



Energy Tax Policy: Issues in the 112th Congress

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September 24, 2012

Congressional Research Service

7-5700

www.crs.gov

R41769

CRS Report for Congress

Prepared for Members and Committees of Congress

Summary

Energy tax policy has been actively debated in the 112th Congress. Much of this debate has centered around proposals in the President's FY2012 and FY2013 budgets, proposals to eliminate certain tax preferences, and proposals to extend other expired or expiring provisions. The Obama Administration has proposed a number of changes in energy tax policy with the intent of correcting perceived distortions in the market and encouraging conservation and the use of renewable energy. Specifically, the Administration seeks to eliminate a number of existing tax incentives for fossil fuels. Further, the Administration has proposed expanding select incentives for commercial-building energy efficiency, extending incentives to promote manufacturing of advanced energy technologies, extending certain renewable energy incentives, and modifying incentives for alternative technology vehicles.

In early 2012, Congress considered the possible extension of certain temporary energy tax provisions, which had either expired at the end of 2011 or were scheduled to expire in coming years (see S.Amdt. 1812 to S. 1813 and S. 2204). S. 2204 would pay for the extension of certain expired and expiring provisions by eliminating certain tax incentives for oil and gas. Many of the provision that expired at the end of 2011 were previously granted a temporary extension as part of the Tax Relief, Unemployment Reauthorization, and Job Creation Act (P.L. 111-312), enacted in December 2010. Many of these provisions would be extended by "tax extender" legislation introduced in the Senate, the Family and Business Tax Cut Certainty Act of 2012 (S. 3521).

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. 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.

The economic rationale for government intervention in energy markets is commonly based on the government's perceived ability to correct for market failures. Market failures, such as externalities, principal-agent problems, and informational asymmetries, result in an economically inefficient allocation of resources—in which society does not maximize well-being. To correct for these market failures governments can utilize several policy options, including taxes, subsidies, and regulation, in an effort to achieve policy goals.

Current energy policy reflects efforts to achieve both current and past policy objectives. Recent legislative efforts have primarily focused on renewable energy production and conservation to address environmental concerns. In contrast, past efforts attempted to reduce reliance on foreign energy sources through increased domestic production of fossil fuels. Legislation enacted in the 111th Congress focusing on encouraging renewable energy production and conservation reduces reliance on imported, foreign oil, while also addressing environmental concerns by reducing the use of fossil fuels. Favorable tax preferences given to domestic fossil fuel energy sources also promote domestic energy production, reducing the demand for imported oil.

Contents

Introduction.....	1
Policy Intervention in Energy Markets	2
Rationale for Intervention in Energy Markets	2
Externalities.....	3
Principal-Agent and Informational Inefficiencies	3
National Security.....	4
Potential Interventions in Energy Markets	5
Taxes as a User Charge.....	7
Current Status of U.S. Energy Tax Policy.....	7
Fossil Fuels.....	15
Renewable Energy Resources	16
Energy Efficiency and Conservation.....	17
Alternative Technology Vehicle Credits.....	18
Other Energy Tax Provisions.....	18
Energy Tax Issues in the 112 th Congress.....	19
The President’s Fiscal Year 2013 Budget Proposal	19
Expired and Expiring Energy Tax Provisions.....	20
The Tax Relief, Unemployment Reauthorization, and Job Creation Act of 2010 (P.L. 111-312).....	23
The American Recovery and Reinvestment Act of 2009 (P.L. 111-5).....	23
Carbon Tax / Climate Change.....	24

Tables

Table 1. Energy Tax Provisions	8
Table 2. Energy Tax Provisions Expiring at the End of 2011	21

Appendixes

Appendix. Energy Tax Legislation Prior to the 111 th Congress.....	26
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Contacts

Author Contact Information.....	28
Acknowledgments	28

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 even 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 national security. Incentives promoting renewable energy production, energy efficiency and conservation, and alternative technology vehicles address both environmental and national security concerns. Tax incentives for the domestic production of fossil fuels also promote energy security by attempting to reduce the nation's reliance on foreign, imported energy sources.

The President's FY2012 and FY2013 budgets provide one starting point for evaluating energy tax policy in the 112th Congress. These budgets contain proposals that would scale back existing tax incentives for fossil fuels, enhance tax incentives for energy efficiency in commercial buildings, extend expired and expiring tax incentives for renewables, and use tax credits to promote advanced energy manufacturing.¹

The 112th Congress may take a closer look at a number of energy tax incentives, and pare back energy-related tax expenditures, as part of the broader deficit reduction strategy. The 112th Congress may also consider acting to extend a number of expired and expiring energy tax provisions. A number of energy-related tax incentives expired at the end of 2011.² A number of expiring incentives would be extended in the Family and Business Tax Cut Certainty Act of 2012 (S. 3521).

The primary vehicle for energy tax legislation in the 111th Congress was the American Recovery and Reinvestment Act of 2009 (ARRA; P.L. 111-5). This legislation contained a number of provisions that expanded and extended incentives for renewable energy, energy conservation, and alternative technology vehicles. Many of these and other energy provisions were extended for an additional year through the end of 2011 by the Tax Relief, Unemployment Reauthorization, and Job Creation Act of 2010 (P.L. 111-312).

