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Energy Tax Policy: Issues in the 114th Congress

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Summary

Current U.S. energy tax policy is a combination of long-standing provisions and relatively new incentives. Provisions supporting the oil and gas sector reflect desires for domestic energy production and energy security, long-standing cornerstones of U.S. energy policy. Incentives for renewable energy reflect the desire to have a diverse energy supply, also consistent with a desire for domestic energy security. Incentives for energy efficiency are designed to reduce use of energy from all energy sources. Incentives for renewable energy, energy efficiency, and alternative technology vehicles reflect environmental concerns related to the production and consumption of energy using fossil-based resources.

Many energy-related tax provisions are temporary, with a number scheduled to expire at the end of 2016. Most recently, expired energy tax incentives were extended as part of the Consolidated Appropriations Act, 2016 (P.L. 114-113). Most energy-related provisions were extended for two years, through the end of 2016. Incentives for wind and solar were given longer-term extensions, with credits scheduled to phase out over a multi-year period in the future. One issue is whether energy-related tax incentives currently scheduled to expire at the end of 2016 will be further extended.

Energy-related tax incentives reduce the amount of federal tax revenue collected. Between 2015 and 2019, it is estimated that incentives for fossil fuels will reduce revenues by $21.5 billion. For renewables, the cost of energy-related tax incentives is an estimated $46.5 billion over the same time period. The cost of tax incentives for energy efficiency is estimated to be $3.1 billion in federal revenue loss between 2015 and 2019. These estimates reflect the recent extensions enacted in P.L. 114-113. However, further extensions of energy-related tax provisions currently scheduled to expire would increase the cost of these incentives.

The Obama Administration has also proposed a number of changes to energy tax policy as part of its annual budget proposal. Similar to past budgets, the FY2017 proposal suggests repealing a number of existing tax incentives for fossil fuels, while providing new or expanded incentives for carbon sequestration, alternative and advanced technology vehicles, renewable electricity, energy efficiency, and advanced energy manufacturing. The FY2017 budget also proposes a per-barrel fee on oil.

Energy tax policy involves the use of one of the government's main fiscal instruments, taxes (both as an incentive and as a disincentive) to alter the allocation or configuration of energy resources and their use. In theory, energy taxes and subsidies, like tax policy instruments in general, are intended either to correct a problem or distortion in the energy markets or to achieve some economic (efficiency, equity, or even macroeconomic) objective. The economic rationale for government intervention in energy markets is commonly based on the government's perceived ability to correct for market failures. To correct for these market failures governments can utilize several policy options, including taxes, subsidies, and regulation, in an effort to achieve policy goals. In practice, energy tax policy in the United States is made in a political setting, determined by fiscal dictates and the views and interests of the key players in this setting, including policymakers, special interest groups, and academic scholars. As a result, enacted tax policy embodies compromises between economic and political goals, which could either mitigate or compound existing distortions.

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Introduction

Energy tax policy involves the use of one of the government's main fiscal instruments, taxes (both as an incentive and as a disincentive) to alter the allocation or configuration of energy resources and their use. In theory, energy taxes and subsidies, like tax policy instruments in general, are intended either to correct a problem or distortion in the energy markets or to achieve some economic (efficiency, equity, or macroeconomic) objective. In practice, however, energy tax policy in the United States is made in a political setting, determined by fiscal dictates and the views and interests of the key players in this setting, including policymakers, special interest groups, and academic scholars. As a result, enacted tax policy embodies compromises between economic and political goals, which could either mitigate or compound existing distortions.

U.S energy tax policy as it presently stands aims to address concerns regarding the environment as well as those surrounding energy security. Incentives promoting renewable energy production, energy efficiency and conservation, and alternative technology vehicles address both environmental and energy security concerns. Tax incentives for the domestic production of fossil fuels also promote energy security by attempting to reduce the nation's reliance on imported energy sources.

The idea of applying tax policy instruments to energy markets is not new. Until the 1970s, however, energy tax policy had been little used, except to promote domestic fossil fuel production. Recurrent energy-related problems since the 1970s—oil embargoes, oil price and supply shocks, wide petroleum price variations and price spikes, large geographical price disparities, tight energy supplies, and rising oil import dependence, as well as increased concern for the environment—have caused policymakers to look toward energy taxes and subsidies with greater frequency. The direction of U.S. energy tax policy has changed several times since the 1970s.[1]

During the 114th Congress, energy tax policy appears to be designed to encourage energy efficiency and renewable energy production while continuing to promote U.S. energy security.[2] Several expired energy tax incentives were extended through 2016 as part of the Consolidated Appropriations Act, 2016 (P.L. 114-113). Tax incentives for wind and solar were given longer-term extensions coupled with phase outs. Absent further legislative action in the 114th Congress, several energy-related tax provisions will expire at the end of 2016.

The President's FY2017 budget proposed a number of changes to energy tax policy. Specifically, the Obama Administration has proposed repealing a number of existing tax incentives for fossil fuels, while providing new or expanded incentives for carbon sequestration, alternative and advanced technology vehicles, renewable electricity, energy efficiency, and advanced energy manufacturing. Similar proposals appeared in past Obama Administration budgets. The FY2017 budget also proposes imposing a per-barrel fee on oil.

The economic rationale for interventions in energy markets helps inform the debate surrounding energy tax policy. This report begins by providing background on the economic rationale for energy market interventions, highlighting various market failures. After identifying possible market failures in the production and consumption of energy, possible interventions are discussed. The report concludes with an analysis of the current status of energy tax policy.

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[1] For more, see CRS Report R41227, *Energy Tax Policy: Historical Perspectives on and Current Status of Energy Tax Expenditures*, by Molly F. Sherlock.

[2] For an overview of non-tax energy policy issues in the 114th Congress, see CRS Report R42756, *Energy Policy: 114th Congress Issues*, by Brent D. Yacobucci.

The **Appendix** of this report provides a brief summary of energy tax legislation from the 108th through 113th Congresses that has shaped current energy tax policy.

Policy Intervention in Energy Markets

The primary goal of taxes in the U.S. economy is to raise revenues. There are times, however, when tax policy can be used to achieve other goals. These include the use of tax policy as an economic stimulus or to achieve social objectives. Tax policy can also be used to correct for market failures (for example, the under- or over-supply of a good), which without intervention result in market inefficiencies. There are a number of market failures surrounding the production and consumption of energy. Tax policy, as it relates to energy, can be used to address these market failures.

Rationale for Intervention in Energy Markets[3]

There are a variety of circumstances in which government intervention in energy markets may improve market outcomes. Generally, government intervention has the potential to improve market outcomes when there are likely to be market failures. Externalities represent one of the most important market failures in energy's production and consumption. Market failures in energy markets also arise from principal-agent problems and information failures. Concerns regarding national security are used as a rationale for intervention in energy markets as well.

Externalities

An externality is a spillover from an economic transaction to a third party, one not directly involved in the transaction itself. Externalities are often present in energy markets as both the production and consumption of energy often involve external costs (or benefits) not taken into account by those involved in the energy-related transaction. Instead, these externalities are imposed on an unaffiliated third party. The market mechanism will likely lead to an economically inefficient level of production or consumption when externalities are present.

When externalities are present, markets fail to establish energy prices equal to the full cost to society of supplying the good. The result is a system where price signals are inaccurate, such that the socially optimal level of output, or allocative efficiency, is not achieved. Economic theory suggests that a tax be imposed on activities associated with external costs, while activities associated with external benefits be subsidized—in order to equate the social and private marginal costs. These taxes or subsidies are intended to provide a more efficient allocation of resources.

Many energy production and consumption activities result in negative externalities, perhaps the most recognized being environmental damage. Air pollution results from mining activities as well as from the transportation, refining, and industrial and consumer use of oil, gas, and coal. Industrial activity can also produce effluents that contaminate water supplies and lead to other damages to the land. These environmental damages can lead to lung damage and a variety of other health problems. The use of fossil fuels, both in the production of energy (e.g., coal-fired power plants) and at the consumer level (e.g., using gasoline to power automobiles), and the

[3] A discussion of the general economic rationale for energy tax expenditures can also be found in U.S. Congress, Joint Committee on Taxation, *Present Law and Analysis of Energy-Related Tax Expenditures*, committee print, 114th Cong., June 9, 2016, JCX-46-16.

associated greenhouse gas emissions are widely claimed to have contributed to global climate change.[4]

There may also be market failures associated with external benefits stemming from the process of learning-by-doing. Learning-by-doing refers to the tendency for production costs to decline with experience. As firms become more experienced in the manufacturing and use of energy-efficient technologies their knowledge may spill over to other firms without compensation. In energy markets, early adopters of energy-efficient technologies and practices may not be fully compensated for the value of the knowledge they generate.[5]

Principal-Agent and Informational Inefficiencies

Market failures in energy use may also arise due to the principal-agent problem.[6] Generally, the principal-agent problem exists when one party, the agent, undertakes activities on the behalf of another party, the principal. When the incentives of the agent differ from those of the principal, the agent's activities are not undertaken in a way that is consistent with the principal's best interest. The result is an inefficient outcome. In energy markets, the principal-agent problem commonly arises when one party is responsible for making equipment purchasing choices while another party is responsible for paying the energy costs, which are related to the efficiency level of the purchased equipment.

For residential rental properties, the incentives for the landlords and tenants surrounding the adoption of energy-savings practices are often not aligned, demonstrating the principal-agent problem. Landlords will tend to under-invest in energy-saving technologies for rental housing when the benefits from such investments accrue to tenants (i.e., tenants are responsible for paying their own utilities) and the landlord does not believe the costs of installing energy-saving devices can be recouped via higher rents. Tenants do not have an incentive to invest in energy-savings technologies in rental units when their expected tenure in a specific property is relatively short, and they will not have enough time to reap the full benefits of the energy-conserving investments. There is also evidence that when utilities are included in the rent, tenants do not engage in energy-conserving behaviors. On the other hand, when tenants pay utilities on their own, energy-saving practices are more frequently adopted.[7] The implication is that inefficient energy use by tenants in apartments where utilities are included as part of the rent would offset energy-saving investments made by landlords; consequently, landlords under-invest in energy efficiency. In general, the under-investment in energy conservation measures in rental housing provides economic rationale for intervention.

In another example, the incentives of homebuilders and homebuyers may not be aligned. Consequently, the principal-agent problem may result in an inefficient utilization of energy-efficient products in newly constructed homes. Homebuilders may have an incentive to install relatively low-efficiency products to keep the cost of construction down, if they do not believe that the cost of installing energy-efficient products will be recovered upon sale of the property. The value of installing energy-efficient devices may not be recoverable, if builders are not able to

[4] See CRS Report RL34266, *Climate Change: Science Highlights*, by Jane A. Leggett.

[5] Kenneth Gillingham, Richard G. Newell, and Karen Palmer, *Energy Efficiency Economics and Policy*, Resources for the Future, RFF DP 09-13, Washington, DC, April 2009.

