemakings, clarify limits to federal preemption of state standards, and require Energy Guide labels for several types of consumer electronic products. Also, DOE would be directed to establish a program for the use of new technologies to improve energy efficiency in materials manufacturing and energy-intensive industries.

No Senate provisions.

H.R. 3221 would establish two new tax credit bond provisions for state and local programs.

S.Amdt. 1704 would have extended two home tax credits that are not included in H.R. 3221. Also, it would have established a new commercial CHP credit.

Both bills would legislate identical standards for residential clothes washers, dishwashers, dehumidifiers, electric motors, and residential boilers. The House bill would also legislate standards for refrigerators, freezers, and refrigerator-freezers. The Senate bill would direct DOE to set standards by rule for refrigerators, freezers, and refrigerator-freezers. Both bills would direct DOE to set standards by rule for furnace fans. The House bill would legislate certain efficiency measures for walk-in coolers and freezers.

Both bills would legislate identical standards for incandescent reflector lamps. The House bill would also legislate standards for certain metal halide lamps.

House-Passed H.R. 3221**Senate-Passed H.R. 6****Key Differences**

Energy Efficiency - Federal

Title VI, Subtitle B, would require federal agencies to purchase “low carbon” vehicles and to procure energy-efficient products. DOE would be directed to revise energy performance standards for federal buildings to reduce oil use. Covered buildings would have to reduce the share of fossil fuel use by 55% in 2010, reducing steadily to 100% (zero emissions) by 2030. Subtitle C would create a telework (work from home) policy at federal agencies. Alternative fuels could not be procured if greenhouse gas (GHG) emissions exceed those for conventional petroleum fuels.

Title VIII, Subtitle F, would prohibit the General Services Administration (GSA) from purchasing incandescent lights for Coast Guard buildings. Also, it would direct GSA to install a solar photovoltaic system at DOE headquarters.

Title IX, Section 9042, would direct GSA to establish an Office of Federal High-Performance Green Buildings that would identify standards, practices, and incentives for federal agencies. Would include agency retention of cost savings.

Section 9046 would direct the Office of Federal Procurement Policy to require that acquisition, construction, and major renovations of buildings employ green design. In leasing, preference would be given to energy-efficient buildings.

Energy Efficiency - Congressional

Title VIII, Subtitle F, Part 3, would direct the Architect of the Capitol to operate the Capitol Power Plant in an energy-efficient manor, include energy efficiency measures in the Capitol Complex Master Plan, and encourage the use of E85 fuel and solar photovoltaic equipment.

Energy Efficiency - Vehicle Transportation

Title VIII, Subtitle B, Part 2, provides support for federal-aid highways. The federal share for congestion mitigation and air quality (CMAQ) projects would be increased up to 100% of project or program cost.

Title II, Subtitle E, would require federal and state fleets to reduce oil use 30% by 2016. The renewable energy share of federal energy purchases would increase to 15% by 2015. Federal agencies would have permanent authority to use Energy-Saving Performance Contracts (ESPCs). Federal buildings would be required to reduce energy use 30% by 2015. Federal buildings would be required to reduce fossil energy use by 50%.

Title IV, Subtitle A, would direct GSA to accelerate federal agency use of efficient lights. Subtitle B would direct GSA to install a solar photovoltaic system at DOE headquarters.

Title IV, Subtitle C, Section 432, would establish virtually identical provisions for federal green buildings.

Section 452 would set identical procurement requirements.

No provision.

Title II, Subtitle C, would promote high-efficiency vehicles, advanced batteries, and energy storage. DOE would be authorized to fund an R&D program on light-weight materials. A loan guarantee program would be

Both bills would set a goal to reduce fossil fuel use in federal vehicle fleets, but by using different approaches. The Senate bill would also set a goal to reduce use by state fleets.

Both bills set goals for reducing fossil fuel use in federal buildings. The House bill would drive this reduction with a DOE rulemaking.

The Senate bill would set a broader requirement for light bulbs.

No Senate provision.

The bills have similar aims, but differ in focus and means. Both bills would establish grant programs. The House bill would provide loan guarantees and grants to support advanced technology work and hybrid vehicle

House-Passed H.R. 3221	Senate-Passed H.R. 6	Key Differences
<p>Title IX, Subtitle E would establish a loan guarantee program for advanced battery development, grant programs for plug-in hybrid vehicles, incentives for purchasing heavy duty hybrids for fleets, and credits for various electric vehicles.</p>	<p>created for facilities that manufacture fuel-efficient vehicles. Funding awards for qualified investments would be authorized to refurbish manufacturing facilities that produce advanced technology vehicles. A 10-year R&D program would be authorized to support U.S. competitiveness in global energy storage markets, and a five-year R&D program would be authorized for electric drive technologies. DOE would be directed to establish a competitive grant program for state, regional, and local government entities to demonstrate electric drive vehicles. DOE would also be required to establish a program to deploy technologies that would achieve near-term oil savings in the transportation sector.</p>	<p>purchases. The Senate bill would rely more on R&D and less on loan guarantees. The Senate bill has a broader scope, including loan guarantees for constructing or retrofitting facilities that manufacture fuel-efficient vehicles.</p>
<p>Renewable Fuel Supply and Infrastructure</p> <p>Title V (§5003) would provide loan guarantees for up to 90% (\$250 million in principal) of project cost for biorefineries and biofuel production plants.</p> <p>Title IX (§9304) would direct DOE to study the feasibility of constructing dedicated ethanol pipelines.</p> <p>Title IV (§9301) would authorize funding for DOE to make grants for renewable fueling infrastructure. Additional provisions (§4403, Title IX-D) would support other aspects of infrastructure development.</p> <p>Title IX (§9308) would authorize DOE funding support for grants to diversify feedstocks and locations for cellulosic ethanol production facilities.</p> <p>Other provisions would authorize funding for R&D, bioenergy research centers (5), and a biodiesel fuel quality standard.</p>	<p>Title I (§124) would provide loan guarantees for up to 100% (\$250 million in principal) of project cost for advanced biofuel (new technology) pilot plants.</p> <p>Title I (§143) would direct DOE to study the feasibility of constructing dedicated ethanol pipelines.</p> <p>Title I (§121) would authorize funding for DOE to make grants for renewable fueling infrastructure and corridors in 10 geographically-dispersed areas.</p> <p>Other provisions would authorize funding for R&D, bioenergy research centers (11), grants to states with low ethanol production rates, biomass transportation, a fuel labeling requirement, and a biodiesel fuel quality standard.</p>	<p>The House bill would authorize funding for grants to support cellulosic ethanol production, but the Senate bill would not.</p> <p>The Senate bill would authorize funding for grants to states with low ethanol production rates, but the House bill would not. The Senate bill would create a fuel labeling requirement, and the House bill would not.</p>
<p>Rail, Sea, and Air Transportation</p> <p>Title VIII, Subtitle B, would direct DOT to establish grants that can help rail carriers buy hybrid locomotives and grants that can improve railroad track. Subtitle D would create a short sea maritime transportation program. Subtitle E would establish a grant program to reduce airport noise, air pollution, and greenhouse gas emissions.</p>	<p>No provisions.</p>	<p>No Senate provisions.</p>

House-Passed H.R. 3221**Senate-Passed H.R. 6****Key Differences**

International Energy Cooperation

Title IX, Subtitle D, Part 2, would establish a grant program and advisory board for U.S.-Israel energy cooperation. The provisions of this Subtitle are identical to those of H.R. 3238.

Title VII would express the sense of Congress on international energy cooperation, emphasizing increased use of sustainable energy sources. To support this, the Department of State would be encouraged to establish (1) strategic energy partnerships with the governments of major energy producers and consumers, and other governments; (2) a petroleum crisis response mechanism with China and India; and (3) a Western Hemisphere energy crisis response mechanism, a ministerial Hemisphere Energy Cooperation Forum, and a Hemisphere Energy Industry Group. Also, the bill would establish a "Hemisphere Energy Cooperation Forum," that would be encouraged to implement initiatives on energy sustainability and development.

Section 710 proposes the "No Oil Producing and Exporting Cartels (NOPEC) Act, which would make it illegal for any foreign state or group of states to limit production of oil and natural gas to influence the price of petroleum products in the United States. It would deny the sovereign immunity of any state in violation of the prohibition, and would allow the U.S. Attorney General to bring action in any district court under antitrust laws.

The House provision only addresses energy cooperation with Israel.

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International Climate Cooperation on Climate Change

Title II, Subtitle A, states that it would be the policy of the United States to take a more active and constructive role in international climate change negotiations, specifying future meetings of the Conferences of the Parties to the United Nations Framework Convention on Climate Change. Among the actions specified, the United States would seek mitigation commitments from all major greenhouse-gas (GHG) emitting nations, including China, India, Brazil, and other major developing nations. An Office on Global Climate Change would be established within the Department of State, headed by an Ambassador-at-Large who would advance U.S. goals concerning reducing emissions of GHGs and serve as a principal adviser to the President and Secretary of State on climate change policy.

No similar provision.

No Senate provision.