¹ For more information, Department of the Treasury, *General Explanations of the Administration's Fiscal Year 2012 Revenue Proposals*, Washington, DC, February 2011, available at <http://www.treasury.gov/resource-center/tax-policy/Pages/Greenbook.aspx>; and Department of the Treasury, *General Explanations of the Administration's Fiscal Year 2013 Revenue Proposals*, Washington, DC, February 2012, available at <http://www.treasury.gov/resource-center/tax-policy/Pages/Greenbook.aspx>.

² For more information on expired tax provisions and tax extenders, see CRS Report R42105, *Tax Provisions Expiring in 2011 and "Tax Extenders"*, by Molly F. Sherlock.

The 111th Congress also considered comprehensive climate legislation. On June 26, 2009, the House passed the American Clean Energy and Security Act of 2009 (H.R. 2454), that would have established a greenhouse gas emissions cap-and-trade program. At the start of the 112th Congress, the focus of energy tax policy appears to have shifted away from comprehensive climate legislation.

The idea of applying tax policy instruments to energy markets is not new, but until the 1970s, 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. At the start of the 112th Congress, energy tax policy appears to be designed to encourage energy efficiency and renewable energy production while continuing to promote U.S. energy security.

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.

The **Appendix** of this report provides a brief summary of energy tax policies enacted in the 108th, 109th, and 110th Congresses.

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 (for example the “Making Work Pay” tax credit included in ARRA which provided a tax credit of up to \$400 to many American workers) or to achieve social objectives (for example, encouraging greater labor force participation by subsidizing low-wage work with the Earned Income Tax Credit or EITC). 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

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 to rationalize 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. In the presence of externalities, the market outcome will likely lead to an economically inefficient level of production or consumption.

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 will result in 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 (i.e., coal-fired power plants) and at the consumer level (i.e., using gasoline to power automobiles), and the associated greenhouse gas emissions have contributed to global climate change.³

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.⁴

Principal-Agent and Informational Inefficiencies

Market failures in energy use may also arise due to the principal-agent problem.⁵ 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

³ See CRS Report RL34513, *Climate Change: Current Issues and Policy Tools*, by Jane A. Leggett for an overview of climate change issues and potential policy remedies.

⁴ 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.

⁵ 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>.

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.⁶ 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 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.⁷

National Security

Preserving national security is another often-cited rationale for intervention in energy markets. Presently, much of the petroleum consumed in the United States is derived from foreign sources. 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

⁶ 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.

⁷ Gilbert E. Metcalf, “Using Tax Expenditures to Achieve Energy Policy Goals,” *American Economic Review*, vol. 98, no. 2 (2008), pp. 90-94.

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.⁸

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.⁹ 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.¹⁰ The tax serves to increase the price of the activity, and 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.¹¹ In recent years, proponents of greenhouse gas controls favored a cap and trade policy as discussed below.

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 opposed 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.¹² Second, while the subsidy is intended to enhance economic efficiency, subsidies may be inefficient to the extent they are funded using distortionary taxes.¹³ Hence, the more economically efficient alternative may be to place a tax on the undesirable activity.

⁸ 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.

⁹ 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.

¹⁰ Taxes imposed to correct for negative externalities are also known as Pigovian taxes, named after the economist who developed the concept, Arthur Cecil Pigou.

¹¹ See 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.

¹² Gilbert E. Metcalf, *Tax Policies for Low-Carbon Technologies*, National Bureau of Economic Research, Working Paper 15054, Cambridge, MA, June 2009.

¹³ Gilbert E. Metcalf, "Federal Tax Policy towards Energy," *Tax Policy and the Economy*, vol. 21 (2007), pp. 145-184.

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.¹⁴ 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 (IRC §41)).¹⁵

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, the definition of 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. Nonetheless, the exclusion may serve to ameliorate some of the market failure in rental property.

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'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.¹⁶ 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.¹⁷

¹⁴ 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.

¹⁵ See CRS Report RL31181, *Research Tax Credit: Current Law, Legislation in the 112th Congress, and Policy Issues*, by Gary Guenther for an overview of the research tax credit, an umbrella credit under which the energy research credit falls.

¹⁶ Subsidizing domestic production is also problematic in that such policies conflict with environmental objectives.

¹⁷ Gilbert E. Metcalf, "Using Tax Expenditures to Achieve Energy Policy Goals," *American Economic Review*, vol. 98, no. 2 (2008), pp. 90-94.

Taxes as a User Charge

Energy taxes may be employed as user charges for a public good or a quasi-public good.¹⁸ 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.¹⁹ 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 rationalized as a user fee for the federal highway system.²⁰ 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.²¹ 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.

Current Status of U.S. Energy Tax Policy

Current U.S. energy tax policy appears to be aimed at stemming growth in U.S. dependence on imported oil, especially from volatile regions of the world.²² This reflects the belief that national security is linked to energy security. Many of the specific policies currently in place are the result of past legislative action and initiatives. The short-run policies aim to increase the domestic energy production of fossil fuels, while the long-run policies appear to be aimed at promoting energy conservation and the use of renewable energy sources. Recently, policies have been adopted that support the transportation sector, with tax incentives for hybrid and plug-in electric vehicles and alternative fuels. **Table 1** contains a current list of energy-related tax expenditures and other energy tax provisions.²³

¹⁸ 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.