[6] The extent of principal-agent problems in residential energy use is quantified in Scott Murtishaw and Jayant Sathaye, *Quantifying the Effect of the Principal-Agent Problem on U.S. Residential Energy Use*, Lawrence Berkeley National Laboratory, August 12, 2006, http://www.escholarship.org/uc/item/6f14t11t.

[7] Arik Levinson and Scott Niemann, "Energy Use by Apartment Tenants when Landlords Pay for Utilities," *Resource and Energy Economics*, vol. 26 (2004), pp. 51-75; and Kenneth Gillingham, Matthew Harding, and David Rapson, "Split Incentives in Household Energy Consumption," *Energy Journal*, vol. 33, no. 2 (2012), pp. 37-62.

effectively communicate the value of energy-efficient devices once installed. Further, since homebuilders are not able to observe the energy use level of prospective buyers they may not be able to choose the products that best match the use patterns of the ultimate energy consumer. The result may be less energy efficiency in new homes.

There are also informational problems that may lead to underinvestment in energy-efficient technologies. For example, homeowners may not know the precise payback or rate of return of a specific energy-efficient device. This may explain the so-called "energy paradox"—the empirical observation that consumers require an abnormally high rate of return to undertake energy-efficiency investments.[8]

National Security

Preserving national security is another often-cited rationale for intervention in energy markets. However, in recent years, the proportion of petroleum consumed in the United States imported from foreign countries has declined. In 2015, about 24% of petroleum consumed in the U.S. was imported, the lowest level since 1970.[9]

There are potentially a number of external costs associated with petroleum importation, especially when imported from unstable countries and regions. First, a high level of reliance on imported oil may contribute to a weakened system of national defense or contribute to military vulnerability in the event of an oil embargo or other supply disruption. Second, there are costs to allocating more resources to national defense than necessary when relying on high levels of imported oil. Specifically, there is an opportunity cost associated with resources allocated to national defense, as such resources are not available for other domestic policy initiatives and programs. To the extent that petroleum importers fail to take these external costs into account, there is market failure.

In addition, the economic well-being and economic security of the nation depends on having stable energy sources. There are economic costs associated with unstable energy supplies. Specifically, increasing unemployment and inflation may follow oil price spikes.[10]

Potential Interventions in Energy Markets

When there are negative externalities associated with an activity, correcting the economic distortion with a tax, if done correctly, can improve economic efficiency.[11] While such taxes are theoretically desirable, historically, such taxes have been politically unpopular. Conversely, when there are positive externalities associated with an activity, a subsidy can improve economic efficiency. The tax (subsidy) should be set equal to the monetary value of the damages (benefits) to third parties imposed by the activity.[12] The tax serves to increase the price of the activity, and

[8] Gilbert E. Metcalf, "Using Tax Expenditures to Achieve Energy Policy Goals," *American Economic Review*, vol. 98, no. 2 (2008), pp. 90-94.

[9] Energy Information Administration, "How much oil consumed by the United States comes from foreign countries?" March 8, 2016, http://www.eia.gov/tools/faqs/faq.cfm?id=32&t=6.

[10] See James D. Hamilton, *Causes and Consequences of the Oil Shock of 2007-08*, National Bureau of Economic Research, Working Paper 15002, Cambridge, MA, May 2009. Hamilton evaluates the role of the oil shock of 2007-2008 in the succeeding economic recession.

[11] There are non-tax options for addressing energy market failures such as regulation and private sector solutions. These options are beyond the scope of this report.

[12] Taxes imposed to correct for negative externalities are also known as Pigovian taxes, named after the economist who developed the concept, Arthur Cecil Pigou.

reduce the equilibrium quantity of the activity, while a subsidy reduces the price, increasing the equilibrium quantity of the activity.

The production and consumption of fossil fuel energy can have negative externalities via detrimental environmental impacts. While multiple policy options to address this externality exist, economists tend to favor an emissions tax to address this externality because of such a tax's efficiency advantage.[13] In the late 2000s, proponents of greenhouse gas controls favored a cap and trade policy, as proposed in House-passed American Clean Energy and Security Act of 2009 (H.R. 2454). The policy discussion, however, has shifted to focus on a carbon tax or emissions fee approach.[14]

An alternative approach to reducing the use of fossil fuels has been to subsidize energy production from alternative energy sources. There are concerns, however, that using subsidies to stimulate demand for alternative fuels, as an alternative to fossil fuels, may not be economically efficient. First, subsidies reduce the average cost of energy, and as the average cost of energy falls, the quantity of energy demanded increases, countering energy conservation initiatives.[15] Second, while the subsidy is intended to enhance economic efficiency, subsidies may be inefficient to the extent they are funded with distortionary taxes.[16] Hence, the more economically efficient alternative may be to place a tax on the undesirable activity.

Other energy-related activities may have positive externalities. There is the potential for learning-by-doing from early adopters of energy-efficient technologies, indicating that there may be positive external effects associated with these activities. For this reason, subsidies given to early adopters may enhance economic efficiency. Further, positive externalities are associated with R&D activities that lead directly to technological innovations.[17] In addition to budgeted spending on R&D, the tax code provides incentives for firms to engage in energy R&D (for example, the energy research credit [Internal Revenue Code (IRC) §41]).[18]

When principal-agent problems lead to a market failure, economically efficient corrective measures would be those that increase the equilibrium quantity of the underprovided good. The market for energy efficient technologies is one example of this type of market failure. Currently, a taxpayer's gross income excludes any subsidy provided by a public utility to a consumer for the purchase or installation of energy-saving devices (see IRC §136). This exclusion subsidizes energy-efficient devices. This exclusion does not specifically target the inefficiency in rental housing created by the principal-agent problem, since the exclusion applies to both owner- and non-owner-occupied property.[19] Nonetheless, the exclusion may serve to ameliorate some of the market failure in the provision of energy-efficiency for rental property.

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[13] CRS Report R40242, *Carbon Tax and Greenhouse Gas Control: Options and Considerations for Congress*, by Jonathan L. Ramseur and Larry Parker for a discussion of the relative merits and demerits of carbon taxes and cap-and-trade systems.

[14] See CRS Report R42731, *Carbon Tax: Deficit Reduction and Other Considerations*, by Jonathan L. Ramseur, Jane A. Leggett, and Molly F. Sherlock.

[15] Gilbert E. Metcalf, "Tax Policies for Low-Carbon Technologies," *National Tax Journal*, vol. 63, no. 3 (September 2009), pp. 519-533.

[16] Gilbert E. Metcalf, "Federal Tax Policy towards Energy," *Tax Policy and the Economy*, vol. 21 (2007), pp. 145-184.

[17] It should be noted that all R&D, not just R&D related to energy, is likely to have positive externalities. There is no reason to believe that energy R&D has positive externalities that differ from R&D in general, and hence no reason to believe that energy R&D deserves a differential subsidy.

[18] See CRS Report RL31181, *Research Tax Credit: Current Law and Policy Issues for the 114th Congress*, by Gary Guenther for an overview of the research tax credit, an umbrella credit under which the energy research credit falls.

[19] It has been suggested that targeting energy-related subsidies towards certain types of consumers (e.g., those with less access to credit, rental properties) could improve the efficiency and effectiveness of energy efficiency subsidies. See (continued...)

There are also various options for market intervention to address the informational problem associated with energy consumption and energy-efficient technologies. One option would be an information-based solution, such as energy-efficiency labeling and education and awareness campaigns. Alternatively, a tax-incentive-based approach—such as a credit or deduction for the purchase of energy-efficient devices—could be used to address the market inefficiency. Given that this market failure is an informational problem, it might be more efficient to pursue information-based solutions (such as energy-efficiency labeling like the U.S. Environmental Protection Agency and Department of Energy's Energy Star program).

Finally, there are questions regarding the most efficient and effective mode of intervention to address the negative external costs, specifically national and economic security concerns, associated with the consumption of imported oil. One option would be to impose a tax to correct the distortion. There are two problems with imposing such a tax. First, a tax on imported oil is likely to violate trade agreements. This has led policymakers to pursue policies that subsidize domestic petroleum production.[20] The second problem is that oil is a commodity priced on world markets. The United States producing oil for its own use does not necessarily insulate consumers from global fluctuations in oil prices. Additionally, to the extent that oil price fluctuations impact export prices in other parts of the world, such as Europe and China, the United States is still likely to experience economic impacts from oil price fluctuations.[21]

Taxes as a User Charge

Energy taxes may be employed as user charges for a public good or a quasi-public good.[22] In the United States, non-toll highways and highway infrastructure have the public good property of non-excludability. Highways are not likely to be provided by the market because public goods and quasi-public goods are susceptible to the free-rider problem.[23] If the private market fails to provide a public good, like highways, then government intervention via provision of highways can enhance economic efficiency. The federal excise tax on gasoline is often viewed as a user fee for the federal highway system.[24] For the tax to be efficient and equitable, it would charge individuals in proportion to their benefit from the public good (the highway system). In practice, gas taxes do not reflect the cost to the user but instead depend on the fuel efficiency of a specific vehicle.[25] Furthermore, some of the revenues collected from the federal gas tax serve to subsidize public transportation, undermining the view of the federal gas tax as a highway user fee.

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Hunt Allcott, Christopher Knittel, and Dmitry Taubinsky, "Tagging and Targeting of Energy Efficiency Subsidies," *American Economic Review, Papers & Proceedings*, vol. 105, no. 5 (2015), pp. 187-191.

[20] Subsidizing domestic production is also problematic in that such policies conflict with environmental objectives.

[21] Gilbert E. Metcalf, "Using Tax Expenditures to Achieve Energy Policy Goals," *American Economic Review*, vol. 98, no. 2 (2008), pp. 90-94.

[22] Public goods are those that are both non-rival (one person's consumption of the good does not diminish another's ability to consume that same good) and non-excludable (it is either impossible or prohibitively expensive to prevent consumption of the good once the good has been provided). Quasi-public goods are those that are either non-rival or non-excludable.

[23] The free-rider problem is the consequence of non-excludability. If all individuals are free to use a good once that good has been provided, no single individual has an incentive to be the provider of that good. Instead, the individual will wait for the good to be provided by another party. In the absence of government intervention, the market may fail to provide goods that are subject to the free-rider problem.

[24] For background information on the federal gas tax see CRS Report RL30304, *The Federal Excise Tax on Motor Fuels and the Highway Trust Fund: Current Law and Legislative History*, by Sean Lowry and CRS Report R40808, *The Role of Federal Gasoline Excise Taxes in Public Policy*, by Robert Pirog.

[25] Another argument is that the federal gas tax should be viewed as correcting the externalities associated with gasoline-

(continued...)