Carbon Storage

Title IV, Subtitle F, would expand the DOE program for carbon capture to include R&D for carbon storage and demonstration. DOE would conduct 7 initial large-volume sequestration tests, preferably using carbon dioxide (CO₂) from large industrial or electricity-generating sources, and would conduct at least 3 large-scale carbon capture demonstration tests from industrial sources of CO₂. Beginning in 2011, the National Academy of Sciences (NAS) would review the large-scale sequestration and capture programs. EPA would conduct a research program to assess potential impacts of CO₂ storage on the environment, public health and safety associated with capture and sequestration. A grant program for graduate degrees in geological sequestration science would be established.

Title III of H.R. 6 is similar to Title IV, Subtitle F, and Title VII, Subtitle D, of H.R. 3221. The DOE program would be expanded to include carbon storage and carbon capture demonstration projects. Also, a Department of the Interior program would be established to assess the national carbon dioxide (CO₂) storage capacity.

The Senate bill does not include an NAS review of the DOE programs, nor establish a university-based grant program for geological sequestration science. Also, the Senate bill does not require that EPA assess impacts of CO₂ capture and sequestration on public health and safety and the environment. Title IV of the House bill authorizes a higher level of appropriations for programs than the Senate bill.

(For more information on this topic see CRS Report RL33801, *Carbon Capture and Sequestration (CCS)*, by Peter Folger.)

Title VII, Subtitle D, would establish a program in the Department of the Interior (DOI) to be conducted by the U.S. Geological Survey that would develop a methodology for, and conduct an assessment of, the CO₂ storage capacity of the United States.

House-Passed H.R. 3221	Senate-Passed H.R. 6	Key Differences
Carbon Neutral Government		
<p>Title VI, Subtitle A, would require each federal agency to inventory its greenhouse gas emissions annually. EPA would set collective annual emission reduction targets, with a goal of zero net annual emissions (carbon-neutrality) by 2050. Federal agencies would be allowed to purchase qualified offsets and renewable energy certificates in open market transactions. The maximum agency funding for this Subtitle would be 0.01% of discretionary funds in FY2009 and FY2010. This subtitle would not preempt state actions.</p>	<p>No provision.</p>	<p>No Senate provision.</p>
Energy Efficiency - Buildings		
<p>Title IX, Subtitle A, Part 3, would encourage stronger state building codes. Part 4, Section 9043, would create an Office of Commercial High-Performance Green Buildings at DOE. Section 9044 would establish a zero-energy commercial buildings initiative. A national goal would be set to achieve zero-net-energy use for new commercial buildings built after 2025. Further, a goal would be set to retrofit all pre-2025 buildings to zero-net-energy use by 2050. Certain green building renovations would be eligible for loan guarantees under §1703 of EPCRA. Part 6 would create a federal revolving fund that would make loans for combined heat and power projects at public institutions.</p>	<p>Title II, Subtitle E, would direct the Department of Housing and Urban Development (HUD) to update energy efficiency standards for all public and assisted housing.</p> <p>Title IV Subtitle C, Part 2, would create a green schools program.</p>	<p>The House bill provision for building codes covers all building sectors; the Senate bill is focused on public housing and schools.</p> <p>The House bill has provisions for loan guarantees and a revolving loan program.</p>
Energy Efficiency - State and Local		
<p>Title IX, Subtitle A, Part 3, Section 9034, would increase the funding authorization for the DOE Weatherization program, providing \$3.75 billion over 5 years.</p> <p>Part 9 would direct the Department of Energy (DOE) to establish an energy efficiency block grant program for state and local governments. The program would support the development of energy efficiency goals and strategies, public outreach, and implementation.</p>	<p>Title II, Subtitle F, Section 271, would authorize \$7 billion over 5 years for the DOE Weatherization program and reauthorize the State Energy program.</p> <p>Section 273 would require state utility regulatory commissions to consider federal standards to promote energy efficiency.</p> <p>Section 275 would create a nearly identical energy efficiency block grant program at DOE.</p>	<p>The Senate bill would authorize nearly double the amount of House-recommended Weatherization funding.</p> <p>The House bill would not direct state regulatory agencies to consider promoting energy efficiency.</p> <p>The eligibility criteria for the energy efficiency block grant program differ somewhat between the two bills. The Senate would provide a higher share of funding for states. The House would authorize “such sums as needed” and the Senate would authorize \$10 billion over 5 years.</p>

House-Passed H.R. 3221	Senate-Passed H.R. 6	Key Differences
Energy Efficiency - Small Business		
Title III would establish loans, grants, and debentures to help small businesses develop, invest in, and purchase energy efficient buildings, fixtures, equipment, and technology.	No provision.	No Senate provision.
Green Jobs		
Title I would authorize up to \$125 million in funding to establish national and state job training programs, administered by the U.S. Department of Labor, to help address job shortages that are impairing growth in green industries, such as energy efficient buildings and construction, renewable electric power, energy efficient vehicles, and biofuels development.	Title II, Subtitle F, Section 277 would authorize up to \$100 million to establish a nearly identical program.	The House would authorize \$25 million more than the Senate. Also, the House provides for a “Pathways Out of Poverty Demonstration Program” that is not in the Senate proposal .
Electricity Transmission/Smart Grid		
Title VII, Subtitle B, Chapter 5 would direct DOE to study transmission capacity in California, Oregon, and Washington to determine whether it could support new electricity generation from ocean wave, tidal, and current energy projects that could contribute up to 10% of total electricity use in those states.	No provisions.	No Senate provisions.
Title IX, Subtitle B, would create an electric grid modernization commission to study and propose policies on “Smart Grid” technology implementation. A federal 25% matching grant program would be created to support implementation. DOE would be directed to help deploy technologies and perform cooperative demonstration projects with electric utilities. States would be required to consider regulatory standards that would allow utilities to recover smart grid investments through rates and “decouple” utility profits from electricity sales volume.		
Wind Farm Impacts on Wildlife		
Title VII, Subtitle B, Chapter 4, requires the Department of the Interior to form a committee to recommend guidance to minimize and assess impacts of land-based wind turbines on wildlife and their habitat. State and federal laws (and regulations) would not be preempted.	No provision.	No Senate provision.

House-Passed H.R. 3221	Senate-Passed H.R. 6	Key Differences
<p>Renewable Energy R&D</p> <p>Title IV would authorize funding for DOE to conduct R&D programs on marine (Subtitle B), geothermal (Subtitle C), solar (Subtitle D), and biofuels (Subtitle E) energy R&D.</p>	<p>Title II, Subtitle G, would direct DOE to create an R&D program focused on “marine energy” technology that produces electricity from waves, tides, currents, and ocean thermal differences. (For more background on marine energy, see CRS Report RL33883, <i>Issues Affecting Tidal, Wave, and In-Stream Generation Projects</i>.)</p>	<p>Both bills include marine energy. The House bill includes other energy technologies.</p>
<p>Hydrogen Award</p> <p>Title IV, Subtitle H, would direct DOE to conduct a competitive program to award cash prizes (H-Prize) to advance R&D, demonstration, and commercial application of hydrogen energy technologies.</p>	<p>No provision.</p>	<p>This provision is identical to the H-Prize in H.R. 632, which passed the House before H.R. 3221.</p>
<p>Price Gouging</p> <p>No provision.</p>	<p>Title VI would criminalize price gouging in fuel markets during an energy emergency. (For more details, see CRS Report RS22236, <i>Gasoline Price Increases: Federal and State Authority to Limit “Price Gouging”</i>.)</p>	<p>No provision in House bill. However, on May 23, 2007, the House passed a similar version in a stand-alone bill, H.R. 1252, the proposed Federal Price Gouging Prevention Act.</p>
<p>Agriculture Energy</p> <p>Title V assumes several of the provisions from the energy title (Title IX) of H.R. 2419—the <i>Farm, Nutrition, and Bioenergy Act of 2007</i>—that was passed by the House on July 2, 2007. Both Title V of H.R. 3221 and Title IX of H.R. 2419 expand and extend several provisions from the energy title (Title IX) established by the Farm Security Act of 2002, including substantial increases in funding and a heightened focus on developing cellulosic ethanol production. In particular, Title V of H.R. 3221 includes nearly \$1 billion in production incentive payments on new biofuels production; new funding to underwrite up to \$1.6 billion in loan guarantees for the development of new biorefineries; and \$236 million in new funding for research on biomass production, harvest, transportation, and storage. (For more background, see CRS Report RL34130, <i>Renewable Energy Policy in the 2008 Farm Bill</i>.)</p>	<p>No provision.</p>	<p>The major distinction between the agriculture energy titles of H.R. 3221 and H.R. 2419 is that Title IX of H.R. 2419 has higher funding levels and more provisions than in Title V of H.R. 3221. In particular, H.R. 2419 proposes a total of \$3.2 billion in new funding for Title IX energy provisions over 5 years compared with \$2.2 billion under Title V of H.R. 3221. The most notable energy provision of H.R. 2419 omitted from H.R. 3221 is a Biomass Energy Reserve (BER) program to provide financial and technical assistance (including five year contracts) to landowners and operators to grow dedicated energy crops as feedstock for cellulosic ethanol and other energy production.</p>

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House-Passed H.R. 3221	Senate-Passed H.R. 6	Key Differences
<p>ARPA-E</p> <p>Title IV, Subtitle A, would direct that an Advanced Research Projects Agency - Energy be established at DOE.</p>	<p>No provision.</p>	<p>Similar provision signed into law as part of the America Competes Act (P.L. 110-69, §5012).</p>

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Appendix A. House-Passed Version of H.R. 3221, Division A: “New Direction for Energy Independence, National Security, and Consumer Protection Act”

The proposed *New Direction for Energy Independence, National Security, and Consumer Protection Act* (H.R. 3221) is an omnibus energy policy bill that consists mainly of provisions for energy efficiency and renewable energy. It was composed of several bills that were reported from various committees.⁸ In House floor action on August 4, 2007, several amendments to H.R. 3221 were adopted, including one that would establish a renewable energy portfolio standard (RPS). The House approved the amended bill by a vote of 241-172. Minutes later, the tax provisions bill (H.R. 2776) was approved and then incorporated into H.R. 3221. A brief description of the provisions in H.R. 3221 and H.R. 2776 follows.