¹⁹ 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.

²⁰ For background information on the federal gas tax see CRS Report R40808, *The Role of Federal Gasoline Excise Taxes in Public Policy*, by Robert Pirog.

²¹ Another argument is that the federal gas tax should be viewed as correcting the externalities associated with gasoline-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.

²² For information related to recent international events, see CRS Report R41632, *Implications of Egypt's Turmoil on Global Oil and Natural Gas Supply*, by Michael Ratner and CRS Report R41683, *Middle East and North Africa Unrest: Implications for Oil and Natural Gas Markets*, by Michael Ratner.

²³ 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, or defer tax liability. Technically, excise tax credits are not considered tax expenditures, since tax expenditures refer only to provisions related to income tax liability.

Table I. Energy Tax Provisions

(billions of dollars)

Tax Provision	Description	Cost 2011-2015	Expiration Date	I.R.C. Section
Fossil Fuels				
Expensing of percentage over cost depletion ^a	Firms that extract oil or gas are permitted to deduct 15% of sales (up to 25% for marginal wells depending on oil prices) to recover their capital investment in a mineral reserve.	\$5.5	none	611, 612, 613, 613A, 291
Expensing of exploration and development costs	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).	\$4.4	none	263(c), 291, 616-617, 57(a)(2), 59(e), 1254
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 property is depreciated over 2 years for independent producers.	\$0.6	none	167(h)
Coal Production Credits ^a	A \$6.27-per-ton production credit for refined coal used to produce steam, or a \$2.20 per-ton production credit (all adjusted for inflation from 1992) for coal reserves owned by an Indian tribe.	\$0.2	12/31/2011 (refined coal excluding steel industry fuel) 12/31/2012 (Indian coal)	45
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. 111-343).	\$1.0	credit allocation limit	48A, 48B

Tax Provision	Description	Cost 2011-2015	Expiration Date	I.R.C. Section
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 five years is less than 100%.	\$0.8	none	169
Renewable Energy Resources				
Credits for electricity production from renewable resources ("PTC" or "production tax credit") ^b	Tax credit of 2.2¢/kWh for electricity produced from wind, closed-loop biomass, and geothermal energy. Tax credit of 1.1¢/kWh for electricity produced from open-loop biomass, solar, small irrigation, landfill gas, trash combustion, qualified hydropower, marine and hydrokinetic sources. The tax credit is available for 10 years after the date the facility is placed in service.	\$9.1	Property must be placed in service by 12/31/2013 (12/31/2012 for wind)	45
Energy credit ("ITC" or "investment tax credit") ^b	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.	\$2.5	none (geothermal excluding geothermal heat pumps) 12/31/2016 (other technologies; solar has permanent 10% credit after 2016)	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.	\$15.9	Under construction by 12/31/2011. Placed-in-service deadline conforms with PTC or ITC.	45, 48

Tax Provision	Description	Cost 2011-2015	Expiration Date	I.R.C. Section
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. Fuel cell power plants receive 30% credit, limited to \$500 for each 0.5 kilowatt of capacity.	\$0.9	12/31/2016	25D
Five-year cost recovery of certain energy property	Accelerated depreciation allowances are provided under the modified accelerated cost recovery system (MARC)s for investments in certain energy property. Specifically, certain solar, wind, geothermal, fuel cell, combined heat and power (CHP), microturbine and biomass property has a five year recovery period. Cellulosic biofuel plant property is allowed an additional first-year depreciation deduction equal to 50% of the property's adjusted basis.	\$1.1	12/31/2012 (placed in service date for cellulosic biofuel property) None (other technologies)	168
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.	\$0.4	volume limited (all authorized CREB and new CREB funds have been allocated)	54, 54C
Credit for alcohol fuels, biodiesel, and alternative fuels ^a	Coordinated income and excise tax credits. Ethanol tax credit generally 45¢ per gallon (extra 10¢ for small producers); alcohol tax credit generally 60¢ per gallon for alcohol other than ethanol; \$1 per gallon for biodiesel, agri-biodiesel, and renewable diesel (extra 10¢ for small producers of agri-biodiesel); alternative fuels generally 50¢ per gallon; cellulosic biofuels generally \$1.01 per gallon. Passage of various legislation in the 111 th Congress made black liquor ineligible for both the cellulosic biofuel producer credit and the alternative fuels tax credit. Depending on the specific incentive, tax credits go to fuel producers and/or blenders.	\$11.8 (ii)	12/31/2011 (except for cellulosic biofuels production credit) 12/31/2012 (cellulosic biofuels credit)	40, 40A, 6426, 6427(e)