Current Status of U.S. Energy Tax Policy[26]

Current U.S. energy tax policy is a combination of long-standing provisions and relatively new incentives. Energy-related tax incentives also support both energy production and consumption. Provisions supporting the oil and gas sector reflect desires for domestic energy production and energy security, long-standing cornerstones of U.S. energy policy. Incentives for renewable energy reflect the desire to have a diverse energy supply, also consistent with a desire for domestic energy security. Incentives for energy efficiency are designed to reduce consumption of energy from all energy sources. Incentives for renewable energy, energy efficiency, and alternative technology vehicles reflect environmental concerns related to the production and consumption of energy using fossil-based resources. **Table 1** contains a current list of energy-related tax expenditures and other energy tax provisions.[27]

Fossil Fuels

There are a number of tax incentives currently available for energy production using fossil fuels. They can be broadly categorized as (1) enhancing capital cost recovery; (2) subsidizing extraction of high-cost fossil fuels; or (3) encouraging investment in non-petroleum or cleaner fossil fuel energy options. Certain incentives are designed to support coal, while others tend to support the oil and gas sector. The fossil fuels related incentives listed in **Table 1** are estimated to reduce federal tax revenues by $21.5 billion between 2015 and 2019.

Among the capital cost subsidies, the allowance of the percentage depletion method is estimated to cost $8.8 billion between 2015 and 2019.[28] Under percentage depletion, a deduction equal to a fixed percentage of the revenue from the sale of a mineral is allowed. Total lifetime deductions, using this method, typically exceed the capital invested in the project. To the extent that percentage depletion deductions exceed project investment, percentage depletion becomes a production subsidy, instead of an investment subsidy. In other words, taxpayers may be able to claim allowances that reduce tax liability even after the cost of investment is fully recovered. Other capital cost recovery provisions include expensing of intangible drilling costs related to exploration and development and a decrease in the amortization period for certain geological and geophysical (G&G) expenditures.[29] The expensing of exploration and development costs is estimated to cost the federal government $7.5 billion in revenue losses over the 2015 through 2019 budget window, while the reduced amortization period for G&G expenditures is estimated to cost $0.7 billion over the same time period.

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powered vehicles. Even if the gas tax were to be viewed as one correcting for emissions, it would make more economic sense to tax emissions rather than just those coming from the burning of fossil fuels by motor vehicles.

[26] See also U.S. Congress, Joint Committee on Taxation, *Present Law and Analysis of Energy-Related Tax Expenditures*, committee print, 114th Cong., June 9, 2016, JCX-46-16.

[27] Tax expenditures are government revenue losses attributable to tax provisions that allow for special exclusions, exemptions, or deductions from income or provisions that provide special tax credits, preferential tax rates, of defer tax liability. Technically, excise tax credits are not considered tax expenditures because they do not directly affect income tax liability.

[28] The tax expenditure for percentage depletion is computed by subtracting the value of cost depletion, the standard depletion method, from the value of percentage depletion. The resulting lifetime excess is the tax expenditure.

[29] Expensing costs means to deduct the full cost of an investment in the current tax year, rather than depreciate the costs over a period of time.

Table 1. Energy Tax Provisions

(billions of dollars)

Tax Provision	Description	2015 Cost	2015-2019 Cost	Expiration Date	I.R.C. Section
		Fossil Fuels			
Expensing of percentage over cost depletion	Firms that extract oil or gas are permitted to deduct 15% of gross income (up to 25% for marginal wells depending on oil prices; 10% for coal and lignite) to recover their capital investment in a mineral reserve. The amount deducted may not exceed 100% of net income in the case of oil and gas properties. Percentage depletion allowances for oil and gas property cannot exceed 65% of taxable income. The alternative to percentage depletion is cost depletion, where deductions are based on a taxpayer's adjusted basis in the property. Integrated oil and gas companies must use cost depletion.	1.6	8.8	none	611, 612, 613, 613A
Expensing of intangible drilling costs (IDCs) and development expenditures for hard minerals	Firms engaged in the exploration and development of oil, gas, or geothermal properties have the option of expensing (deducting in the year paid or incurred) rather than capitalizing (i.e., recovering such costs through depletion or depreciation) certain intangible drilling and development costs (IDCs). Integrated oil and gas companies can expense 70% of qualified IDCs, with the remaining 30% capitalized and amortized over a 60-month period. 70% of the costs paid or incurred for the development of a mine or other natural deposit (other than oil or gas) may be expensed.	1.3	7.5	none	616, 617, 263(c), 291
Amortization of G&G expenditures associated with oil and gas exploration	Under the Modified Accelerated Cost Recovery System (MACRS), the cost of selected types of geological and geophysical (G&G) expenditures is depreciated over two years for independent producers and smaller integrated oil companies.	0.1	0.7	none	167(h)
Coal production credits	A $6.71-per-ton production credit for refined coal used to produce steam, for the first 10 years of qualifying production. A $2.354 per-ton production credit for coal reserves owned by an Indian tribe, for up to an 11-year period. Both credits are adjusted for inflation from 1992.	(i)	0.3[a]	12/31/2011 (placed-in-service deadline for refined coal) 12/31/2008 (placed-in-service deadline for Indian coal); no credits paid after 12/31/2016	45

Tax Provision	Description	2015 Cost	2015-2019 Cost	Expiration Date	I.R.C. Section
Credits for investing in clean coal facilities	Tax credit of 20% of investment for integrated gasification combined cycle (IGCC) systems and 15% for other advanced coal technology credit allocations made under the Energy Policy Act of 2005 (P.L. 109-58). 30% credit for IGCC and other advanced coal technology credit allocations under the Energy Improvement and Extension Act of 2008 (P.L. 110-343).	0.2	1.0	Allocation limit	48A, 48B
Amortization of air and pollution control facilities	Allows the pre-1976 5-year amortization period for investments in pollution control equipment for coal-fired electric generation plants available to those plants placed in service on or after January 1, 1976. The 5-year amortization incentive for pre-1976 plants applies only to pollution control equipment with a useful life of 15 years or less. In that case 100% of the cost can be amortized over five years. If the property or equipment has a useful life greater than 15 years, then the proportion of the costs that can be amortized over 5 years is less than 100%.	0.4	1.7	none	169 and 291
Credit for alternative fuels and alternative fuels mixtures	Alternative fuels (liquefied petroleum gas, P Series Fuels, compressed of liquefied natural gas, liquefied hydrogen, liquid fuel derived from coal using the Fischer-Tropsch process, or compressed or liquefied gas or liquid fuel from biomass) qualify for a tax credit of 50¢ per gallon. The alternative fuels credit may also be received as an outlay payment.	0.6[b]	1.5[a,c]	12/31/2016	6426 and 6427
	Renewables				
Credits for electricity production from renewable resources ("PTC" or "production tax credit")	Tax credit of 2.3¢/kWh for electricity produced from wind, closed-loop biomass, and geothermal energy in 2015. Tax credit of 1.2¢/kWh for electricity produced from open-loop biomass, small irrigation, landfill gas, trash combustion, qualified hydropower, and marine and hydrokinetic sources in 2015. The tax credit is available for 10 years after the date the facility is placed in service. Taxpayers may also elect to receive a 30% ITC in lieu of the PTC.	2.6	19.9a	12/31/2019 (construction start deadline, wind); phase-out begins after 12/31/2016 12/31/2016 (construction start deadline, other technologies)	45

Tax Provision	Description	2015 Cost	2015-2019 Cost	Expiration Date	I.R.C. Section
Energy credit ("ITC" or "investment tax credit")	Tax credit equal to 10% of investment in energy production using geothermal, microturbine, or combined heat and power methods. The tax credit is equal to 30% of investment in energy production using solar electric, solar hot water, fuel cell, or small wind methods. After 2019, the credit rate for solar electric begins to decrease over time to 10% for projects that begin construction after 2021, or that are not placed in service before 2024.	1.2	10.0[a]	none (geothermal excluding geothermal heat pumps) 12/31/2016 (other technologies; solar has permanent 10% credit after 2021)	48
Section 1603 grants in lieu of tax credits	Section 1603 allows taxpayers eligible for the PTC and ITC to receive a one-time cash grant in lieu of tax credits. Eligible facilities may qualify for a grant equal to 10% or 30%, depending on technology type, of a qualifying project's eligible cost basis.	2.2[b]	4.2[b]	12/31/2011 (construction start date)	45, 48
Residential energy-efficient property credit	Tax credit for 30% of the cost of the purchase of solar electric property, solar water heating property, geothermal heat pump property, or small wind energy property. Tax credit for solar technologies subject to phase-out schedule. Fuel cell power plants receive 30% credit, limited to $500 for each 0.5 kilowatt of capacity.	1.1	4.9[a]	12/31/2021 (solar, with phase-out after 12/31/2019) 12/31/2016 (other technologies)	25D
Five-year cost recovery of certain energy property	Accelerated depreciation allowances are provided under the modified accelerated cost recovery system (MARCs) for investments in certain energy property. Specifically, certain solar, wind, geothermal, fuel cell, and biomass property has a five-year recovery period. Second-generation biofuel plant property is allowed an additional first-year depreciation deduction equal to 50% of the property's adjusted basis.	0.3	1.3	12/31/2016 (placed in service date for second-generation biofuel property, certain solar illumination property, and certain ground or ground water thermal energy property) None (other technologies)	168

Tax Provision	Description	2015 Cost	2015-2019 Cost	Expiration Date	I.R.C. Section
Credits for holders of clean renewable energy bonds	Provides a tax credit for the holder of the bond against its income tax. Clean Renewable Energy Bonds ("CREBs") are subject to a volume cap of $1.2 billion with a credit rate set to allow the bond to be issued at par and without interest. New Clean Renewable Energy Bonds ("New CREBs") are subject to a volume cap of $2.4 billion with a credit rate set at 70% of what would permit the bond to be issued at par and without interest.	(i)	0.6	Allocation limit	54, 54C
Credit for biodiesel, renewable diesel, and second-generation (cellulosic) biofuels	$1 per gallon for biodiesel, agri-biodiesel, and renewable diesel (extra 10¢ for small producers of agri-biodiesel). Second-generation biofuel qualify for a credit of $1.01 per gallon. Depending on the specific incentive, tax credits go to fuel producers and/or blenders. Credits are generally coordinated income and excise tax credits.	1.9[b]	$4.5[a,c]	12/31/2016	40, 40A, 6426, 6427
Advanced energy manufacturing tax credit	30% tax credit for qualified investments in advanced energy property. A total of $2.3 billion was allocated for advanced energy property investment tax credits, which were competitively awarded by the Department of Energy (DOE) and the Treasury.	0.3	1.2	Allocation limit	48C
	Energy Efficiency				
Credit for nonbusiness energy property	Tax credit for 10% of the amount paid for qualified energy-efficiency improvements and expenditures for residential energy property including qualifying improvements to the building's envelope, the HVAC system, furnaces, or boilers. Credit limited to $500 (limit applies to multiple tax years).	0.5	1.8[a]	12/31/2016	25C
Deduction for expenditures on energy-efficient commercial property	Tax deduction for the cost of building envelope components, heating and cooling systems, and lighting. The deduction is limited to $1.80 per square foot for multiple improvements, or $0.60 per square foot for deductions with respect to certain subsystems.	0.0	0.3[a]	12/31/2016	179D
Exclusion of energy conservation subsidies provided by public utilities	Subsidies are not taxable as income.	(i)	0.1	none	136
Energy-efficient new home credit	Manufacturers of manufactured homes may claim $1,000 credit for building homes 30% more efficient than the standard; Contractors may claim $2,000 credit for building homes 50% more efficient than the standard.	0.0	0.6[a]	12/31/2016	45L