Key Provisions Adopted and Absent

A description of some key provisions and amendments follows:

Renewable Energy Portfolio Standard (RPS).⁹ H.Amdt. 748 proposed an RPS target that would reach 15% by 2020. Up to 4% of the target could be met with certain energy efficiency measures. The amendment was approved by a vote of 220-190.

Renewable Energy and Energy Conservation Act (H.R. 2776). This bill proposed extensions and additions of several tax incentives for renewable energy and energy efficiency, including a four-year extension of the renewable energy electricity production tax credit. The bill was approved on a separate floor vote by a tally of 221-189. It was subsequently incorporated into H.R. 3221.

Renewable Fuel Standard (RFS). Proposed Amendment 81 would have increased RFS to 36 billion gallons by 2022. It was withdrawn.

Corporate Average Fuel Economy (CAFE) Standards. Proposed amendments 62 and 95 offered different policies for increasing CAFE standards. Proposed Amendment 95 was withdrawn, and Proposed Amendment 62 was not included in the rule that prescribed floor action.

Oil Savings Provisions. Proposed Amendment 36 would have set a goal to reduce imported oil to less than 25% of vehicle petroleum use by 2015. Proposed Amendment 72 would have called for development of a plan to cut U.S. oil use by 2.5 million barrels per day (mbd) by 2016, rising significantly by 2025. Neither Amendment 36 nor Amendment 72 was included in the rule that prescribed floor action.

⁸ The bills included H.R. 364, H.R. 2304, H.R. 2313, H.R. 2337, H.R. 2389, H.R. 2420, H.R. 2635, H.R. 2701, H.R. 2773, H.R. 2774, H.R. 2776, H.R. 2847, and a draft bill (unnumbered) from the Committee on Energy and Commerce. More details about the bills are available in the Legislation section of this report.

⁹ Under an RPS, retail electricity suppliers (electric utilities) must provide a minimum amount of electricity from renewable energy resources or purchase tradable credits that represent an equivalent amount of renewable energy production. The minimum requirement is often set as a percentage share of a supplier’s total retail electricity sales.

Title I—Green Jobs

This title assumes the provisions of H.R. 2947. It would authorize up to \$125 million in funding to establish national and state job training programs, administered by the U.S. Department of Labor, to help address job shortages that are impairing growth in green industries, such as energy efficient buildings and construction, renewable electric power, energy efficient vehicles, and biofuels development.

Title II—The International Climate Cooperation Re-engagement Act of 2007

This title assumes the provisions of H.R. 2420. It would declare U.S. policy on international climate cooperation, authorize assistance to promote clean and efficient energy technologies in foreign countries, and establish the International Clean Energy Foundation.

Subtitle A—U.S. Policy on Global Climate Change

This subtitle would state that it is the policy of the United States to take a more active role in international climate change negotiations including future fifteenth meeting of the Conference of Parties (COP-15) to the United Nations Framework Convention on Climate Change. Also, the United States would declare its intent to seek mitigation commitments from all major greenhouse gas (GHG) emitting nations, including China, India, Brazil, and other major developing nations. An Office on Global Climate Change would be established at the Department of State. The Secretary of State would be required to report to Congress on progress made in promoting transparency in extractive industries resource payments.

Subtitle B—Assistance for Clean and Efficient Energy Technologies

The U.S. Agency for International Development (USAID) would be directed to report to Congress on efforts to support policies for clean and efficient energy technologies. The Department of Commerce would be directed to increase efforts to export such technologies and report to Congress on the results. Other U.S. agencies with export promotion responsibilities would be required to increase efforts to support these technologies. Also, increased efforts are requested from the Interagency Working Group on the Clean Energy Technology Exports Initiative, particularly to implement its 2002 strategic plan. The Secretary of State would be required to report to Congress on the impact of global climate change on developing countries.

Subtitle C—International Clean Energy Foundation

The Foundation would be established with the long-term goal of reducing GHG emissions. It would be directed to use the funds authorized by this subtitle to make grants to promote projects outside of the United States that serve as models of how to reduce emissions. An annual report to Congress would be required.

Title III— Small Energy-Efficient Businesses

This title assumes the provisions of H.R. 2389. Loans, grants, and debentures that would be established to help small businesses develop, invest in, and purchase energy efficient buildings, fixtures, equipment, and technology. On May 23, 2007, the House Committee on Small Business ordered reported H.R. 2389 by voice vote.

Title IV— Science and Technology

This title has eight subtitles, most of which correspond to a bill ordered reported by the House Committee on Science and Technology.

Subtitle A— Advanced Research Projects Agency—Energy

This subtitle assumes the provisions of H.R. 364. ARPA-E would be established at the Department of Energy (DOE). The new agency's goal would be to reduce the energy imports from foreign sources by 20% over the next 10 years. On May 23, 2007, the House Science and Technology Committee ordered reported H.R. 364. On August 9, 2007, the President signed the America Competes Act (P.L. 110-69). In that law, Section 5012 (Title V) directs that an ARPA-E be established at DOE.

Subtitle B— Marine Renewable Energy

This subtitle assumes the provisions of H.R. 2313. DOE would be directed to support wave, tidal, current, and ocean thermal energy technology R&D and commercial applications to help expand energy production. Further, DOE would be instructed to award grants to institutions of higher education (or consortia thereof) to establish National Marine Renewable Energy Research, Development, and Demonstration Centers. On June 21, 2007, the House Committee on Science and Technology reported H.R. 2313.

Subtitle C— Geothermal Energy

This subtitle assumes the provisions of H.R. 2304. DOE's program for geothermal energy R&D, demonstration, and commercial application would be expanded to cover certain advanced concepts. On June 21, 2007, the Committee reported H.R. 2304.

Subtitle D— Solar Energy

Part 1 assumes the provisions of H.R. 2774. It aims to improve the cost and effectiveness of thermal energy storage technologies that could improve the operation of concentrating solar power electric generating plants. Also, it calls for improved integration of concentrating solar power into regional electricity transmission systems. On June 22, 2007, the House Committee on Science and Technology ordered reported H.R. 2774 by voice vote.

Part 2 would require DOE to create a Solar Energy Industries Research and Promotion Board and a Solar Energy Research and Promotion Operating Committee. The Board and Committee would work with manufacturers and importers of solar energy products to improve consumer awareness

of solar energy options and appropriate certifications. The solar program would be funded by a small portion of industry revenues. No appropriations are authorized.

Subtitle E—Biofuels

This subtitle assumes the provisions of H.R. 2773. It aims to improve information about federal biofuels research programs, focus research on infrastructure and biorefineries, study potential impacts of increased biofuels use, and increase authorized funding for DOE biofuels research. An authorization of \$25 million would be created to provide grants for biofuels RD&D and commercial applications in states that have low rates of ethanol production. A university-based program would provide grants up to \$2 million for R&D on renewable energy technologies. Priority would be given to universities in low income and rural communities with proximity to trees dying of disease or insect infestation.

Subtitle F—Carbon Capture and Storage

This Subtitle assumes the provisions of H.R. 1933. A program would be established at DOE for carbon capture and storage R&D and demonstration. DOE would be directed to engage the National Academy of Sciences (NAS) to conduct a review of the program. EPA would be directed to assess potential impacts of such storage on public health and safety and the environment. DOE would be directed to work with NAS to establish graduate degree programs on geological sequestration at universities. Further, a university-based grant program would be created.

Subtitle G—Global Change Research

Part 1 would direct the President to establish an interagency committee to coordinate research on global change. The committee would be responsible for developing a national global change research and assessment plan. Further, a U.S. global change research program would be established, with the Office of Science and Technology Policy (OSTP) serving as the lead agency. A report to Congress would be required to accompany each annual budget request.

Part 2 would establish an interagency working group charged with recommending ways to coordinate federal data management and archiving activities for climate data and other global change data.

Subtitle H—H-Prize

DOE would be directed to conduct a competitive program to award cash prizes to advance R&D, demonstration, and commercial application of hydrogen energy technologies. The provisions of this Subtitle are identical to those of H.R. 632, which passed the House on June 6, 2007.

Title V—Agriculture Energy

This title assumes the provisions of H.R. 2419. Agricultural-based energy programs established by the Farm Security Act of 2002 would be expanded and continued through FY2012. A total of about \$3.2 billion in new funding is proposed including \$1.4 billion for biofuels production incentives, \$800 million to underwrite up to \$2 billion in loan guarantees for biorefineries, \$420 million for research on biomass feedstocks and production, and new mandatory funding for a

cellulosic biomass feedstock reserve. Most new funding would be directed away from corn-based ethanol and toward cellulosic-based biofuels and other new technologies. USDA would be directed improve feedstock flexibility for bioenergy producers by purchasing eligible commodities and selling them to bioenergy producers in a way that ensures no cost to the federal government and avoids forfeitures to the Commodity Credit Corporation. Except for sections 5011 and 5012, all other provisions of Title V are included in H.R. 2419, the *Farm, Nutrition, and Bioenergy Act of 2007*, which passed the House on July 27, 2007. (For more background, see CRS Report RL34130, *Renewable Energy Policy in the 2008 Farm Bill*.)