Tax Provision	Description	Cost 2011-2015	Expiration Date	I.R.C. Section
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.	\$1.4	Capped (all available credits were allocated in the first allocation round which ended 10/16/2009)	48C
Energy Efficiency and Conservation				
Credit for nonbusiness energy property ^a	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. This credit replaces the 30% credit, up to \$1,500, that was available during 2009 and 2010.	\$2.8	12/31/2011	25C
Deduction for expenditures on energy-efficient commercial property	Tax deduction for the cost of building envelope components, heating cooling systems, and lighting. The deduction is limited to \$1.80 per square foot.	\$0.9	12/31/2013	179D
Exclusion of energy conservation subsidies provided by public utilities	Subsidies are not taxable as income.	\$0.1	none	136
Energy-efficient new home credit ^a	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.	\$0.1	12/31/2011	45L
Credit for producing energy-efficient appliances ^a	Tax credit based on energy efficiency. Maximum credit is \$75 for dishwashers, \$200 for refrigerators, and \$225 for clothes washers.	\$0.4	12/31/2011	45M
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.	\$0.2	volume limited	54D

Tax Provision	Description	Cost 2011-2015	Expiration Date	I.R.C. Section
Alternative Technology Vehicles				
Hybrid vehicles, other alternative fuel vehicles, and plug-in electric vehicles	<p>The first 60,000 hybrid cars or light trucks sold per manufacturer are eligible for a credit of \$400 to \$2,400 (depending on fuel economy). An additional credit of \$250 to \$1,000 is available depending on a vehicles expected lifetime fuel savings. Heavy vehicles (those exceeding 8,500 pounds) qualify for up to \$30,000 in credits which are not subject to a volume cap.</p> <p>Fuel cell vehicles receive a base credit of \$4,000 (reduced to \$4,000 after 2009) 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.</p> <p>A 10% credit, up to \$2,500, is available for the cost of electric-drive low-speed neighborhood vehicle, motorcycle and three-wheeled vehicles. A 10% credit, up to \$4,000, is available for conversion to a plug-in electric drive vehicle.</p> <p>Lean burn vehicles are eligible for the same credit as hybrid vehicles. Alternative fuel vehicles can qualify for a credit of up to \$4,000 for cars and light trucks and \$32,000 for heavy vehicles. Credit amount varies according to the vehicle's incremental cost and ratio of alternative fuel use. (expired)</p> <p>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).</p>	\$2.2	<p>12/31/2010 for hybrids (12/31/2009 for vehicles weighing more than 8,500 pounds)</p> <p>12/31/2014 for fuel cell vehicles</p> <p>12/31/2011 for electric drive low speed vehicles and conversion to plug-in vehicle</p> <p>12/31/2010 for advanced lean burn vehicles, and alternative fuel vehicles</p> <p>Credit for plug-in electric vehicle volume capped for each manufacturer</p>	30, 30B, 30D
Credits for clean fuel vehicle refueling property	<p>A 30% credit for qualifying property, capped at \$30,000 for business property and \$1,000 for nonbusiness property. During 2009 and 2010, the credit was temporarily increased to 50%, capped at \$50,000 for business property and \$2,000 for nonbusiness property. During 2009 and 2010, hydrogen property was eligible for a credit up to \$200,000.</p>	\$0.3	<p>12/31/2011 (12/31/14 for hydrogen refueling property)</p>	30C

Tax Provision	Description	Cost 2011-2015	Expiration Date	I.R.C. Section
Other / Miscellaneous				
Election to expense 50% of qualified property used to refine liquid fuels	A taxpayer may elect to expense 50% of the cost of any qualified property used for processing liquid fuel from crude oil or qualified fuels. The remainder is recovered using a 10-year recovery period under the modified accelerated cost recovery system (MACRS).	\$3.0	12/31/2013 (property must be under contract for construction by 1/1/10)	179(c)
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 percent 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.	\$1.2	none	7704, 851
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.	\$0.2	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 (MACRS). Certain electric transmission property is allowed a 15-year depreciation. Natural gas distribution lines are also allowed a 15-year depreciation.	\$2.1	various	168(e)
Deferral of gains from the sale of electric transmission property ^a	A taxpayer may elect to recognize the gain from the sale of certain electric transmission property over an eight year period.	\$1.1	12/31/2011	451

Source: CRS compilation based on data from U.S. Congress, Joint Committee on Taxation, *Estimates of Federal Expenditures for Fiscal Years 2011–2015*, committee print, 112th Congress, January 17, 2012, JCS-1-12, U.S. Congress, Joint Committee on Taxation, *General Explanation of Tax Legislation Enacted in the 111th Congress*, committee print, 111th Congress, March 2011, JCS-2-11, and the President’s FY2013 budget, *Analytical Perspectives*.

Notes: Provisions estimated as *de minimis* (i.e., estimated to have a revenue loss of less than \$50 million over the 2011 through 2015 period) are not included in **Table I**. (i) = less than \$50 million per year; (ii) = This figure includes the reduction in excise tax receipts for alcohol fuels, biodiesel, and alternative fuel mixtures.

- a. Indicates that the provision was extended or modified by The Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010 (P.L. 111-312).
- b. Qualifying property that was under construction prior to the end of 2011 may be eligible for the Section 1603 Grant in Lieu of Tax Credit.