Tax Provision	Description	2015 Cost	2015-2019 Cost	Expiration Date	I.R.C. Section
Qualified energy conservation bonds	The federal government has authorized the issue of $3.2 billion in Qualified Energy Conservation Bonds ("QECBs"). QECBs provide a tax credit worth 70% of the tax credit bond rate stipulated by the Secretary of the Treasury. QEC bonds issued by state and local governments must fund an energy-savings project, such as the green renovation of a public building, R&D in alternative fuels, and public transportation projects.	(i)	0.3	Allocation limit (allocated to the States)	54D
	Alternative Technology Vehicles				
Plug-in electric vehicles and other alternative fuel vehicles	Credits available for plug-in electric vehicles are available up to $7,500 depending on kilowatt hour capacity of vehicle (prior to 2010 the credit limit was higher, up to $15,000 for qualifying heavy vehicles).Fuel cell vehicles receive a base credit of $4,000 for vehicles weighing less than 8,500 pounds. Heavier vehicles qualify for up to a $40,000 credit. An additional credit of up to $4,000 is available for cars and light trucks that exceed the 2002 base fuel economy.	0.2	1.3[a]	Plug-in electric vehicle credit volume capped (200,000) per manufacturer 12/31/2016 for fuel cell vehicles	30, 30B, 30D
Credit for 2-wheeled electric vehicles	A 10% credit, up to $2,500, is available for the cost of two-wheeled plug-in electric vehicles. Qualified vehicles include those propelled to a significant extent by an electric motor drawing from a battery with a capacity greater than 2.5 kWh, and capable of achieving a speed of at least 45 mph.	0.0	(i)	12/31/2016	30D
Credits for alternative fuel vehicle refueling property	Qualifying property dispenses alternative fuels, including ethanol, biodiesel, natural gas, hydrogen, and electricity. A 30% credit for qualifying property, capped at $30,000 for business property and $1,000 for nonbusiness property.	0	0.1[a]	12/31/2016	30C
	Other				
Exceptions for energy-related publicly traded partnerships	Publicly traded partnerships are generally treated as corporations. The exception from this rule occurs if at least 90% of its gross income is derived from interest, dividends, real property rents, or certain other types of qualifying income. Qualifying income includes income derived from certain energy-related activities, such as fossil fuel or geothermal exploration, development, mining, production, refining, transportation, and marketing.	1.1	5.9	none	7704, 851

Tax Provision	Description	2015 Cost	2015-2019 Cost	Expiration Date	I.R.C. Section
Exclusion of interest on State and local government private activity bonds for energy production facilities	Exclusion of interest from private activity bonds used to finance privately owned or operated sewage, water, solid waste disposal, and heating and cooling facilities, certain private electric and gas facilities, hydroelectric dam enhancements, qualified green building and sustainable design projects from tax. Generally subject to a state private activity bond volume cap.	(i)	0.1	none	141, 142
Depreciation recovery periods for energy specific items	Smart electric distribution property is allowed 10-year depreciation under the modified accelerated cost recovery system (MARCs). Certain electric transmission property is allowed 15-year depreciation. Natural gas distribution lines are also allowed 15-year depreciation.	0.6	2.8	various	168
Deferral of gains from the sale of electric transmission property	A taxpayer may elect to recognize the gain from the sale of certain electric transmission property over an eight year period.	-0.2	0.2[a]	12/31/2016	451(i)

Source: CRS compilation based on data from U.S. Congress, Joint Committee on Taxation, *Estimates of Federal Expenditures for Fiscal Years 2015–2019*, committee print, 114th Congress, December 7, 2015, JCX-141R-15; U.S. Congress, Joint Committee on Taxation, *Estimated Budget Effects of Division Q of Amendment #2 to H.R. 2029 (Rules Committee Print, 114-40), The "Protecting American's from Tax Hikes Act of 2015,"* 114th Congress, December 16, 2015, JCX-143-15; Joint Committee on Taxation, *Estimated Budget Effects of Division P of Amendment #1 to H.R. 2029 (Rules Committee Print, 114-39),* 114th Congress, December 16, 2015, JCX-142-15; and the President's FY2017 budget, *Analytical Perspectives.*

Notes: Provisions estimated as *de minimis* (i.e., estimated to have a revenue loss of less than $50 million over the 2015 through 2019 period) are not included in **Table 1**. (i) = less than $50 million per year for both individuals and corporations.

a. These figures include the cost of extension as enacted as part of the 2016 Consolidated Appropriations Act (P.L. 114-113).

b. This figure includes the reduction in excise tax receipts for alcohol fuels, biodiesel, and alternative fuel mixtures.

c. These figures are estimated outlays under the Section 1603 grants in lieu of tax credits program.

Compared to capital cost recovery provisions, tax expenditures intended to offset high extraction costs are small. These provisions do not appear in **Table 1** as they fall below the *de minimis* threshold. In recent years, credits for enhanced oil recovery and oil and gas production from marginal wells were phased out due to high oil prices. In 2015, the enhanced oil recovery credit was fully phased out, as the reference price for oil ($87.39, based on 2014 prices) exceeded the phase-out threshold amount ($28, adjusted for inflation, or $45.49) by $41.90. The phase-out for the marginal wells credit begins once the price of oil exceeds $18 (the $18 amount is adjusted for inflation after 2005). It is possible, however, if oil prices remain low, that these incentives could become available.[30] The expensing allowance for tertiary injectants is also estimated to cost less than $50 million over the 2015 through 2019 budget window.

There are also coal-specific energy tax provisions. These include certain coal production credits, as well as tax credits to support the development of clean coal facilities.[31] The tax credits for investing in clean coal facilities are estimated to cost $1.0 billion over the 2015 through 2019 budget window. There are also provisions that provide for 5-year amortization for investments in pollution control facilities associated with certain coal-fired power plans. This provision has an estimated revenue cost of $1.7 billion between 2015 and 2019.

The credit for alternative fuels and alternative fuels mixtures is a 50-cent per gallon tax credit available to several fossil-based non-petroleum fuels. The credit is anticipated to have a revenue cost of $1.5 billion between 2015 and 2019, although that cost could increase if the credit is extended beyond its current 2016 expiration date.

Renewables

Several tax incentives subsidize the production of energy from renewable sources. While the specific incentives differ in design, they generally work to increase the after-tax return on an investment in renewable energy production by providing tax incentives on the condition of eligible investment or production. Between 2015 and 2019, the total cost of tax-related provisions supporting the production of renewable energy (tax expenditures and grants designed to replace tax expenditures) is estimated to be $50.7 billion. Of this total, $4.2 billion is for outlays under the Section 1603 grants in lieu of tax credits program. Thus, the cost of tax expenditure and excise tax incentives for renewables is estimated to be $46.5 billion between 2015 and 2019.

Historically, the primary tax incentive for renewable electricity has been the production tax credit (PTC).[32] For wind, the PTC is available for projects that begin construction before the end of 2019, although the credit begins to phase out (the credit amount is reduced) after 2016. For other eligible technologies (e.g., biomass, geothermal, etc.) construction must begin by December 31, 2016 to qualify for the credit. The PTC is expected to reduce federal revenues by $19.9 billion between 2015 and 2019.

The energy credit, commonly referred to as the renewable energy investment tax credit (ITC), also supports investment in certain renewable energy technologies. The tax credit is 10% or 30%, depending on the technology. For most technologies, the credit is set to expire at the end of 2016, meaning to qualify property must be placed in service by December 31, 2016. There is a

[30] For more information, see CRS InFocus CRS In Focus IF10026, *Lower Oil Prices 2015*, by Robert Pirog and CRS In Focus IF10388, *Higher Oil Prices?*, by Robert Pirog.

[31] For more information, see CRS Report R43690, *Clean Coal Loan Guarantees and Tax Incentives: Issues in Brief*, by Peter Folger and Molly F. Sherlock.

[32] See CRS Report R43453, *The Renewable Electricity Production Tax Credit: In Brief*, by Molly F. Sherlock.

permanent 10% ITC for solar and geothermal. Additionally, the 30% tax credit for solar is available through 2019, with the credit rate phasing down between 2019 and 2021. The ITC is expected to reduce federal revenues by $10.0 billion between 2015 and 2019.

The American Recovery and Reinvestment Act (ARRA; P.L. 111-5) substantially modified renewable energy incentives, allowing projects eligible for the renewable PTC or ITC to, temporarily, claim a one-time grant in lieu of the tax credits.[33] This grant was available for projects that were under construction before the end of 2011. Since grants will be paid out when facilities are placed in service, outlays will continue through 2017. Since the grant is paid once a project is completed, the cost of the grant program will be partially offset by reduced PTC claims over time (since the PTC is awarded during the first 10 years of production).[34] Allowing investors to take a one-time grant instead of future tax credits was intended to address uncertainty renewable energy investors may have regarding their future tax positions.

Several other tax expenditures related to renewable energy have budgetary effects. The residential energy-efficient property credit provides a tax credit for the installation of renewable electricity generating property for a residential dwelling. For non-solar technologies, the credit is scheduled to expire at the end of 2016. For solar property, the credit is available through 2021, although the credit begins to phase out after the end of 2019. The residential energy-efficient property credit is expected to reduce federal revenues by $4.9 billion between 2015 and 2019.

Certain renewable energy property also benefits from accelerated depreciation. The five-year cost recovery for renewable energy property is a permanent part of the tax code, and is estimated to reduce federal revenues by $1.3 billion between 2015 and 2019.

Several income and excise tax credits are designed to support renewable fuels. Like other incentives for renewable energy, renewable fuels incentives are temporary. They are currently set to expire at the end of 2016.[35] In recent years, biodiesel and renewable diesel, second generation biofuels, including cellulosic and algae-based biofuels have qualified for tax credits. These credits are projected to cost $4.5 billion over the 2015 through 2019 budget window. Extending these incentives beyond 2016 will increase their cost.

ARRA also provided $2.3 billion in tax credits for advanced energy manufacturing. Most of these tax credits were allocated to projects in 2009, although $150 million was available for a second allocation round in 2013. The federal government is expected to realize revenue losses as investors that were awarded these tax credits make qualifying investments over time. Between 2015 through 2019, revenue losses associated with this provision are estimated to be $1.2 billion.