Title VI—Carbon-Neutral Government Act

This title assumes the provisions of H.R. 2635. It would set a goal to make the federal government carbon-neutral by 2050. Several energy and fuel efficiency policies would be undertaken to meet this goal, including standards for federal fleet emissions, green buildings, and agency purchases of renewable energy.

Subtitle A—Federal Government Inventory and Management of Greenhouse Gas (GHG) Emissions

Each federal agency would be required to inventory and report on its GHG emissions annually. EPA would be required to review the each agency’s inventory to see that it complied with guidance for data collection. EPA would be directed to set a collective annual emission reduction target for each year in the period from 2010 through 2050. The goal would be to achieve zero net annual emissions (carbon-neutrality) by 2050. The Government Accountability Office (GAO) would be required to issue a report on markets for GHG offsets. Federal agencies would be allowed to purchase offsets and renewable energy certificates in open market transactions. This subtitle would not preempt or limit any state actions to reduce emissions.

Subtitle B—Federal Government Energy Efficiency

Federal agencies would be required to purchase “low GHG” vehicles and to procure energy-efficient (Energy Star) products or products designated by the federal energy management program (FEMP-designated). DOE would be directed to establish, by rule, revised federal building energy efficiency performance standards for new federal buildings and major federal building renovations. Relative to a comparable building’s fuel use in 2003, buildings covered by the rule would be directed to reduce the share of fossil fuel use by 55% in 2010, reducing steadily to 100% (zero emissions) by 2030. Each federal agency would be required to ensure that a large capital investment in an existing building that is not a major renovation employs the most energy efficient designs, systems, equipment, and controls that are life-cycle cost effective. Federal agencies would be directed to avoid leasing buildings that are not Energy Star rated. Alternative fuels could not be procured if they have GHG emissions greater than those produced by conventional petroleum. Federal contracts for renewable energy could not exceed 30 years and could not include energy generated from municipal solid waste. The Office of Management and Budget (OMB) would be required to report annually on progress under Title VI.

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Subtitle C—Telework Enhancement

Federal executive branch agencies would be directed to develop and implement a telework (work from home or close to home) policy for eligible employees. It would exclude those employees who handle secure materials or special equipment, are assigned to national security functions, or voluntarily decline the telework option.

Title VII—Natural Resources Committee Provisions

This title assumes the provisions of H.R. 2337. It includes provisions that would regulate wind impacts on wildlife, require a study of transmission capacity to help foster ocean wave, tidal, and current energy projects, create grants for studies of alternative energy development on the outer continental shelf, and establish pilot programs to use federal lands to harvest woody biomass and install concentrating solar power facilities.

Subtitle A—Energy Policy Act of 2005 Reforms

Subtitle A would repeal subsections 365(g) and 365(i) of EAct 2005 regarding recovery of permit processing costs. It would require the Secretary of the Interior to impose fees on the oil and gas industry to recover costs associated with the streamlining of permits during the pilot project established by EAct to improve federal permit coordination. A new 45-day deadline would be imposed for the consideration of applications for permits under section 366 of EAct 2005. Section 369 of EAct would be amended by removing two deadlines related to oil shale research and development and the preparation of a final environmental impact statement for commercial oil shale and tar sands leasing on public lands. H.R. 3221 would limit section 390 of EAct, which allows for a rebuttable presumption regarding the application of categorical exclusion under the National Environmental Policy Act (NEPA) for oil and gas exploration and development activities, and adhere to the regulations issued by the Council on Environmental Quality. And a Best Management Practices (BMP) provision would require BLM to allow for public comment and review before lease stipulation waivers are granted.

(More details on Subtitle A can be found in CRS Report RL34111, *Energy Policy Reform and Revitalization Act of 2007, Title VII of H.R. 3221: Summary and Discussion of Oil and Gas Provisions.*)

Subtitle B—Federal Energy Public Accountability, Integrity, and Public Interest

Chapters 1 through 3 would require a minimum of 550 audits annually, and increase fines for royalty payment violations under the Federal Oil and Gas Royalty Management Act of 1982 (FOGRMA). Surface owner protection would be enhanced under split estates where the federal government owned and leased minerals. Onshore oil and gas reclamation and bonding requirements would become more stringent. Additional requirements for the protection of water resources are included and new fees would be assessed to lessees of federal lands as a disincentive to hold and not develop those lands. (More details on Chapters 1 through 3 of Subtitle B can be found in CRS Report RL34111, *Energy Policy Reform and Revitalization Act of 2007, Title VII of H.R. 3221: Summary and Discussion of Oil and Gas Provisions.*)

Chapter 4 on *Wind Energy* would require the Department of the Interior to form a wind turbines guidelines advisory committee to study and recommend guidance for wind energy developers to mitigate the impact of turbines on birds and wildlife. State laws and regulations would not be preempted.

Chapter 5 on *Enhancing Energy Transmission* would direct DOE to study transmission capacity in California, Oregon, and Washington to determine whether it could support new electricity generation from ocean wave, tidal, and current energy projects that could contribute up to 10% of total electricity use in those states.

Subtitle C—Alternative Energy and Efficiency

A grant program would be created for studies of alternative energy development on the outer continental shelf. The Department of the Interior would be directed to assess and report to Congress on the potential for using leasing of federal lands and other means to help develop rights-of-way and infrastructure along Bureau of Reclamation canals to support solar and wind energy production. A program would be established to research methods for improving the energy efficiency of reverse osmosis technology that is used for water desalination, water recycling, and clean up of water contamination. A pilot program would be created to develop a strategic solar reserve, and would identify and assess potential sites on federal lands for concentrating solar power systems. The National Oceanic and Atmospheric Administration would be directed to issue regulations necessary to implement its authority to license offshore thermal energy conversion facilities. A program would be established to use biomass from federal forest lands.

Subtitle D—Carbon Capture and Climate Change Mitigation

Chapter 1 would direct the Department of the Interior to develop a methodology for an assessment of the national potential for geological storage of carbon dioxide. Chapter 2 would direct the U.S. Geological Survey to estimate the potential for increasing carbon sequestration in natural systems through management measures or restoration activities in each ecosystem. A report to Congress would be required. Chapter 3 would direct the Bureau of Land Management to maintain records on, and an inventory of, the amount of carbon dioxide stored in geological structures on federal lands. A report to Congress would be required that estimates the potential capacity for such storage on federal lands.

Chapter 4 would direct the Department of the Interior to establish an interagency National Resources Management Council on Climate Change to address the impacts of climate change on Federal lands, the ocean environment, and the federal water infrastructure. The Council would prepare a national plan that would be presented to Congress. Also, a national policy would be established that directs the federal government to cooperate with state, tribal, and affected local governments, other concerned public and private organizations, landowners, and citizens to use all practicable means and measures to assist wildlife populations and their habitats in adapting to and surviving the effects of global warming. A national strategy would be developed, an advisory board would be formed, and a state and tribal grants program would be established.

Chapter 5 would direct the Department of Commerce to develop a national strategy to support coastal state and federal agency efforts to predict, plan for, and mitigate the impacts on ocean and coastal ecosystems from global warming, relative sea level rise, and ocean acidification. Further, it would be directed to develop a coastal climate change resiliency planning and response

program to prepare for and reduce the negative consequences that may result from climate change in the coastal zone, and provide financial and technical assistance and training. Also, a National Integrated Coastal and Ocean Observation System would be established to improve the Nation's capability to measure, track, explain, and predict events related directly and indirectly to weather and climate change.

Subtitle E—Royalties Under Offshore Oil and Gas Leases

This Subtitle would require that the Secretary of the Interior accept a lessee's request to modify certain leases established in 1998 and 1999 without price thresholds ("covered leases") to include price thresholds. Lessees holding "covered leases" would not be eligible for new oil and gas leases in the Gulf of Mexico unless the covered leases are modified to include price thresholds or the lessee would agree to pay a newly established "conservation of resources fee." The Subtitle would repeal royalty relief provisions established by sections 344 and 345 of the Energy Policy Act of 2005 (P.L. 109-58). It would also "reaffirm" the Secretary's authority to impose a price threshold in certain leases. This Subtitle is nearly identical to Title II of the House-passed version of H.R. 6.

(More details on Subtitle E can be found in CRS Report RS22567, *Royalty Relief for U.S. Deepwater Oil and Gas Leases*.)

Subtitle F—Additional Provisions

Subtitle F would establish an Oil Shale Community Impact Assistance Fund. Also, for certain existing federal leases, it would prohibit surface occupancy for oil and gas drilling on Colorado's Roan Plateau, which is federal land formerly designated as Naval Oil Shale Reserves. (More details on oil and natural gas provisions in Subtitle F can be found in CRS Report RL34111, *Energy Policy Reform and Revitalization Act of 2007, Title VII of H.R. 3221: Summary and Discussion of Oil and Gas Provisions*.)