Energy efficiency, conservation measures, and domestic production of energy from renewable resources help reduce demand for fossil fuels by reducing energy demand and by diversifying the sources from which energy can be derived to meet U.S. demand. Unlike domestic fossil fuel subsidies, these policies are long-term because they require a commitment in the face of volatility in fossil fuel prices. Many renewable energy technologies may not have reached the stage where they are competitive in the market without subsidization.

Current energy tax policy is also the result of prior policy action undertaken in an effort to achieve the nation's long-standing goal of enhancing U.S. energy security. For example, the promotion of domestic fossil fuel production, the current principle short-run strategy, was a central tenet of energy tax policy from 1918 through the late 1960s. Further, the current long-run policies of conservation and alternative fuel sources have origins in tax policies from the 1970s.

Energy tax policy proposed in the Obama Administration's Fiscal Year 2013 Budget Proposal differs substantially from current U.S. energy tax policy. If fully enacted, the FY2013 budget would reduce or eliminate several energy tax policies that encourage energy production from the coal, oil, and gas industries, while expanding incentives for energy efficiency, renewable energy, and advanced energy manufacturing. This reflects the shift in energy tax policy from one primarily focused on enhancing U.S. energy security through diversification of energy resources towards a tax policy that more readily incorporates environmental concerns (tax policy that discourages the use of fossil fuels, regardless of their nation of origin).

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.²⁴ 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 Baucus²⁵ 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 Grassley²⁶ 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,

²⁴ 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 2010-2019 from excluding black liquor from the cellulosic biofuel producers credit.

²⁵ 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>.

²⁶ *Ibid.*

reducing revenue losses by \$23.6 billion between 2011 and 2019.²⁷ 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.

A further unintended consequence of energy tax credits—such as those for ethanol—is that by reducing the total cost of blended fuels, they may actually increase the consumption of fossil fuels that the credits were designed to reduce.²⁸

Fossil Fuels

There are a number of tax incentives currently available for energy production using fossil fuels. They can be broadly categorized as either enhancing capital cost recovery or subsidizing extraction of high-cost fossil fuels. The fossil fuels related incentives listed in **Table 1** are estimated to reduce federal tax revenues by \$12.5 billion between 2011 and 2015.

Among the capital cost subsidies, the allowance of the percentage depletion method is estimated to cost the most in foregone revenue, \$5.5 billion between 2011 and 2015.²⁹ 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. 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 property.³⁰ The expensing of exploration and development costs is also a relatively large tax expenditure, estimated to cost the federal government \$4.4 billion in revenue losses over the 2011 through 2015 budget window.

Compared to the capital cost recovery provisions, tax expenditures intended to offset high extraction or refining costs are small. Credits for refined coal production and enhanced oil recovery costs are estimated to cost \$0.2 billion between 2010 and 2014.³¹ Credits for investing in clean coal facilities collectively are estimated to cost approximately \$1.0 billion between 2011 and 2015.

²⁷ See Joint Committee on Taxation, JCX-17-10, available at <http://www.jct.gov/publications.html?func=showdown&id=3672>.

²⁸ Harry De Gorter and David R. Just, “The Law of Unintended Consequences: How the U.S. Biofuel Tax Credit with a Mandate Subsidizes Oil Consumption and Has No Impact on Ethanol Consumption,” *Cornell University Working Paper Series*, 2007-20 2008.

²⁹ 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.

³⁰ Expensing costs means to deduct the full cost of an investment in the current tax year, rather than depreciated the costs over a period of time.

³¹ The enhanced oil recovery credit was estimated at less than \$50 million for 2011 through 2015 and is therefore not included in **Table 1**. The tax credit for refined coal expired at the end of 2011.

Renewable Energy Resources

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 2011 and 2015, the total cost of tax provisions related to the production of renewable energy is estimated to be \$43.1 billion.

In the past, the primary tax incentive for renewable energy has been the credit for electricity production from renewable sources (the production tax credit or “PTC”). Section 1603 of the American Recovery and Reinvestment Act allowed projects eligible for the renewable PTC or investment tax credit (ITC) to claim a one-time grant in lieu of the tax credits. 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 2016. Between 2011-2015, this provision is estimated to result in outlays of \$15.9 billion. Since the grant is paid out at the start of a project, the cost of the grant program will be partially offset by reduced PTC claims over time.³² Allowing investors to take a one time grant instead of future tax credits is intended to address uncertainty renewable energy investors may have regarding their future tax positions.³³ Since the grant program was allowed to expire at the end of 2011, new renewable energy projects are not eligible. Renewable energy projects, however, may still be eligible for the ITC or PTC, depending on the credit expiration date for various technologies.

Other renewable energy production tax incentives include credits for the production or blending of alcohol fuels, including ethanol, and renewable diesel. The majority of the budgetary impact of these credits derives from the impact they have on reducing excise tax receipts, as opposed to revenue losses associated with income tax credits. The tax credits for alcohol fuels, biodiesel, and alternative fuels also expired at the end of 2011. Even though these credits have expired, these fuels-related incentives have an estimated cost of \$11.8 billion over the 2011 through 2015 budget window.