Energy Efficiency

Incentives for energy efficiency are designed to encourage owners of residential and commercial property to make energy-efficient upgrades. Between 2015 and 2019, the total cost of tax expenditures related to energy efficiency is estimated to be $3.1 billion.

[33] See CRS Report R41635, *ARRA Section 1603 Grants in Lieu of Tax Credits for Renewable Energy: Overview, Analysis, and Policy Options*, by Phillip Brown and Molly F. Sherlock.

[34] Projects eligible for the PTC can claim the credit for 10 years. Thus, as projects that began construction before the end of 2011 but are placed in service in 2013 elect to receive a grant rather than claim the PTC, PTC claims in the out years will be less than what they would have been in absence of the grant program.

[35] Through 2011, alcohol fuels (including ethanol) were eligible for a $0.45 per gallon tax credit. Tax credits for alcohol fuels were allowed to expire at the end of 2011.

The majority of revenue loss from tax expenditures related to energy conservation is attributable to three incentives for property owners to undertake energy-efficiency improvements on existing buildings. Certain residential energy-efficiency improvements made before the end of 2016 may qualify for a 10% tax credit of up to $500. Energy-efficient improvements for commercial property, including upgrades to a building's envelope, heating and cooling, or lighting system are eligible for a tax deduction, limited to $1.80 per square foot. Incentives for both residential and commercial energy efficiency expired at the end of 2016. The exclusion from income of subsidies provided by utility companies to energy consumers undertaking energy-efficiency upgrades increases the value of such subsidies, encouraging individuals to undertake such improvements. Taken together, these three incentives for building energy efficiency are projected to cost $2.2 billion between 2015 and 2019. Extending these tax incentives for residential and commercial energy efficiency will increase their projected revenue costs.

Manufacturers of energy-efficient new homes may also be eligible for a tax incentive. The incentive is also scheduled to expire at the end of 2016. The cost of this incentive between 2015 and 2019 is estimated to be $0.6 billion, but would increase should the provision be extended.

Qualified Energy Conservation Bonds (QECBs) also encourage energy conservation, by providing subsidized financing to energy conservation projects and other renewable energy projects.[36] All available QECB funds have been allocated to the states, with states responsible for making sub-allocations and selecting qualifying projects.[37]

Alternative Technology Vehicles

Currently, the primary tax incentive for alternative technology vehicles is the up to $7,500 tax credit for plug-in electric vehicles.[38] The credit will begin to phase out for each manufacturer once 200,000 qualifying vehicles have been sold.[39] In addition, since 2006, the tax code has at times provided incentives for other alternative technology vehicles. Vehicles eligible for tax incentives have included qualified fuel cell vehicles, hybrid vehicles, advanced lean burn technology vehicles, and alternative fuel vehicles, with credit amounts varying by the specific technology and vehicle type. The tax credit for hybrid vehicles, advanced lean burn technology vehicles, and other alternative fuel vehicles expired at the end of 2010. The tax credits for qualified fuel cell vehicles and two-wheeled electric drive vehicles are scheduled to expire at the end of 2016. Through the end of 2016, taxpayers installing alternative fuel refueling property may also qualify for a tax credit.

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[36] QECBs can be used to finance a broad range of energy efficiency and renewable energy projects. Eligible projects include energy efficiency upgrades for public buildings, renewable energy projects (including those eligible for CREBs), energy research and development projects, mass commuting facilities, and energy efficiency education campaigns.

[37] Official data on QECB issuances are not publicly available. The Energy Programs Consortium tracks known issuances of QECBs. For recent publications, including estimates of QECB issuances, see http://www.energyprograms.org/2016/02/qecb-papers/.

[38] More information on non-tax incentives can be found in CRS Report R42566, *Alternative Fuel and Advanced Vehicle Technology Incentives: A Summary of Federal Programs*, by Lynn J. Cunningham et al. and CRS Report R40168, *Alternative Fuels and Advanced Technology Vehicles: Issues in Congress*, by Brent D. Yacobucci.

[39] More information on qualifying vehicles and phase outs can be found at http://www.irs.gov/Businesses/Plug-In-Electric-Vehicle-Credit-IRC-30-and-IRC-30D.

Other Provisions

There are a number of other energy tax provisions that arguably do not fall under the fossil fuels, renewable energy, energy efficiency, or alternative technology vehicles categories. The largest of these incentives, in terms of revenue cost, is the special tax treatment for energy-related publicly traded partnerships, costing an estimated $5.9 billion between 2015 and 2019.[40] Special depreciation periods for certain energy property, other than renewable energy property, are estimated to cost $2.8 billion between 2015 and 2019. Excluding interest from private activity bonds related to energy production is estimated to cost $0.1 billion between 2015 and 2019. The deferral of gains from the sale of electric transmission property associated with a Federal Energy Regulatory Commission (FERC) restructuring policy is estimated to cost $0.2 billion between 2015 and 2019.

Energy Tax Issues in the 114th Congress

Several expired energy tax incentives were extended as part of the Consolidated Appropriations Act, 2016 (P.L. 114-113). Most energy-related provisions were extended for two years, through the end of 2016. Incentives for wind and solar were given longer-term extensions, with credits scheduled to phase out over a multi-year period in the future. One issue is whether energy-related tax incentives currently scheduled to expire at the end of 2016 will be further extended. This question has been of particular interest with respect to the PTC and ITC, where wind and solar were awarded longer-term extensions, while other technologies face a 2016 expiration.

Recent Obama Administration budget proposals have included a number of energy tax policy changes, which may or may not be considered by Congress. The President's FY2017 budget's energy-tax proposals are summarized below.

Expiring Energy Tax Provisions

Several energy-related tax provisions are scheduled to expire at the end of 2016.[41] Many of the provisions scheduled to expire at the end of 2016 had expired at the end of 2014, before being retroactively extended for two years, through 2016, by the Protecting Americans from Tax Hikes (PATH) Act of 2015. The PATH Act was enacted as Division Q of the Consolidated Appropriations Act, 2016 (P.L. 114-113). **Table 2** lists the energy-related tax provisions scheduled to expire at the end of 2016, notes whether the provision was extended in the PATH Act, and the cost of that extension. Note that the PATH Act extended all expired energy tax provisions. Thus, certain energy-related tax provisions scheduled to expire in 2016 had not expired in 2014. These provisions are noted in **Table 2** as provisions that were not extended by the PATH Act.

There were a number of other energy tax policy changes in P.L. 114-113. Specifically, Division P of the law provided longer-term extensions with scheduled phase-outs of tax credits for wind and solar. Specifically, the renewable electricity PTC was extended through 2019, with the phase-out starting for facilities beginning construction in 2017. The 30% ITC for business solar was extended through 2019 and the deadline changed from a placed-in-service deadline to a

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[40] The majority of energy-related publicly traded partnerships are for activities in fossil fuels sectors. For more information, see CRS Report R41893, *Master Limited Partnerships: A Policy Option for the Renewable Energy Industry*, by Molly F. Sherlock and Mark P. Keightley.

[41] More information on expiring tax incentives can be found in CRS Report R43898, *Tax Provisions that Expired in 2014 ("Tax Extenders")*, by Molly F. Sherlock.

construction start date. The business solar ITC was set to be 26% for facilities beginning construction in 2020, and 22% for facilities beginning construction in 2021, so long as these facilities are placed in service before the end of 2023. The business solar ITC is scheduled to return to 10% in 2022. The tax credit for residential solar was extended through 2021, with a phase out starting in 2020.

Table 2. Energy Tax Provisions Expiring in 2016

(billions of dollars)

Provision	Extended in the PATH Act?	Cost of Extension in the PATH Act
Credit for Nonbusiness Energy Property	Yes	$1.3
Credit for Residential Energy Property[a]	No	
Alternative Motor Vehicle Credit for Fuel Cell Vehicles	Yes	*
Alternative Fuel Vehicle Refueling Property	Yes	$0.1
Credit for Two-Wheeled Plug-In Electric Vehicles[b]	Yes	*
Second Generation (Formerly Cellulosic) Biofuel Producer Credit	Yes	*
Incentives for Biodiesel and Renewable Diesel	Yes	$2.6
Renewable Energy Production Tax Credit (Construction Start Date and ITC in Lieu of PTC Option for Non-Wind Facilities)[c]	Yes	$1.4
Credit for Production of Indian Coal	Yes	$0.1
Credit for Construction of Energy-Efficient New Homes	Yes	$0.8
Renewable Energy Investment Tax Credit[d]	No	
Five-Year Cost Recovery for Certain Energy Property (solar illumination and ground or ground water thermal)	No	
Special Depreciation Allowance for Second Generation (Formerly Cellulosic) Biofuel Plant Property	Yes	*
Energy Efficient Commercial Building Deduction	Yes	$0.3
Special Rule to Implement Electric Transmission Restructuring	Yes	**
Incentives for Alternative Fuel and Alternative Fuel Mixtures	Yes	$0.9

Source: U.S. Congress, Joint Committee on Taxation, *List of Expiring Federal Tax Provisions 2016 - 2025*, January 8, 2016, JCX-1-16 and U.S. Congress, Joint Committee on Taxation, *Estimated Budget Effects of Division Q of Amendment #2 to H.R. 2029 (Rules Committee Print, 114-40), The "Protecting American's from Tax Hikes Act of 2015,"* 114th Congress, December 16, 2015, JCX-143-15.

Notes: A "*" indicates an estimated cost of less than $50 million in the 10-year budget window. A "**" indicates that the provision was extended at no revenue cost.

a. The credit for certain residential solar energy property was extended through 2021 in P.L. 114-113. For other technologies, the credit expires at the end of 2016.

b. The credit for two- and three-wheeled plug-in electric vehicles expired at the end of 2013, and was not included in the 2014 tax extenders package, Tax Increase Prevention Act of 2014 (P.L. 113-295). The tax credit for two-wheeled vehicles was, however, extended as part of P.L. 114-113.

c. The PTC for wind was extended through 2019 in P.L. 114-113. For other technologies, the renewable energy PTC expires at the end of 2016.

d. The ITC for solar was extended through 2021 in P.L. 114-113. For other technologies, the energy ITC expires at the end of 2016.

The President's FY2017 Budget Proposal

The President's FY2017 budget contained a number of energy-tax related proposals (see **Table 3**). Specifically, the budget proposed to provide $41.5 billion in new or extended energy tax incentives between 2016 and 2026.[42] Nearly half of this cost is attributable to a permanent extension of the renewable PTC and ITC, at a cost of $19.8 billion. Additionally, the President's budget proposed new tax credits for carbon sequestration, advanced technology and alternative fuel vehicles, and advanced energy manufacturing, and incentives for biofuels and energy-efficient buildings.