Also, the Minerals Management Service would be directed to report to Congress on the status of regulations required by the Outer Continental Shelf Lands Act with respect to wind energy production on the outer continental shelf.

Title VIII—Transportation and Infrastructure

This title assumes the provisions of H.R. 2701. It would promote energy efficient transportation and public buildings and create incentives for the use of alternative fuel vehicles and renewable energy. On June 20, 2007, the House Committee on Transportation and Infrastructure ordered reported H.R. 2701 by voice vote.

Subtitle A—Department of Transportation (DOT)

A Center for Climate Change and Environment would be established to plan, coordinate, and implement strategies to reduce transportation-related energy use, mitigate the effects of climate change, and address the impacts of climate change on transportation systems and infrastructure.

Subtitle B—Highways and Transit

Part 1 provides support for public transportation systems. Federal grants up to 100% of costs would be made available to improve public transportation services that involve fare reductions. For projects that involve acquiring clean fuel or alternative fuel vehicle-related equipment or facilities for the purposes of complying with the Clean Air Act, federal grants would be made available that cover up to 100% of net costs. The Surface Transportation Board's mediation capacity would be expanded to assist public transportation agencies seeking track rights of way with rail carriers. DOT would be directed to create a pilot program to conduct vanpool demonstration projects in three urbanized areas and two non-urbanized areas to increase vanpool use and the number of vanpools in service.

Part 2 provides support for federal-aid highways. The federal share for congestion mitigation and air quality (CMAQ) projects would be increased up to 100% of project or program cost. A sense of Congress would be established that in constructing new roadways or rehabilitating existing facilities, state and local governments should employ policies designed to accommodate all users, including motorists, pedestrians, cyclists, transit riders, and people of all ages and abilities.

Subtitle C—Railroad and Pipeline Transportation

Part 1 would direct DOT, in coordination with EPA, to establish and conduct a pilot grant program to assist railroad carriers in purchasing hybrid locomotives, including hybrid switch locomotives, in order to demonstrate the extent to which such locomotives increase fuel economy, reduce emissions, and lower costs of operation. Also, DOT would be directed to create a program of capital grants for the rehabilitation, preservation, or improvement of railroad track (including roadbed, bridges, and related track structures) of class II and class III railroads.

Part 2 would direct DOT to conduct feasibility studies for the construction of pipelines dedicated to ethanol transportation. A report to Congress would be required.

Subtitle D—Maritime Transportation

Part 1 would direct DOT to establish a short sea transportation program and designate short sea transportation projects to be conducted under the program to mitigate landside congestion. Short sea shipping activities would be made eligible for support from DOT's capital construction fund. A report to Congress on the short sea transportation program would be required. Part 2 would strengthen certain provisions that aim to prevent pollution from ships.

Subtitle E—Aviation

DOT, in coordination with EPA, would be directed to establish a pilot demonstration grant program to reduce noise, airport emissions, greenhouse gas emissions, or water quality impacts. Each project grant would be limited to a maximum of \$2.5 million.

Subtitle F—Public Buildings

Under Part 1, for each prospective project to construct, alter, acquire, or lease a building, the General Services Administration (GSA) would be directed to prepare estimates of the future

energy performance of the building and a description of the use of energy efficient and renewable energy systems, including photovoltaic systems, in carrying out the project. The period for calculating life-cycle cost effectiveness in federal buildings would be extended from 25 years to 40 years. GSA would be directed to use up to \$30 million authorized from unobligated balances of the Federal Buildings Fund to support the installation of a solar photovoltaic system for the DOE headquarters building in Washington, DC.

Part 2 would prohibit, except under certain circumstances, the purchase of incandescent light bulbs for use in Coast Guard office buildings.

Part 3 would allow the Architect of the Capitol (AOC) to perform a feasibility study regarding construction of a photovoltaic roof for the Rayburn House Office Building. The AOC may construct a fuel tank and pumping system for E—85 fuel at or within close proximity to the Capitol Grounds Fuel Station. To the maximum extent practicable, the AOC would be required to include energy efficiency measures, climate change mitigation measures, and other appropriate environmental measures in the Capitol Complex Master Plan. For the purpose of reducing carbon dioxide emissions, the Architect of the Capitol would be directed to install technologies for the capture and storage or use of carbon dioxide emitted from coal combustion in the Capitol Power Plant. AOC would be directed to operate the steam boilers and chiller plant at the Capitol Power Plant in the most energy efficient manner possible to minimize carbon emissions and operating costs.

Subtitle G—Water Resources and Emergency Management Preparedness

Part 1 would declare a federal policy that all federal water resources projects reflect national priorities for flood damage reduction, navigation, ecosystem restoration, and hazard mitigation and consider the future impacts of increased hurricanes, droughts, and other climate change-related weather events. A 21st Century Water Commission would be established to project future water supply and demand, impacts of climate change to the nation's flood risk and water availability; and associated impacts of climate change on water quality. EPA would be directed to arrange with NAS for a study that will identify the potential impacts of climate change on the nation's watersheds and water resources, including hydrological and ecological impacts, including the potential impacts of climate change on water quality. The Secretary of the Army would be directed to ensure that water resources projects and studies carried out by the Corps of Engineers take into account the potential short and long term effects of climate change.

Part 2 would direct the Federal Emergency Management Agency (FEMA) to conduct a comprehensive study of the increase in demand for FEMA's emergency preparedness, response, recovery, and mitigation programs and services that may be reasonably anticipated as a result of an increased number and intensity of natural disasters affected by climate change, including hurricanes, floods, tornadoes, fires, droughts, and severe storms.

Title IX—Energy and Commerce

This title assumes the provisions of a draft bill adopted by the House Committee on Energy and Commerce on June 28, 2007.

Subtitle A – Promoting Energy Efficiency

This subtitle has nine parts.

Part 1 on appliance efficiency would set new efficiency standards for residential clothes washers, dishwashers, dehumidifiers, refrigerators, refrigerator-freezers, freezers, electric motors, and residential boilers. DOE would be allowed to establish regional variations in standards for heating and air conditioning equipment. DOE would be required to complete a rulemaking process for furnace fans by 2013. Federal agencies would be directed to purchase devices that limit standby power use. DOE would be directed to issue a final rule that sets energy conservation standards for battery chargers. Certain energy efficiency measures for walk-in coolers and walk-in freezers would be set by legislation. Also, several procedural changes would be made to expedite the DOE rulemaking process.

Part 2 would set a mandatory target for lighting efficiency, set a standard for incandescent reflector lamps, and require federal agencies to replace incandescent lights with more efficient ones. Energy efficiency standards would be set by legislation for metal halide lamp fixtures designed to be operated with lamps rated between 150 watts and 500 watts.

Part 3 on residential buildings would encourage stronger state building codes, require improved codes for manufactured housing, and reauthorize the DOE Weatherization program. DOE would be directed to conduct a study of the renewable energy system rebate program described in §206(c) of the Energy Policy Act of 2005. The study would determine the minimum funding the program would need to be viable and require a proposed implementation plan.

Part 4 on commercial and federal buildings would create an Office of High Performance Green Buildings at DOE. The office would be required to use life-cycle costing and allow agencies to retain cost savings. Federal procurement of green building materials would be increased. Federal agencies would be required to identify energy- and water-saving measures. Demonstration projects would be required at federal facilities and universities. A national goal would be set to achieve zero-net-energy use for new buildings constructed after 2025. Public outreach would be established, including green building technical assistance and information. An EPA program would be established to improve energy efficiency in data centers. Certain green building renovation projects would be eligible for loan guarantees under §1703 of EPACK. GSA would be directed to use available appropriations to support a program to accelerate the use of geothermal (ground source) heat pump equipment in federal facilities. In each purchase of meeting and conference services, federal agencies would be required to consider the environmentally preferable (green) features and practices of a vendor in a manner similar to that already implemented by EPA. A grant program would be established to provide up to \$1 million in support of energy efficiency projects at universities.

Part 5 on industrial energy efficiency would direct EPA to identify the potential for economically feasible waste energy recovery, create a grant program to support waste energy recovery, and strengthen “clean energy centers” that analyze waste energy recovery.

Part 6 on energy efficiency of public institutions would promote combined heat and power systems in public institutions through federal revolving fund loans. EPA would be directed to conduct a study of how sustainable building features, such as energy efficiency, affect perceived indoor environmental quality for students in K-12 schools.

Part 7 on energy savings performance contracting (ESPC) would allow use of appropriated funds for ESPCs, eliminate the ESPC program sunset, require training for federal agency contract officers, direct that energy savings be measured, and create a DOE advisory committee to assist with deployment strategies.

Part 8 would create an advisory committee on energy efficiency financing.

Part 9 would establish an energy efficiency block grant program.

Subtitle B—Smart Grid Facilitation

This subtitle would create an electric grid modernization commission to study and propose policies on “Smart Grid” technology implementation. A federal 25% matching grant program would be created to support implementation. DOE would be directed to help deploy technologies and perform cooperative demonstration projects with electric utilities. States would be required to consider regulatory standards that would allow utilities to recover smart grid investments through rates and “decouple” utility profits from electricity sales volume.

Subtitle C—Loan Guarantees

This subtitle would amend EPACT Section 1702(c) on loan guarantees to clarify that DOE should approve project amounts likely to attract other investment, may not establish a loan guarantee limit below 80% of total project cost, and should require assurances that construction workers will be paid prevailing wage rates. Also, categories of projects deemed eligible in EPACT Section 1703 could not be excluded by language in appropriations bills.