Several other tax expenditures related to renewable energy have budgetary effects. First, there is the energy credit (sometimes called the investment tax credit or “ITC”), which provides a credit equal to either 10% or 30% of eligible investment in renewable energy production.³⁴ Second, there is the residential energy-efficient property credit, which provides a tax credit for the installation of renewable electricity generating property for a residential dwelling. Third, the reduced depreciable life for renewable energy investments provides an additional subsidy for businesses. Finally, clean renewable energy bonds (CREBs) and new clean renewable energy bonds (new CREBs) are subsidized in that issuers are not required to pay interest to investors, as

³² Projects eligible for the PTC can claim the credit for 10 years. Thus, as projects in 2010 elect to receive a grant rather than claim the PTC over time, PTC claims in the out years will be less than what they would have been in absence of the grant program.

³³ For a more in-depth analysis of the Section 1603 grant program, 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 During 2009, 2010, and 2011, ITC-eligible property placed under construction may elect to receive a Section 1603 grant from the Treasury in lieu of claiming the ITC.

investors receive a federal tax credit in lieu of interest payments.³⁵ Taken together, these four provisions are expected to result in \$4.9 billion in federal revenue losses between 2011 and 2015.

As part of the American Recovery and Reinvestment Act, Congress created the advanced energy manufacturing tax credit (sometimes referred to as the manufacturing tax credit “MTC” or “48C” in reference to its applicable section of the tax code). This provision competitively awarded \$2.3 billion of tax credits to businesses that made investments in manufacturing clean energy technologies. Over the 2011 through 2015 period, revenue losses associated with this provision are estimated to be \$1.4 billion.³⁶ According to the Obama Administration, more than 500 businesses requested \$8 billion in tax credits, more than three times the amount of available credits.³⁷ The FY2013 budget has called for providing an additional \$5 billion in credits to meet the demand for this program.

Energy Efficiency and Conservation

Incentives for energy efficiency and conservation primarily operate by providing incentives to owners of residential and commercial property that undertake energy-efficient upgrades. There are also incentives to manufacturers of energy-efficient appliances and for the issuance of qualified energy conservation bonds. Between 2011 and 2015, the total cost of tax expenditures related to energy conservation is estimated to be \$4.5 billion.

The bulk of spending on energy conservation encourages property owners to undertake energy-efficiency improvements on existing buildings. During 2010, taxpayers were eligible for up to \$1,500 in tax credits for expenditures on qualifying energy-efficiency property, such as windows, doors, furnaces, and boilers. For 2011, the maximum credit amount was reduced to \$500. Like many other energy-related tax incentives, this provision expired at the end of 2011. 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. Finally, the exclusion of subsidies provided by utility companies to energy consumers undertaking energy-efficiency upgrades from income increases the value of such subsidies, encouraging individuals to undertake such improvements.

There were two additional tax incentives designed to encourage manufacturers to build energy-efficient products that expired at the end of 2011. First, the energy-efficient home credit provided homebuilders up to a \$2,000 credit for new energy-efficient homes. Second, the energy-efficient appliances manufacturer credit provided a tax credit for producers of energy-efficient dishwashers, refrigerators, and clothes washers.

Qualified energy conservation bonds (QECBs) also encourage energy conservation, by providing subsidized financing to energy conservation projects and other renewable energy projects.³⁸

³⁵ See CRS Report R40523, *Tax Credit Bonds: Overview and Analysis*, by Steven Maguire for additional information on tax credit bonds. Currently, funding for new CREB issues is no longer available.

³⁶ The tax expenditure estimate is less than the value of the credits awarded as some credits may be carried forward beyond the budget window being examined while others may not be claimed at all.

³⁷ For more information on the selected projects see White House: Office of the Press Secretary, “Fact Sheet: \$2.3 Billion in New Clean Energy Manufacturing Tax Credits,” press release, January 8, 2010, <http://www.whitehouse.gov/the-press-office/fact-sheet-23-billion-new-clean-energy-manufacturing-tax-credits>.

³⁸ QECBs can be used to finance a broad range of energy efficiency and renewable energy projects. Eligible projects (continued...)

QECBs are tax credit bonds, where the holder of the bond receives a federal tax credit in lieu of interest payments.

Alternative Technology Vehicle Credits

Beginning in 2009, plug-in electric drive motor vehicles became eligible for a tax credit. Plug-in electric drive motor vehicles are eligible for a tax credit of up to \$7,500. The credit will begin to phase out for each manufacturer once a certain number of qualified plug-in vehicles have been sold. In addition, since 2006, the tax code has at times provided incentives for other alternative technology vehicles.³⁹ 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 credit for qualified fuel cell vehicles is scheduled to expire at the end of 2014. Between 2011 and 2015, the total cost of tax expenditures related to hybrid, alternative technology, and plug-in electric vehicles is estimated to be \$2.2 billion.

Other Energy Tax Provisions

There are a number of other energy tax provisions that do not fall under the fossil fuels, renewable energy resources, energy efficiency and conservation, or alternative vehicle technology categories. The largest of these tax expenditures is the provision allowing taxpayers to expense 50% of the cost of property used to process qualified fuels (with an estimated budget cost of \$3.0 billion over the 2011 through 2015 budget window).⁴⁰ The remaining provisions include those giving special tax treatment for energy-related publicly traded partnerships,⁴¹ accelerated depreciation for various energy specific items, excluding interest from private activity bonds related to energy production, deferral of gains from the sale of electric transmission property and credits for installing clean fuel vehicle refueling property. Between 2010 and 2014, the total cost of tax expenditures related to other energy tax provisions is estimated to be \$6.6 billion.⁴²

(...continued)

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.