Similar to previous years, the President's FY2017 budget proposed eliminating certain tax incentives that support fossil fuels, while also raising and adding new taxes on fossil fuels (see **Table 3**).[43] Eliminating certain provisions for oil, natural gas, and coal would raise an estimated $41.2 billion between 2016 and 2026.

The President's FY2017 budget proposed to raise revenues to "support critical infrastructure and climate resiliency needs" through a new per-barrel fee on crude oil.[44] This fee would equal $10.25 per barrel, adjusted for inflation from 2016, and be phased in over a five-year period beginning October 1, 2016. The fee would apply to domestically produced and imported petroleum products, but not to exported petroleum products. Home heating oil would also be temporarily exempt. The fee would raise an estimated $273.4 billion between 2016 and 2026.[45] Under the proposal, revenue from the fee would be used to fund infrastructure and transportation system upgrades, invest in cleaner transportation technologies, and to provide relief for households with "particularly heavy energy costs."[46]

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[42] U.S. Congress, Joint Committee on Taxation, *Estimated Budget Effects of the Revenue Provisions Contained in the President's Fiscal Year 2017 Budget Proposal*, committee print, 114th Congress, March 24, 2016, JCX-15-16.

[43] Similar proposals have been included in past Obama Administration budget proposals. For additional background, see CRS Report R42374, *Oil and Natural Gas Industry Tax Issues in the FY2014 Budget Proposal*, by Robert Pirog and CRS In Focus IF10206, *Oil and Gas Tax Issues in the Tax Reform Act of 2014 and the President's FY2015 Budget Proposal*, by Molly F. Sherlock.

[44] Department of the Treasury, *General Explanations of the Administration's Fiscal Year 2017 Revenue Proposals*, Washington, DC, February 2016, p. 191.

[45] U.S. Congress, Joint Committee on Taxation, *Estimated Budget Effects of the Revenue Provisions Contained in the President's Fiscal Year 2017 Budget Proposal*, committee print, 114th Congress, March 24, 2016, JCX-15-16.

[46] Department of the Treasury, *General Explanations of the Administration's Fiscal Year 2017 Revenue Proposals*, Washington, DC, February 2016, p. 191.

Table 3. Energy Tax Proposals in the President's FY2017 Budget

(billions of dollars)

	Description	2016-2026 Revenue Change Estimate from Proposal
New or Extended Incentives or Modifications		
Credit for Renewable Electricity Production Tax Credit and Investment Tax Credit	Permanently extend the renewable PTC, make the credit refundable, add solar facilities as qualifying property, expand eligibility of credit to electricity consumed by the producer, and allow individuals to claim PTC for residential energy efficient property installed on a dwelling unit. Permanently extend the renewable ITC as the credit is structured in 2017, and permanently extend the election to claim the ITC in lieu of the PTC. Allow individuals installing solar electric and solar water heating property on a dwelling until before January 1, 2022, to claim the PTC in lieu of the residential energy efficient property credit and individuals installing solar property on a dwelling after December 31, 2021, to claim the PTC.	-19.8
Deduction for Energy-Efficient Commercial Building Property	Permanently extend and increase the maximum value of the energy-efficient commercial building property deduction to $3.00 per square foot, and increase partial deductions to $2.00 and $1.00 per square foot depending on energy savings. Provide a new deduction based on projected energy savings.	-6.7
Carbon Dioxide Investment and Sequestration Tax Credit	Authorize $2.0 billion to provide a 30% refundable investment tax credit for eligible carbon dioxide transportation and storage infrastructure used on new or retrofitted electric generating units. Provide a refundable sequestration tax credit of $50 per metric ton of carbon dioxide sequestered and not beneficially reused and $10 per metric ton of carbon dioxide sequestered and beneficially reused. The credit would be limited to a maximum of 20 years of production.	-6.7
Credit for Advanced Energy Manufacturing	Provide an additional $2.5 billion for advanced energy manufacturing tax credits.	-2.2
Credit for Second Generation Biofuel Production	Extend the credit for blending cellulosic fuel at $1.01 per gallon through 2022, and phasing out the credit through the end of 2026.	-1.2
Credit for Production of Advanced Technology Vehicles	Replace the credit for plug-in electric vehicles with an expanded credit available to a wider range of advanced technology vehicles. Credit capped at $10,000, and limited to vehicles less than 14,000 pounds. Credit would be available through December 31, 2023, with a phase out beginning in 2021.	-1.8
Credit for Medium- and Heavy-Duty Alternative-Fuel Commercial Vehicles	Provide a tax credit of $25,000 for dedicated alternative-fuel vehicles weighing between 14,000 and 26,000 pounds, and a credit of $40,000 for vehicles weighing more than 26,000 pounds. Credit would be available through December 31, 2022, with a 50% credit available in 2022.	-0.5

	Description	2016-2026 Revenue Change Estimate from Proposal
Credit for the Construction of Energy-Efficient New Homes	Extend the current $1,000 tax credit for energy efficient new homes through 2026. Provide a new $4,000 tax credit for the construction of new qualified DOE Zero Energy Ready Home.	-2.5
Incentives to be Repealed		
Credit for Enhanced Oil Recovery (EOR)	Repeal the investment tax credit for EOR projects.	0.4
Credit for Oil and Gas Production from Marginal Wells	Repeal credit for oil and gas production from marginal wells.	**
Expensing of Intangible Drilling Costs (IDCs)	Repeal expensing and 60-month amortization for capitalized IDCs. IDCs would instead be capitalized and costs recovered under generally applicable cost-recovery rules.	13.1
Deduction for Tertiary Injectants	Repeal the deduction for tertiary injectant expenses.	0.1
Exception to Passive Loss Limitation for Working Interest in Oil and Gas	Repeal the exception from the passive loss rules for working interest in oil and gas.	0.3
Percentage Depletion for Oil and Gas and Hard Mineral Fossil Fuels	Repeal percentage depletion for oil and gas and hard mineral fossil fuels. Taxpayers with adjusted basis in oil and gas or hard mineral fossil fuel property could claim cost depletion.	12.9
Domestic Manufacturing Deduction for Oil and Gas, Coal, and Other Hard Mineral Fossil Fuels	Modify the definition of manufacturing activities such that income from oil and gas, coal, and other hard mineral fossil fuel property does not qualify.	11.1
Reduced Amortization Period for Geological and Geophysical (G&G) Expenditures	Increase the amortization period from two to seven years for independent producers' oil and gas exploration G&G expenditures.	1.3
Expensing of Exploration and Development Costs for Coal	Repeal expensing, 60-month amortization, and 10-year amortization of exploration and development costs for coal and other hard-mineral fossil fuels. Costs would instead be capitalized and depreciated or depleted according to generally applicable rules.	0.8
Capital Gains Treatment for Coal Royalties	Tax coal and lignite royalties as ordinary income.	0.4

	Description	2016-2026 Revenue Change Estimate from Proposal
Exemption from Corporate Taxation for Fossil Fuels Publicly Traded Partnerships	Treat publicly-traded partnerships for fossil fuels as C-corporations for tax purposes beginning after 2020.	0.8
Revenue Raisers		
Impose an Oil Fee	Impose a $10.25 per barrel equivalent of crude oil fee, phased in over five years beginning October 1, 2016. The fee would be adjusted for inflation over time. The fee would apply to domestically produced and imported petroleum products, with exported petroleum exempt. Home heating oil would be temporarily exempt as well.	273.4
Increase Oil Spill Liability Trust Fund Financing Rate and Update the Law to Include Other Sources of Crudes	Increase the Oil Spill Liability Trust Fund (OSLTF) excise tax by one cent and expand the scope of the tax to include crudes produced from bituminous deposits and kerogen-rich rock.	1.2
Reinstate Superfund Taxes: Excise Taxes	Reinstate and extend the Superfund excise taxes, including a 9.7-cents-per-barrel excise tax on domestic crude oil and imported petroleum products and a tax on hazardous chemicals and imported materials used in the manufacture of hazardous chemicals, at a rate ranging from 22 cents to $4.87 per ton.	6.2
Reinstate Superfund Taxes: Environmental Income Tax	Reinstate the corporate environmental income tax, which would levy a 0.12% income tax on the amount by which corporate modified alternative minimum taxable income exceeds $2 million.	14.8

Source: Department of the Treasury, *General Explanations of the Administration's Fiscal Year 2017 Revenue Proposals*, Washington, DC, February 2016 and U.S. Congress, Joint Committee on Taxation, *Estimated Budget Effects of the Revenue Provisions Contained in the President's Fiscal Year 2017 Budget Proposal*, committee print, 114th Congress, March 24, 2016, JCX-15-16.

Notes: A "*" indicates an estimated cost of less than $50 million in the budget window. A "**" indicates that the provision was extended at no revenue cost.

The President's FY2017 budget also proposed to modify several other environmental taxes. Specifically, the budget proposed to (1) increase the Oil Spill Liability Trust Fund (OSLTF) excise tax by one cent and expand the scope of the tax to include crudes produced from bituminous deposits and kerogen-rich rock;[47] (2) reinstate and extend the Superfund excise taxes, including a 9.7-cents-per-barrel excise tax on domestic crude oil and imported petroleum products and a tax on hazardous chemicals and imported materials used in the manufacture of hazardous chemicals, at a rate ranging from 22 cents to $4.87 per ton; and (3) reinstate the corporate environmental income tax, which would levy a 0.12% income tax on the amount by which corporate modified alternative minimum taxable income exceeds $2 million.[48] JCT estimates that the proposed modifications to the OSLTF excise tax would raise $1.2 billion between 2016 and 2026, with the Superfund excise tax proposals raising $6.2 billion and the Superfund environmental income tax raising $14.8 billion over the same budget window.[49]

Also included in the President's FY2017 budget proposal were several provisions that would affect the energy sector, but are not targeted specifically to energy. For example, the President's FY2017 budget proposed to repeal last-in, first-out (LIFO) inventory accounting methods. Repealing LIFO would increase tax liability for firms holding inventories that are expected to increase in value over time (e.g., oil). The President's FY2017 budget would also have modified the tax treatment of dual-capacity taxpayers, a proposal that would affect oil and gas companies operating abroad. These provisions are not listed in **Table 3**.

Selected Energy Tax Legislation and Proposals[50]

Enacted Legislation in the 114th Congress

As discussed above, the Protecting Americans from Tax Hikes (PATH) Act of 2015, enacted as Division Q of the Consolidated Appropriations Act, 2016 (P.L. 114-113), extended energy tax provisions that had expired at the end of 2014, for two years, through 2016.