Subtitle D—Renewable Fuel Infrastructure and International Cooperation

Part 1 of this subtitle would direct DOE to create a grant program to help establish or convert infrastructure to use renewable fuels, including E85 (85% ethanol). The EPACT authorization for grants to support cellulosic ethanol production would be increased. A grant program would be created to support production of flexible-fueled vehicles. Studies would also be required on the market penetration of flexible-fueled vehicles, the feasibility of constructing dedicated ethanol pipelines, the feasibility of using greater percentages of ethanol in fuel blends, and the adequacy of railroad transportation for delivery of ethanol fuel. Part 2 of this subtitle would establish a grant program and advisory board for U.S.-Israel energy cooperation. The provisions of this Subtitle are identical to those of H.R. 3238.

Subtitle E—Advanced Plug-In Hybrid Vehicles and Components

This subtitle would establish a loan guarantee program for advanced battery development, grant programs for plug-in hybrid vehicles, incentives for purchasing heavy duty hybrids for fleets, and credits for various electric vehicles.

Subtitle F—Availability of Critical Energy Information

This Subtitle would improve data collection needed by the DOE’s Energy Information Administration to support efficient energy markets.

Subtitle G—Natural Gas Utilities

Each natural gas utility would be required to make energy efficiency a priority resource and integrate energy efficiency into its plans and planning processes. Further, state regulators would be directed to consider crafting rate policies that align utility revenue recovery measures with incentives for energy efficiency measures. This Subtitle was added by floor amendment (H.Amdt. 755), which was approved by voice vote.

Subtitle H—Federal Renewable Portfolio Standard (RPS)

This Subtitle would modify Title VI of the Public Utility Regulatory Policies Act of 1978 to establish an RPS for retail electric utilities that would be administered by DOE. For each retail supplier that sells more than one billion kilowatt-hours (kwh) per year, the RPS would set a minimum electricity production requirement from renewable resources. The standard would start at 2.75% in 2010 and then rise annually until reaching a peak of 15% in 2020. Electricity savings from energy efficiency measures would be allowed to compose a maximum of 25% of the standard in any given year, rising to a peak of 4% of the 15% total in 2020. Many provisions in this Subtitle are similar to those of H.R. 969. This Subtitle was added by floor amendment (H.Amdt. 748), which was approved by a vote of 220 to 190.

(More details on Subtitle H can be found in CRS Report RL34116, *Renewable Energy Portfolio Standard (RPS): Background and Debate Over a National Requirement.*)

Subtitle I—Large and Small Scale Hydropower

Congress expresses its recognition and support for renewable energy. In particular, this recognition and support is conferred on clean, consistent, pollution-free large and small scale conventional hydropower energy. This Subtitle was added by floor amendment (H.Amdt. 755), which was approved by vote of 402 to 9.

H.R. 3221, Division B: “Renewable Energy and Energy Conservation Act of 2007” (formerly H.R. 2776)

Title XI—Production Incentives

This Title would extend the renewable electricity production tax credit (PTC) for four years, expand the PTC to include ocean thermal and hydrokinetic (wave, tide, and current) energy, extend the 30% business energy tax credit for solar and fuel cell equipment for eight years, authorize \$2 billion of clean renewable energy bonds, and remove the cap on the tax credit for residential solar and fuel cell equipment. (For more discussion of these tax provisions see CRS Report RL33578, *Energy Tax Policy: History and Current Issues.*)

Title XII—Conservation

Subtitle A—Transportation

Transportation fuel incentives would set a \$4,000 credit for plug-in hybrid vehicles, establish a 50 cent per gallon production tax credit for cellulosic ethanol fuel, extend the biodiesel production tax credit for two years, increase the alternative refueling stations tax credit, create a fringe benefit for bicycle commuters, and modify depreciation and expensing rules to close a loophole for gas guzzlers by making the incentives available for fuel efficient vehicles. (For more discussion of these tax provisions see CRS Report RL33578, *Energy Tax Policy: History and Current Issues*, by Salvatore Lazzari.)

Subtitle B—Other Conservation Provisions

Other energy efficiency provisions include a tax credit bond for community programs to reduce greenhouse gases, a tax credit bond for states to provide loans and grants for home improvements and residential equipment, an extension of the tax deduction for commercial buildings, an extension and modification of the appliance credit, and the establishment of a five-year depreciation period for smart electric meters. Also, the bill would clarify that the \$1 per gallon production credit for renewable diesel would be available only for fuel produced from biomass. A study of biofuels' future production potential and possible domestic impacts would be required. (For more discussion of these tax provisions see CRS Report RL33578, *Energy Tax Policy: History and Current Issues*.)

Title XIII—Revenue Provisions

Subtitle A—Denial of Oil and Gas Tax Benefits

(For discussion of these tax provisions see CRS Report RL33578, *Energy Tax Policy: History and Current Issues*.)

Subtitle B—Clarification of Eligibility for Certain Fuel Credits

(For discussion of these tax provisions see CRS Report RL33578, *Energy Tax Policy: History and Current Issues*.)

Title XIV—Other Provisions

Subtitle A—Studies

(For discussion of these tax provisions see CRS Report RL33578, *Energy Tax Policy: History and Current Issues*.)

Subtitle B—Application of Certain Labor Standards on Projects Financed Under Tax Credit Bonds

(For discussion of these tax provisions see CRS Report RL33578, *Energy Tax Policy: History and Current Issues*.)

<http://wikileaks.org/wiki/CRS-RL34135>

Appendix B. Senate-Passed Version of H.R. 6: “Renewable Fuels, Consumer Protection, and Energy Efficiency Act”

The proposed *Renewable Fuels, Consumer Protection, and Energy Efficiency Act of 2007* (H.R. 6) is an omnibus energy policy bill that consists mainly of provisions for energy efficiency and renewable energy. The House version of H.R. 6 was amended on the Senate floor. S.Amdt. 1502, an amendment in the nature of a substitute, replaced the House version with the text of S. 1419.¹⁰ Several second degree amendments to S.Amdt. 1502 were adopted. The Senate approved the amended bill by a vote of 65-27 on June 21, 2007.

Key Provisions Adopted and Rejected

A description of some key provisions and amendments follow:

Renewable Fuel Standard (RFS). Section 111 would increase RFS to 8.5 billion gallons per year by 2008, rising to 36 billion gallons by 2022.

Corporate Average Fuel Economy (CAFE) Standards. The CAFE standard in Section 502 was modified by S.Amdt. 1792. The adopted provision proposes increases to the combined average fuel economy standard for cars and light trucks that would reach 35 miles per gallon (mpg) by 2020. This would be an increase of about 10 mpg over current standards. The amendment (as modified by S.Amdt. 1843) was adopted by voice vote.

Oil Savings Provision. S.Amdt. 1505 established this provision as Section 251. The provision calls for development of a plan to cut U.S. oil use by 2.5 million barrels per day (mbd) by 2016, rising to 10 mbd by 2031, about 35% of projected demand for that year. The amendment was adopted by a vote of 63-30.

Renewable Portfolio Standard (RPS).¹¹ S.Amdt. 1537 would have added a new title to create an RPS that would reach 15% by 2020. Certain energy efficiency measures would have also been allowed to help fulfill the RPS. The amendment was never considered for a vote and, after a successful cloture vote on S.Amdt. 1502, the RPS amendment was ruled non-germane. Also, S.Amdt. 1538 would have amended S.Amdt. 1537 to create a 20% “clean portfolio standard” that included renewables, efficiency, coal, and nuclear energy. The amendment was tabled by a vote of 56-39.

Tax Provisions. S.Amdt. 1704 would have added a new tax title that included some of the provisions for renewables and energy efficiency in S. 1531. The proposed amendment included a

¹⁰ S.Amdt. 1502 was based primarily on S. 1419, which, in turn, was composed of four bills. These four bills, and the corresponding titles of S. 1419, are: *Energy Savings Act* (S. 1321), Titles I, II, and III; *Public Buildings Cost Reduction Act* (S. 992), Title IV; *Ten-in-Ten Fuel Economy Act* (S. 357), Titles V and VI; and the *Energy Diplomacy and Security Act* (S. 193), Title VII.

¹¹ Under an RPS, retail electricity suppliers (electric utilities) must provide a minimum amount of electricity from renewable energy resources or purchase tradable credits that represent an equivalent amount of renewable energy production. The minimum requirement is often set as a percentage share of a supplier’s total retail electricity sales.

five-year extension of the renewable electricity production tax credit. It also included many provisions for biofuels and some provisions for oil, coal, and vehicles. The amendment failed to achieve cloture by a vote of 57-36, and was subsequently ruled non-germane. A brief summary of each of these eight titles in the Senate-passed version of H.R. 6 follows.

Title I—Biofuels for Energy Security and Transportation

Title I would increase the renewable fuel standard, set some standards for greenhouse gas emissions reductions, and provide support for fuel infrastructure, feedstocks, and biorefineries.