³⁹ CRS Report R40168, *Alternative Fuels and Advanced Technology Vehicles: Issues in Congress*, by Brent D. Yacobucci discusses congressional issues specifically related to advanced technology vehicles.

⁴⁰ It could be argued that this tax expenditure benefits fossil fuels, as many of the beneficiaries are believed to be crude oil refineries. For additional information, see CRS Report R41478, *The U.S. Oil Refining Industry: Background in Changing Markets and Fuel Policies*, by Anthony Andrews, Robert Pirog, and Molly F. Sherlock.

⁴¹ The majority of energy-related publicly traded partnerships are in the oil and gas sector.

⁴² If the revenue losses from the election to expense 50% of qualified refinery expenses and the exceptions for energy-related publicly traded partnerships were allocated to fossil fuels, fossil fuel related tax incentives would increase by \$4.2 billion, leaving total tax expenditures in the other category at \$2.4 billion.

Energy Tax Issues in the 112th Congress

In the FY2013 budget, President Obama proposes to eliminate several incentives for oil, gas, and coal, while expanding certain incentives for energy efficiency, renewable energy, alternative energy manufacturing, and alternative technology vehicles. Similar proposals have appeared in the President's previous budgets. The 112th Congress has also considered the extension of certain expired and expiring energy tax incentives.

The President's Fiscal Year 2013 Budget Proposal

The President's FY2013 budget proposal contains a number of fossil fuel energy tax related provisions.⁴³ Broadly, the budget seeks to repeal a number of tax preferences that benefit for the oil, gas, and coal industries. Some of those proposed for repeal are targeted incentives, available only for the oil, gas, and coal industries. Specifically, the President's FY2013 budget proposes to eliminate expensing of IDCs, the percentage depletion allowance, and the domestic manufacturing deduction for oil, gas, and coal producers. Revenues from eliminating the domestic manufacturing deduction for oil and gas would be used to provide an enhanced incentive for certain advanced manufacturing activities. Additionally, for oil and gas producers, the proposals suggests repealing the enhanced oil recovery credit, the credit for production from marginal wells, the credit for tertiary injects, and increasing the amortization period for geological and geophysical expenses. The President's FY2013 budget also proposes repealing the capital gains treatment for coal royalties. Repealing the tax preferences for fossil fuels would generate an estimated \$29.6 billion in revenues between 2013 and 2022.⁴⁴

Other incentives the budget proposes to repeal include those that benefit oil and gas producers, but are also available for other sectors. These include the modifications to foreign tax credit rules for dual capacity taxpayers as well as the repeal of last-in, first-out (LIFO) inventory accounting methods.

The budget would also modify certain tax provisions used to finance environmental clean up. The budget proposes to reinstate the superfund tax, which would levy a 9.7-cents-per-barrel excise tax on domestically produced crude oil and crude oil imports.⁴⁵ In addition, in order to increase funding for the Oil Spill Liability Trust Fund in response to the Deepwater Horizon Oil Spill, the FY2013 budget proposal would increase the current excise tax on domestic crude and imported petroleum products from 8 cents per barrel, to 9 cents per barrel. The tax would be increased again, to 10 cents per barrel, beginning in 2017. Reinstating the superfund excise tax would generate an estimated \$8.2 billion between 2013 and 2022. The one-cent increase in the oil spill liability trust fund tax would generate an estimated \$0.7 billion in revenues between 2013 and 2022.

⁴³ For more information, see CRS Report R42374, *Oil and Natural Gas Industry Tax Issues in the FY2013 Budget Proposal*, by Robert Pirog.

⁴⁴ This figure does not include revenues from repealing the production activities deduction for fossil fuels, as these revenues are assumed to be used to provide an enhanced deduction for qualifying advanced manufacturing activities.

⁴⁵ The superfund excise tax would also be levied on hazardous chemicals and imported materials used in the manufacture of hazardous chemicals, at a rate varying from 22 cents to \$4.87 per ton.

Taken as a whole, these provisions raise the cost of coal, oil, and gas production and can be viewed as reducing the cost of alternative energy production relative to energy production from conventional energy sources. That is, if enacted, the FY2013 budget proposal would decrease the relative cost of alternative energy production by increasing the cost of coal, oil, and gas production.⁴⁶

The President's FY2013 budget proposal would also modify existing tax incentives designed to promote energy efficiency and clean energy manufacturing. The FY2013 budget calls for converting the Section 179D tax deduction for expenditures for commercial building property into a credit. The modification would also require that the credit be linked to measurable improvements in the building's energy efficiency. This change to the existing tax incentives for energy-efficiency in commercial buildings would result in an estimated \$1.7 billion in additional revenue losses.