Separately, Division P of P.L. 114-113 provided a longer-term extension for wind and solar tax credits, with those tax credits scheduled to phase out (the credit amounts gradually reduced) over time. Division P of P.L. 114-113 also temporarily modified the Section 199 deduction for independent refiners. These tax policy changes were enacted alongside provisions that removed crude oil export restrictions.[51]

The 114th Congress also passed legislation reauthorizing current law tax rates on motor fuels, which fund the Highway Trust Fund (HTF) and Leaking Underground Storage Tank (LUST) trust

[47] The purpose of this proposal is to ensure that oil from tar sands are subject to the OSLTF excise tax. See CRS Report R43128, *Oil Sands and the Oil Spill Liability Trust Fund: The Definition of "Oil" and Related Issues for Congress*, by Jonathan L. Ramseur.

[48] Unlike the Superfund excise taxes, the corporate environmental income tax has no direct connection to past or current pollution or polluting activities.

[49] U.S. Congress, Joint Committee on Taxation, *Estimated Budget Effects of the Revenue Provisions Contained in the President's Fiscal Year 2017 Budget Proposal*, committee print, 114th Congress, March 24, 2016, JCX-15-16.

[50] A comprehensive list of all pending energy tax legislation in the 114th Congress is beyond the scope of this report. The proposals included in this section represent prominent energy-tax initiatives. A number of other energy tax-related bills introduced to date in the 114th Congress propose to extend, expand, or create specific energy-related tax provisions.

[51] For more information, see CRS Report R44403, *Crude Oil Exports and Related Provisions in P.L. 114-113: In Brief*, by Phillip Brown, John Frittelli, and Molly F. Sherlock.

fund (the Fixing America's Surface Transportation (FAST) Act (P.L. 114-94)).[52] In addition to extending current law, the FAST Act changed the way excise taxes are levied on liquefied natural gas (LNG), liquefied petroleum gas (propane), and compressed natural gas (CNG). Specifically, the legislation specified that excise taxes on these fuels be levied on an "energy equivalent" as opposed to per gallon basis.

Energy Tax Proposals in the 114th Congress

Members of the 114th Congress have introduced various pieces of energy-tax-related legislation. This section briefly reviews selected legislation and proposals.

Taxes or Fees on Carbon Emissions[53]

On June 10, 2016, the House passed H.Con.Res. 89, expressing the sense of Congress that a carbon tax would be detrimental to the United States economy. Earlier in the 114th Congress, S.Con.Res. 1 was introduced to express the sense of Congress that a carbon tax is not in the economic interest of the United States. S.Amdt. 350 to S.Con.Res. 11, proposed and withdrawn on March 25, 2015, would have created a point of order against carbon tax or carbon fee legislation. Similar resolutions were introduced in the 113th Congress, as was legislation that sought to prohibit the Secretary of the Treasury or the Environmental Protection Agency from implementing a carbon tax (see H.R. 1486 in the 113th Congress).

Legislation has been introduced in both the House and Senate that would impose a tax or fee on carbon or greenhouse gas emissions. In the House, H.R. 309 would impose a tax on CO_2 emissions from highway fuels, with the idea that the tax on emissions would replace the current federal excise tax on fuels.[54] Other legislation (H.R. 972) would require emissions permits be purchased from the Treasury, and impose a tax on persons failing to obtain such permits. H.R. 1027 would take a "cap and dividend" approach to requiring emissions permits. H.R. 2202 proposes an excise tax on greenhouse gas emissions, while H.R. 3104 proposes an excise tax on any taxable carbon substance. The American Opportunity Carbon Fee Act of 2015 (S. 1548) would assess fees on major sources of greenhouse gas emissions.

Other

Legislation in the 114th Congress proposes repealing various energy tax incentives, using revenues to reduce the corporate tax rate (see the Energy Freedom and Economic Prosperity Act [H.R. 1001]). Legislation has also been proposed that would repeal a subset of energy tax expenditures, specifically those available to certain oil and gas companies (e.g., the Close Big Oil Tax Loopholes Act, S. 1907). In the House, similar provisions have also been included in legislation that would repeal the excise tax on medical devices (H.R. 1533). Other legislation has proposed repealing certain tax incentives for oil and gas while either temporarily extending (H.R. 4040) or making permanent incentives for renewables (H.R. 3733).

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[52] For more information, see CRS Report RL30304, *The Federal Excise Tax on Motor Fuels and the Highway Trust Fund: Current Law and Legislative History*, by Sean Lowry.

[53] For background, see CRS Report R42731, *Carbon Tax: Deficit Reduction and Other Considerations*, by Jonathan L. Ramseur, Jane A. Leggett, and Molly F. Sherlock and Donald Marron, Eric Toder, and Lydia Austin, *Taxing Carbon: What, Why, and How*, Tax Policy Center, June 2015, available at http://www.taxpolicycenter.org/UploadedPDF/2000274-Taxing-Carbon-What-Why-and-How.pdf.

[54] For background, see CRS Report RL30304, *The Federal Excise Tax on Motor Fuels and the Highway Trust Fund: Current Law and Legislative History*, by Sean Lowry.

There has also been congressional interest in ensuring that tar sands oil is subject to the Oil Spill Liability Trust Fund (OSLTF) excise tax. S.Amdt. 123 to S. 1 (the Keystone XL Pipeline Act) expressed the sense of the Senate that all forms of unrefined and unprocessed petroleum should be subject to the OSLTF excise tax. Similar provisions were proposed as a revenue offset in the Student Loan Affordability Act (S. 953) in the 113th Congress.[55]

[55] For background and other legislation containing similar proposals see CRS Report R43128, *Oil Sands and the Oil Spill Liability Trust Fund: The Definition of "Oil" and Related Issues for Congress*, by Jonathan L. Ramseur.

Appendix. Energy Tax Legislation in Past Congresses

This appendix describes legislation during the 108th through 113th Congresses that shaped current energy tax policy.

Enacted Legislation in the 108th and 109th Congresses

The Working Families Tax Relief Act of 2004 (P.L. 108-311)

Several energy tax incentives were extended as part of the Working Families Tax Relief Act of 2004, a $146 billion package of middle class and business tax breaks. This legislation, which was signed into law on October 4, 2004, retroactively extended four energy tax subsidies: the Section 45 renewable energy production tax credit, suspension of the 100% net income limitation for the oil and gas percentage depletion allowance, the $4,000 tax credit for electric vehicles, and the deduction for clean fuel vehicles (which ranges from $2,000 to $50,000). The Section 45 tax credit and the suspension of the 100% net income limitation had each expired on January 1, 2004, but were retroactively extended through December 31, 2005. The electric vehicle credit and the clean-vehicle income tax deduction were in the process of being phased-out (phase-out had begun on January 1, 2004). The Working Families Tax Relief Act of 2004 suspended the phase-out—providing 100% of the tax breaks—through 2005. The tax breaks were resumed beginning on January 1, 2006, when only 25% of the tax break was available.

The American Jobs Creation Act of 2004 (P.L. 108-357)

The American Jobs Creation Act of 2004 was enacted on October 22, 2004. It included about $5 billion in energy tax incentives primarily targeted at renewable energy as well as alcohol and biofuels. In particular, the act created the production tax credit, eliminated reduced tax rates for most blended alcohol fuels, established the biodiesel fuel and small refiner tax credits, and allowed a credit for oil and gas produced from marginal wells.[56]

The Energy Policy Act of 2005 (P.L. 109-58)

The Energy Policy Act of 2005 was enacted on August 8, 2005. It included an estimated $9 billion, over five years, in tax incentives distributed among renewable energy, conservation, and traditional energy sources. Among the larger provisions of the act, in revenue cost terms, were the enactment of several alternative technology vehicle credits, enactment of three investment credits for clean coal, and the extension of the production tax credit.

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[56] The alcohol fuel mixture tax credit, which became law in 2005, has been the source of controversy as the credit has been claimed by a number of paper companies that burn "black liquor," a practice that was not anticipated when the legislation was drafted. When the credit was initially enacted, it was expected to cost less than $100 million annually. During the first 6 months of 2009, more than $2.5 billion has been claimed for this tax credit. For more information see Martin A. Sullivan, "IRS Allows New $25 Billion Tax Break for Paper Industry," *Tax Notes*, October 19, 2009, pp. 271-272 and Chuck O'Toole, "Baucus, Grassley Draft Bill to End 'Black Liquor' Subsidy," *Tax Notes*, June 15, 2009, pp. 1312-1313.

The Tax Increase Prevention and Reconciliation Act (P.L. 109-222)

The Tax Increase Prevention and Reconciliation Act (P.L. 109-222) was enacted May 17, 2006. It reduced the value of the subsidy by raising the amortization period from two years to five years, still faster than the capitalization treatment before the 2005 act, but slower than the treatment under that act. The higher amortization period applies only to the major integrated oil companies—independent (unintegrated) oil companies may continue to amortize all geological and geophysical (G&G) costs over two years—and it applies to abandoned as well as successful properties. This change increased taxes on major integrated oil companies by an estimated $189 million over 10 years, effectively rescinding about 20% of the nearly $1.1 billion 11-year tax for oil and gas production under the Energy Policy Act of 2005.

The Tax Relief and Health Care Act of 2006 (P.L. 109-432)

At the end of 2006, the 109th Congress enacted a tax extenders package that included extension of numerous renewable energy and excise tax provisions. Many of the renewable energy provisions in this bill had already been extended under the Energy Policy Act of 2005 and were not set to expire until the end of 2007 or later. The Tax Relief and Health Care Act of 2006 provided for one-year extensions of these provisions.

Enacted Legislation in the 110th and 111th Congresses

Energy tax policy in the 110th Congress represented a shift towards increased tax burden (via the removal of subsidies) on the oil and gas industry while also emphasizing energy conservation and alternative and renewable fuels, as opposed to conventional hydrocarbons.[57] This policy direction appeared to be the result of high crude oil and petroleum product prices and oil and gas industry profits, along with the political realignment of the Congress after the 2006 congressional elections. The shift was manifested by proposals to reduce oil and gas production incentives or subsidies, which were initially incorporated into, but ultimately dropped from comprehensive energy policy legislation. Later in the 110th Congress, enacted legislation focused on increasing incentives for renewable energy production, rather than reducing tax incentives available to the oil and gas industries. The fact that tax incentives for oil and gas were left in place is in part a reflection of the deteriorating business climate during 2008.

Energy tax legislation in the 111th Congress continued to provide additional support for renewables and energy efficiency. As was the case in previous Congresses, much of the energy tax legislation enacted during the 111th Congress extended expired or expiring energy-related tax incentives. The American Recovery and Reinvestment Act (ARRA; P.L. 111-5) introduced new incentives for renewable energy and advanced energy manufacturing, while providing enhanced incentives for residential energy efficiency. The 111th Congress also eliminated the "black liquor loophole."