Subtitle A—Renewable Fuel Standard

Subtitle A would extend and increase the renewable fuel standard (RFS), which establishes minimum annual levels of renewable fuel in gasoline. The modified standard would start at 8.5 billion gallons in 2008 and rise to 36 billion gallons in 2022. Starting in 2016, an increasing portion of the requirement would have to be met with advanced biofuels, including cellulosic ethanol, biobutanol, and other fuels derived from unconventional biomass feedstocks. Renewable fuels produced from new biorefineries would be required to achieve at least a 20% reduction in life cycle greenhouse gas emissions relative to life cycle emissions from gasoline (§ 111[a][1][i][II]). A voluntary labeling program would be established for renewable fuels, based on life cycle greenhouse gas emissions (§ 111[i]). Fuel produced from biorefineries that displaces more than 90% of the fossil fuels used in a biofuel production facility would qualify for additional credits under the RFS (§ 112).

Subtitle B—Renewable Fuels Infrastructure

Subtitle B would provide grants for renewable fueling infrastructure (§ 121), increase the Department of Energy (DOE) bioenergy R&D funding authorization (§ 122), establish 11 bioenergy research centers (§ 123), provide loan guarantees for renewable fuel facilities (§ 124), provide research grants for states with low rates of ethanol production (§ 125), provide grants for infrastructure for transportation of biomass to local refineries (§ 126), establish a biorefinery information center (§ 127), create an alternative fuels database (§ 128), set a labeling requirement for alternative fuels (§ 129), and set a national biodiesel fuel quality standard (§ 130).

Subtitle C—Studies

Subtitle C would require that several studies be conducted, covering specialized topics on biofuels, ethanol, electric vehicles, and biodiesel.

Subtitle D—Environmental Safeguards

DOE would be directed to create a grant program to encourage production of advanced biofuels (§161). Grant awards would be made to projects that would have the greatest reduction in lifecycle greenhouse gas (GHG) emissions. The projects must also reduce GHG emissions by at least 50%. Studies, and subsequent reports to Congress, would be required on environmental impacts of increased use of renewable fuels attributable to the provisions of this bill (§162). Specific aspects would include air and water quality, land use patterns, deforestation rates, GHG emissions, and the long-term capacity to produce biomass feedstocks. Also, EPA would be

directed to study whether the volumes of renewable fuel required under Subtitle A would adversely impact air quality.

Title II—Energy Efficiency Promotion

Title II would set some new standards for energy efficient equipment, establish goals for fuel savings, strengthen federal energy efficiency requirements, and authorize several new programs for vehicles and grants.

Subtitle A—Promoting Advanced Lighting Technologies

Subtitle A would promote advanced lighting technology by requiring all federal lighting to be Energy Star rated by 2010 (§ 211), expanding efficiency standards for incandescent reflector lamps (§ 212), creating the “Bright Tomorrow” lighting prizes for solid state (LED) lighting developments (§ 213), and establishing a “Sense of the Senate” to pass mandatory energy efficiency performance targets for lighting products (§ 214). Also, the Committee markup added a notable provision that did not appear in S. 1115. That provision would authorize grants to support construction of solar, wind, geothermal, ocean, biomass, landfill gas, and Alaska small hydropower projects (§ 215).

Subtitle B—Expediting New Energy Efficiency Standards

Subtitle B would establish, by statute, new energy efficiency standards for residential boilers (§ 227), electric motors (§ 229), and some home appliances (§ 230).¹² DOE would be directed to set standards by rulemaking for furnace fans (§ 223). Also, DOE would be allowed to set standards for multiple components (§ 221) and regional standards for heating and cooling equipment (§ 222). Further, this subtitle would authorize R&D on improved efficiency for appliances and buildings in cold climates (§ 231) and provide incentives for the manufacture of high-efficiency consumer products (§ 232). Other provisions would guide expedited rulemakings (§ 224), clarify limits to federal preemption of state standards (§ 225), and require Energy Guide labels for several types of consumer electronic products (§ 226). Also, the Committee markup added a provision that would direct DOE to establish a program that supports, develops, and promotes the use of new technologies to improve energy efficiency in materials manufacturing and energy-intensive industries (§ 233).

Subtitle C—Promoting High Efficiency Vehicles, Advanced Batteries, and Energy Storage

Subtitle C would promote high-efficiency vehicles, advanced batteries, and energy storage. DOE would be authorized to fund an R&D program on light-weight materials (§ 241). A loan guarantees program would be created for facilities that manufacture fuel-efficient vehicles (§ 242). Funding awards for qualified investments would be authorized to refurbish manufacturing facilities that produce advanced technology vehicles (§ 243). A 10-year R&D program would be authorized to support U.S. competitiveness in global energy storage markets, and a five-year R&D program would be authorized for electric drive technologies (§ 244). Also, the Committee

¹² Identical provisions for boilers, motors, and home appliances appear in S. 1101 and H.R. 2083.

markup added a provision that would direct DOE to establish a competitive grant program for state, regional, and local government entities to demonstrate electric drive vehicles. DOE would also be required to establish a program to deploy technologies that would achieve near-term oil savings in the transportation sector (§ 245).

Subtitle D—Setting Energy Efficiency Goals

Subtitle D would set several energy efficiency goals that include reducing gasoline use 45% by 2030 (§ 251) and improving energy productivity by 2.5% in 2012 and each year thereafter through 2030 (§ 252).¹³ Also, DOE would be authorized to conduct a four-year national media campaign to educate consumers to save energy and reduce oil use (§ 253), and federal agencies would be authorized to carry out programs for demonstration and use of advanced electricity transmission and distribution technologies (§ 254).

Subtitle E—Promoting Federal Leadership in Energy Efficiency and Renewable Energy

Subtitle E would promote federal leadership in energy efficiency and renewable energy. Federal and state fleets would be required to reduce petroleum use 30% by 2016 (§ 261). The renewable energy share of federal energy purchases would increase to 15% by 2015 (§262). The authorization for federal agencies to use Energy-Saving Performance Contracts (ESPCs) would be extended permanently (§ 263). Federal buildings would be required to reduce energy use 30% by 2015 (§ 264). DOE would be directed to identify federal sites for installing combined heat and power (§ 265). Federal buildings would be required to reduce fossil energy use by 50%, compared with similar buildings from the past that were not subject to the standard (§ 266). The Department of Housing and Urban Development (HUD) would be required to update efficiency standards for all public and assisted housing (§ 267). DOE would be authorized to conduct R&D and deployment activities that help increase the energy-efficiency of commercial buildings (§ 268).

Subtitle F—Assisting State and Local Governments in Energy Efficiency

Subtitle F would improve energy efficiency assistance to state and local governments by increasing the authorization for the DOE Weatherization program (§ 271), reauthorizing the State Energy program (§ 272), requiring state utility regulatory commissions to consider federal standards to promote energy efficiency (§ 273), authorizing the National Renewable Energy Laboratory (NREL) to provide technical assistance (§ 274), authorizing grants to local governments (§ 275), authorizing grants to universities for demonstration projects (§ 276), authorizing workforce training programs (§ 277), and authorizing funds for education programs to reduce school bus idling (§ 278).

¹³ The description of Section 252 on page 14 of the Committee’s report (S.Rept. 110-65) says that “national energy productivity” would be measured as “gross domestic product (GDP) per unit of energy input.”

Subtitle G—Marine and Hydrokinetic Renewable Energy Promotion

DOE would be directed to create an R&D program focused on technology that produces electricity from waves, tides, currents, and ocean thermal differences (§291-292). A report to Congress would be required. Also, DOE would be directed to establish national ocean energy research centers at one to six universities (§293).

Title III—Carbon Capture and Storage R&D and Demonstration

Title III would call for large-scale testing of carbon dioxide (CO₂) storage in geological formations, establish competitive funding awards, direct that a national storage capacity assessment be conducted, and require that the Department of Energy (DOE) demonstrate the use of large-scale capture technologies at industrial facilities.

Title IV—Cost-Effective and Environmentally Sustainable Public Buildings

Subtitle A—Public Buildings Cost Reduction

Subtitle A would direct the General Services Administration (GSA) to establish a program to speed the use of cost-effective energy-efficient lighting equipment and other technologies and practices (§402). Further, GSA would be required to prepare a five-year plan to replace inefficient lighting in GSA buildings using available funds. Also, an EPA matching grant program would be created to help local governments renovate buildings to improve energy efficiency (§403). For this program, \$20 million would be authorized.

Subtitle B—Photovoltaic System for DOE Headquarters

GSA would be directed to use up to \$30 million would be authorized from unobligated balances of the Federal Buildings Fund to support the installation of a solar photovoltaic system for the DOE headquarters building in Washington, D.C.

Subtitle C—High Performance Green Buildings

Part 1 would direct GSA to establish an *Office of High-Performance Green Buildings* and a Green Building Advisory Committee to support R&D and outreach to spur the federal government toward the construction of high performance green buildings. A green building information clearinghouse would be established. The Office would be directed to establish a standard for certification of green buildings. A report to Congress would be required.

Part 2 would create a program for *Healthy High-Performance Schools* that aims to involve states, local governments, and school systems building green schools. EPA, in consultation with the Department of Education, would be allowed to provide grants to state agencies to provide technical assistance and help with the development of state plans for school building design. Also, EPA would be directed to develop model voluntary guidelines for school site selection. In addition to other environmental aspects, the grants and guidelines would have a focus on energy efficiency, natural daylighting, and other energy-related features.

Part 3 on *Strengthening Federal Leadership* would direct the Office of Green Buildings to identify incentives that would encourage the use of green buildings in federal operations. Incentives could include recognition awards and agency retention of cost savings (§451). The Office of Federal Procurement Policy would be directed to revise acquisition regulations to require that acquisition, construction, and major renovations employ green design and to give preference in leasing to buildings that are energy-efficient (§452). The Comptroller General would be directed to conduct an audit of the implementation of this Subtitle and submit a report to Congress that describes the findings (§453). Strategies for addressing storm water runoff would be required for federal facility development projects (§454).

Part 4 would call for a *Demonstration Project*. The Office of Green Buildings would be directed to prepare guidelines for the implementation of a federal demonstration project that would contribute to the research goals of the Office. Funding would be authorized at \$10 million per year over five years.

Title V—Corporate Average Fuel Economy Standards

Title V, the *Ten-in-Ten Fuel Economy Act of 2007*, would require that the corporate average fuel economy standard (CAFE) for new cars and light trucks be increased to 35 miles per gallon (mpg) by 2020 and require a 4% annual increase for 10 years thereafter. Starting in 2011, a 4% annual increase would also be required for medium- and heavy-duty trucks.

Title VI—Price Gouging

Title VI would criminalize price gouging in fuel markets during an energy emergency.

Title VII—Energy Diplomacy and Security

Title VII would express the sense of Congress on several aspects of international energy cooperation, with a special emphasis on increasing the use of sustainable energy sources. The Department of State would be encouraged to establish four new types of administrative mechanisms. One type of mechanism would be strategic energy partnerships with the governments of major energy producers and consumers, and with governments of other countries. A second type would be petroleum crisis response mechanisms with the governments of China and India. A third would be a Western Hemisphere energy crisis response mechanism. A fourth would be a regionally-based ministerial Hemisphere Energy Cooperation Forum. Also, the Department of State would be encouraged to approach other governments in the Western Hemisphere to cooperate in establishing a “Hemisphere Energy Industry Group” of industry and government representatives, which would be coordinated by the U.S. government.

The President would be encouraged to introduce the topic of “the merits of establishing an international energy program application procedure” for discussion at the Governing Board of the International Energy Agency. Also, the bill would establish a “Hemisphere Energy Cooperation Forum,” that would be encouraged to implement an Energy Crisis Initiative, an Energy Sustainability Initiative, and an Energy for Development Initiative.

Title VIII—Miscellaneous

Title VIII, *Miscellaneous*, would require that DOE study and report on the laws and regulations that affect the siting of privately owned electric distribution wires on and across public rights-of-way.

Senate Amendment 1704 (Energy Tax Provisions)

A package of tax provisions (S.Amdt. 1704) was considered during Senate floor action on the proposed substitute to H.R. 6. The proposed tax package amendment included incentives for renewable energy and energy efficiency as well as oil and natural gas revenue offset provisions. The proposed revenue offsets were similar to, but more extensive than, the offsets proposed in Title XIII, Subtitle A, of H.R. 3221. However, S.Amdt. 1704 failed by a vote of 57-36 on a cloture motion to limit debate.¹⁴

Part I—Advanced Electricity Infrastructure

Part I would have extended the PTC for 5 years and expanded it to include ocean thermal and hydrokinetic (wave, tide, and current) energy. Also, it would have extended the 30% business energy tax credit for solar and fuel cell equipment for 8 years and repealed the public utility exclusion. It would have authorized \$3.6 billion of CREBs, and raised the cap on the tax credit for residential solar and fuel cell equipment. A new credit would have been created for residential wind equipment. Two incentives for electric transmission would have been established. Also, Part I would have improved depreciation for energy management devices.

Part II—Carbon Dioxide Sequestration

Part II would have created three tax incentives for carbon dioxide sequestration.

Part III—Domestic Fuel Security

Part III would have provided several tax incentives for production of cellulosic ethanol and certain other biofuels.

Part IV—Advanced Technology Vehicles

Part IV would have created a credit for plug-in hybrids, capped at \$7,500 to \$15,000, depending on vehicle weight. The credit for alternative-fueled vehicles would have been extended for 2 years. An exclusion from heavy truck tax would have been established for idling reduction units and certain truck insulation measures.

¹⁴ For more details, see CRS Report RL33578, *Energy Tax Policy: History and Current Issues*, by Salvatore Lazzari.

Part V—Conservation and Energy Efficiency

Part V would have extended the existing home efficiency retrofit credit for 2 years, the new home credit for 3 years, the commercial building credit for 5 years, and the home appliance credit would have been extended and expanded.

Part VI—Accountability Studies

Part VI would have called for a cost-benefit study of pollution reduction, a study of the effect of tax benefits for prices on consumer goods, and a study of tax-credit bonds.

Part VII—Other Provisions

Subtitle A on Energy Advancement and Investment had two subparts. Subpart A would have established certain tax measures for timber property. Subpart B would have set out certain tax measures for coal. Subtitle B on Revenue Raising Provisions included several tax modifications that aimed to reduce certain subsidies for oil and natural gas development. The resultant funds would have been used to offset the costs associated with the new tax incentives for energy efficiency and renewable energy.

Clean Renewable Energy Incentives Act (S. 1531)

The proposed *Clean Renewable Energy and Economic Development Incentives Act of 2007* (S. 1531) is an omnibus energy tax policy bill that consists mainly of provisions for renewable energy. It has two titles. Title I proposes *Tax Incentives for Energy Conservation and Exploration*. Title II proposes *Investment Tax Credits with Respect to Solar Energy Property and Manufacturing*.

On the Senate floor, S.Amdt. 1704 would have added a new tax title that included some of the provisions for renewables and energy efficiency in S. 1531. The amendment failed to achieve cloture by a vote of 57-36, and was subsequently ruled non-germane.

Title I—Tax Incentives for Energy Conservation and Exploration

Title I of S. 1531 would extend three existing tax incentives and establish six new ones.¹⁵ Section 101 would extend the renewable energy electricity production tax credit (PTC) for 10 years, to the end of 2018.¹⁶ For certain large facilities, such as geothermal and biomass power plants, credit eligibility could be extended for up to two years after the placed-in-service deadline.¹⁷ Section 102 would extend the clean renewable energy bonds (CREBs) for 10 years.¹⁸ The national total

¹⁵ The extensions are in §101, §102, and §106. The new incentives are in §103, §104, §105, §107, §108, and §109.

¹⁶ The PTC provision of the Tax Relief Act of 2006 (P.L. 109-432, §201) will expire at the end of 2008. The PTC was previously set by the Energy Policy Act (EPACT, §1301).

¹⁷ To qualify under this provision, such plants would have to fulfill two conditions. First, the plant would have to be under construction at the time that the placed-in-service deadline occurs. Second, the plant would have to be operational, producing and selling electricity, within two years after the deadline.

¹⁸ The CREBs provision of the Tax Relief Act (§202) will expire at the end of 2008. CREBs were created by EPACT (continued...)

bond limit would be \$1.2 billion per year for 2007 through 2008 and \$1.0 billion per year for 2009 through 2018. Section 103 would establish a tax credit bond for water conservation. Section 104 would create a 10% investment tax credit for geothermal exploration. For residential installations of small wind equipment, Section 105 would establish a 30% investment tax credit, with a limit of \$1,000 per kilowatt (kw). Section 106 would extend for five years the investment tax credit for the construction of new energy efficient homes.¹⁹ Section 107 would create a 20% investment tax credit for manufacturing equipment used to produce advanced batteries. Section 108 would establish renewable school energy bonds, with a national bond limit of \$50 million in 2008, \$100 million in 2009, and \$150 million in 2010. Under Section 109, bonds would be issued to finance new renewable energy facilities, including equipment that uses tidal, wave, current, and ocean thermal energy.

Title II—Investment Tax Credit with Respect to Solar Energy Property and Manufacturing

Title II of S. 1531 would permanently extend two tax incentives for solar energy equipment and establish three new incentives for solar equipment.²⁰

Subtitle A—Solar Energy Property

Section 201 would extend permanently the 30% value of the investment tax credit for business installations of solar equipment.²¹ In Section 202, the investment tax credit for solar (30%) and geothermal (10%) equipment would be made available to public utilities. Under Section 203, the 30% residential energy efficiency investment tax credit would be extended permanently.²² Further, the cap would be raised to \$3,000/kw for solar electric equipment, \$2,000 for solar heating and cooling equipment, and \$500 for fuel cells. Section 204 would make certain solar equipment eligible for a three-year accelerated depreciation period.

Subtitle B—Promotion of Solar Manufacturing in the United States

Section 211 would establish a 30% investment tax credit for facilities that manufacture solar energy equipment.

(For more discussion of the provisions in this bill see CRS Report RL33578, *Energy Tax Policy: History and Current Issues*.)

(...continued)

(§1303).

¹⁹ The new energy efficient new homes credit in the Tax Relief Act (§205) will expire at the end of 2008. The new homes credit was created by EPACT (§1332).

²⁰ The credit extensions are in §201 and §203. The new incentives are in §202, §204, and §211.

²¹ The 30% value of the business solar investment tax credit in the Tax Relief Act (§207) will revert back to 10% at the end of 2008. The 30% value of this credit was established by EPACT (§1337).

²² The residential energy efficiency credit in the Tax Relief Act (§206) will expire at the end of 2008. This credit was created by EPACT (§1335).

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