Energy Independence and Security Act of 2007 (P.L. 110-140)

The Energy Independence and Security Act of 2007 (P.L. 110-140; H.R. 6) contained a number of provisions designed to increase energy efficiency and the availability of renewable energy. Specifically, the act increased the target fuel efficiency for combined fleets of cars and light

[57] There is an important economic distinction between a subsidy and a tax benefit. As is discussed elsewhere in this report, firms receive a variety of tax benefits that are not necessarily targeted subsidies (or tax expenditures) because they are available generally.

trucks, increased renewable fuel standards, and increased a number of energy-efficiency standards for household and commercial appliance equipment.

Energy Tax Provisions in the Food, Conservation, and Energy Act of 2008 (P.L. 110-234)

The Food, Conservation, and Energy Act of 2008 (P.L. 110-234), otherwise referred to as the 2008 Farm Bill, contained two energy tax provisions.[58] The first provision promotes cellulosic biofuels through a production credit of $1.01 per gallon, which applies to fuels produced from qualifying cellulosic feedstocks. The second provision, the ethanol blender's tax credit (which applies to both domestic and foreign sourced ethanol), was reduced from $0.51 per gallon to $0.45 per gallon.[59]

The Emergency Economic Stabilization Act of 2008 (P.L. 110-343)

The Emergency Economic Stabilization Act of 2008 (P.L. 110-343), included $17 billion in energy tax incentives. These provisions were primarily extensions of existing provisions (extenders), but also including several new energy tax incentives. The new provisions included $10.9 billion in renewable energy tax incentives aimed at clean energy production, $2.6 billion in incentives targeted toward cleaner vehicles and fuels, and $3.5 billion in tax breaks to promote energy conservation and energy efficiency. The cost of the energy tax extenders legislation in the Emergency Economic Stabilization Act of 2008 was fully financed, or paid for, by raising taxes on the oil and gas industry (mostly by reducing oil and gas tax breaks) and by other tax increases.

The American Recovery and Reinvestment Act of 2009 (ARRA; P.L. 111-5)

ARRA modified incentives for renewable energy production, energy conservation, alternative technology vehicles, as well as a number of other energy tax incentives.[60] Collectively, ARRA's energy tax provisions lowered the cost of selected renewable energy relative to energy from other sources, such as oil and gas. Provisions enacted under ARRA extended and expanded a number of incentives for investment in renewable energy. The renewable energy production tax credit (PTC) was extended through 2012 for wind and 2013 for other eligible technologies, the energy credit (ITC) was expanded for small wind property, and taxpayers were given the option of receiving a direct grant from the Treasury in lieu of tax credits under the Section 1603 grant program.[61] Renewable energy production was also encouraged by ARRA's provision increasing the funds available for the issuance of new clean renewable energy bonds. Residential incentives for renewable energy property were expanded under ARRA, as property-specific credit caps for residential renewable energy property were removed.

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[58] See CRS Report RL34696, *The 2008 Farm Bill: Major Provisions and Legislative Action*, coordinated by Renée Johnson for a complete description of the provisions in the 2008 Farm Bill.

[59] For cellulosic ethanol, the value of the cellulosic biofuel production credit is reduced by the value of the ethanol blender's credit and the small ethanol producer credit—so that the combined value of the credits equals $1.01. Thus, the credit for cellulosic ethanol is currently $0.46 per gallon ($1.01 minus $0.45 minus $0.10 [the small ethanol producer credit]). If the blender's credit and small ethanol producer credit were reduced (or eliminated), the value of the cellulosic ethanol production credit would increase to keep the combined value at $1.01.

[60] For information on all energy provisions in ARRA see CRS Report R40412, *Energy Provisions in the American Recovery and Reinvestment Act of 2009 (P.L. 111-5)*, coordinated by Fred Sissine.

[61] The renewable energy PTC for wind facilities was extended through 2012.

ARRA contained two tax provisions intended to encourage energy conservation. The first provision modified the tax credits for energy-efficient improvements to existing homes by temporarily increasing the credit rate and removing credit caps previously associated with specific types of property. For qualified energy-efficiency improvements, such as the installation of energy-efficient building envelope components, furnaces, or boilers, installed during 2009 and 2010, taxpayers could claim a 30% tax credit.[62] ARRA also removed property-by-property caps on the tax credit and replaced them with a $1,500 cap for the total amount of the credit claimed during 2009 and 2010.[63] The second energy conservation provision increased funds available for the issue of qualified energy conservation bonds.

To further promote alternative technology vehicles, tax provisions enacted under ARRA modified the credits for alternative fuel vehicles and plug-in electric vehicles. Additionally, a tax credit for plug-in vehicle conversion was enacted.

Tax credits for advanced energy manufacturing (IRC §48C) were also introduced under ARRA. This provision provided $2.3 billion in tax credits to be competitively awarded to qualifying projects.

The Health Care and Education Reconciliation Act of 2010 (P.L. 111-152)

Energy tax policy—like all tax policy—can lead to unanticipated consequences. Notably, this issue arose in the 111th Congress in its deliberations concerning "black liquor." In the context of taxes, the term "black liquor" referred to a process in which pulp mills use a mixture of conventional fuel and a byproduct of the pulping process as an energy source for the mill. According to changes enacted in The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (P.L. 109-59; SAFETEA-LU), "black liquor" was eligible for the alternative fuels tax credit, which was not the congressional intent of the provision.[64] The IRS later ruled that black liquor would be eligible for the cellulosic biofuel producer credit after the alternative fuels mixture credit expired at the end of 2009.

Recognizing the unintended consequence, Senate Finance Committee Chairman Max Baucus[65] stated in response to draft legislation, "Our measure ensures this tax credit is used consistently as the law intended, not through an unintended loophole." Senator Charles Grassley[66] made similar statements, noting "The paper industry was not intended to receive the alternative fuels tax credit when the credit was enacted." Under The Health Care and Education Reconciliation Act of 2010 (P.L. 111-152), black liquor was made ineligible for the cellulosic biofuel producer credit,

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[62] Prior to ARRA, the credit rate was 10%.

[63] Prior to ARRA, the credit caps ranged from $50 to $300, depending on the type of property installed. The credit was limited to $500 total for the 2006 and 2007 tax years combined. The credit was not available in 2008. The $1,500 limit applies to cumulative spending in the 2009 and 2010 tax years.

[64] See Martin A. Sullivan, "IRS Allows New $25 Billion Tax Break for Paper Industry," Tax Notes, October 19, 2009, pp. 271-272 for additional information concerning the original legislative intent of the modification of the alternative fuels tax credit in SAFETEA-LU. When enacted, the modification to the alternative fuels tax credit was estimated to cost less than $100 million annually. During the first six months of 2009, more than $2.5 billion were claimed for this tax credit, mostly by the paper industry. In addition, the Joint Committee on Taxation estimated that $23.6 billion will be saved between 2010 and 2019 from excluding black liquor from the cellulosic biofuel producer's credit.

[65] U.S. Congress, Senate Committee on Finance, "Baucus, Grassley Release Staff Draft of Legislation to Close Alternative Fuels Tax Credit Loophole," press release, June 11, 2009, http://finance.senate.gov/press/Gpress/2009/prg061109.pdf.

[66] Ibid.

reducing revenue losses by $23.6 billion between 2011 and 2019.[67] In addition, with the passage of The Tax Relief, Unemployment Insurance Reauthorization and Job Creation Act of 2010 (P.L. 111-312) at the end of 2010, black liquor could no longer qualify for the alternative fuels tax credit. However, taxpayers may still be claiming tax credits for black liquor, as previously unused credits may be carried forward.

The Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010 (P.L. 111-312)

A number of expiring energy tax provisions were temporarily extended in the Tax Relief, Unemployment Reauthorization, and Job Creation Act of 2010 (P.L. 111-312). The one-year extension of tax credits for alcohol fuels, including ethanol, was estimated to cost $4.9 billion. Extending the Section 1603 grant in lieu of tax credits program for one year was estimated to cost $3.0 billion. The retroactive extension of tax incentives for biodiesel and renewable diesel, which had expired at the end of 2009, was estimated to cost $2.0 billion. Other provisions that were extended included tax credits for residential energy efficiency improvements,[68] energy efficient appliance manufacturers, and energy efficient new homes. Tax provisions related to refined coal, alternative fuel mixtures, electric transmission restructuring, percentage depletion for oil and gas production, and alternative fuel vehicle refueling property were also extended.

Enacted Legislation in the 112th Congress

Energy tax legislation enacted in the 112th Congress included measures to extend expired or expiring energy tax incentives. Notably, a number of energy provisions were not extended, including tax credits for ethanol and the Section 1603 grants in lieu of tax credits. Both of these provisions had expired at the end of 2011. The provision allowing for the suspension of the 100%-of-net-income limitation on percentage depletion, which had been part of multiple past tax extenders packages, was also not extended.

The American Taxpayer Relief Act of 2012 (P.L. 112-240)[69]

Several expired and expiring energy tax incentives were temporarily extended as part of the American Taxpayer Relief Act of 2012 (ATRA; P.L. 112-240). While most expiring energy tax provisions were simply extended through the end of 2013 under ATRA, substantive changes were made to the renewable energy production tax credit (PTC). Specifically, the expiration date for the PTC was changed from a placed-in-service deadline to a construction start date for all qualifying technologies. Extending the PTC for wind for one year and changing the deadline from a placed-in-service to construction start date was estimated to cost $12.2 billion over the 10-year budget window. Other provisions that were extended include credits for biodiesel, renewable diesel, alternative fuels, and second generation (cellulosic) biofuels. The tax credit for cellulosic biofuels was modified to include algae-based fuels. Other incentives related to energy efficiency,

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[67] See Joint Committee on Taxation, JCX-17-10, available at http://www.jct.gov/publications.html?func=showdown&id=3672.

[68] These credits were extended at a reduced rate, 10% as opposed to 30%. The limit associated with the credit was also reduced, from $1,500 to $500. Property specific caps for certain types of investments were reinstated.

[69] For more information, see CRS Report R42894, *An Overview of the Tax Provisions in the American Taxpayer Relief Act of 2012*, by Margot L. Crandall-Hollick, An Overview of the Tax Provisions in the American Taxpayer Relief Act of 2012 , by Margot L. Crandall-Hollick.

including the tax credit for nonbusiness energy property and the credit for the manufacture of energy-efficient appliances, were also extended.

Enacted Legislation in the 113th Congress

Like the 112th Congress, the primary energy tax legislation in the 113th Congress was to extend expired energy tax provisions.

The Tax Increase Prevention Act of 2014 (P.L. 113-295)

Several expired energy tax incentives were temporarily extended as part of the Tax Increase Prevention Act of 2014 (P.L. 113-295). Certain provisions were extended through the end of 2014, while others were allowed to expire. A majority of expiring energy tax incentives were preserved as part of the Tax Increase Prevention Act across multiple energy sectors, including fossil fuels, renewables, efficiency, and alternative technology vehicles. Select provisions related to alternative vehicles (credit for electric drive motorcycles and three wheeled vehicles) and energy efficiency (credit for energy efficient appliances) were allowed to expire.

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