The President's FY2013 budget proposes increasing the allocation for the Advanced Energy Manufacturing Credit by \$5 billion to meet the large demand for the original allocation of \$2.3 billion. The purpose of this tax credit was to increase investment in facilities that produce clean energy technologies. According to the administration, since demand for this credit exceeded the \$2.3 billion cap, less than one third of eligible applicants actually received the credit.

The FY2013 budget also proposes replacing the current plug-in electric vehicle credit with a credit for advanced technology vehicles. This modification would make the credit available to a wider range of technologies, encouraging greater use of advanced technology vehicles. This provision is part of the President's larger goal to put 1 million electric vehicles on the road by 2015.⁴⁷ Providing a tax credit for advanced technology vehicles would result in an estimated \$2.0 billion in revenue loss between 2013 and 2022.

Finally, the President's FY2013 budget would extend certain expired and expiring energy tax provisions. Specifically, the proposal would extend the renewable energy PTC, ITC, and Section 1603 grants in lieu of tax credits program. Further, the Administration proposes to extend, through 2013, tax incentives for biodiesel, renewable diesel, and alternative fuels, several incentives designed to promote energy efficiency, and certain incentives related to alternative technology vehicles.

Expired and Expiring Energy Tax Provisions⁴⁸

A number of energy tax provisions expired at the end of 2011, with others scheduled to expire at the end of 2012 (see **Table 2**). Many of those scheduled to expire were temporarily extended under the Tax Relief, Unemployment Reauthorization, and Job Creation Act of 2010. Expired incentives include those designed to promote energy efficiency, provisions to encourage investment in renewable energy, various tax credits that support electric and alternative-fuel vehicles, as well as tax incentives for alcohol fuels and biofuels.

⁴⁶ Note that the FY2013 budget proposal represents one of many possible options to reduce the economic distortions associated with the tax treatment of energy production.

⁴⁷ For more information see the Department of Energy's report "One Million Electric Vehicles by 2015" http://www.energy.gov/news/documents/1_Million_Electric_Vehicle_Report_Final.pdf.

⁴⁸ For a full list of expiring tax provisions, see U.S. Congress, Joint Committee on Taxation, *List of Expiring Federal Tax Provisions: 2010–2020*, committee print, 112th Cong., 1st sess., January 11, 2011, JCX-2-11.

Table 2. Energy Tax Provisions Expiring at the End of 2011
(billions of dollars)

Provision	IRC Section	Extended Through 2013 Under S. 3521?	10-Year Revenue Cost of Extension Through 2013
Expiring in 2012			
Cellulosic biofuel producer credit	40(b)(6)(H)	YES	0.1 ^a
Production tax credit (PTC) for wind	45(d)	YES	12.2 ^b
Credit for production of Indian coal	45(e)(10)(A)(i)	YES	(i)
Election to claim the ITC in lieu of the PTC for wind	48(a)(5)	YES	0.1 ^b
Special depreciation allowance for cellulosic biofuel plant property	168(l)	YES	(i)
Expired in 2011			
Incentives for alcohol fuels	40(e)(1)(A), (h)(1), (h)(2) 6426(b)(6) 6427(e)(6)(A)	NO	
Section 1603 Grants in Lieu or Tax Credits	48(d)	NO	
Incentives for biodiesel and renewable diesel	40A 6426(c)(6) 6427 (e)(6)(B)	YES	2.2
Credit for nonbusiness energy property	25C(g)	YES	2.4
Coal production credit (refined coal facilities placed in service date)	45(d)(8)	NO	
Suspension of 100% of net income limitation on percentage depletion for oil and gas from marginal wells	613A(c)(6)(H)(ii)	NO	
Incentives for alternative fuel and alternative fuel mixtures (other than liquefied hydrogen)	6426(d)(5) 6427 (e)(6)(c) 6426 (e)(3)	YES	0.4
Credit for construction of energy-efficient new homes	45L(g)	YES	0.2
Credit for energy-efficient appliances	45M(b)	YES	0.7
Alternative fuel vehicle refueling property (non-hydrogen)	30C(g)(2)	YES	(i)
Special rules for sales or disposition to implement Federal Energy Regulatory Commission ("FERC") or State electric restructuring policy	451 (i)	YES	—
Credit for electric drive low-speed vehicles, motorcycles and three-wheeled vehicles	30(f)	YES	(i) ^c
Conversion credit for plug-in electric vehicles	30b(i)(4)	NO	

Source: U.S. Congress, Joint Committee on Taxation, *List Of Expiring Federal Tax Provisions 2011-2021*, committee print, 112th Congress, January 13, 2012, JCX-1-12; U.S. Congress, Joint Committee on Taxation, *Estimated Revenue Effects of the Revenue Provisions Contained in the "Family and Business Tax Cut Certainty Act of 2012," as Reported by the Senate Committee on Finance*, committee print, 112th Congress, 2nd session, August 28, 2012, <http://www.finance.senate.gov/legislation/details/?id=1cb48bce-5056-a032-5255-272274d52b64>; and U.S.

Congress, Senate Committee on Finance, *Family and Business Tax Cut Certainty Act of 2012*, 112th Congress, 2nd session, August 28, 2012, Report 112-208.

Notes: An (i) indicates a positive revenue loss of less than \$50 million. An (ii) indicates that this is part of a proposal in the President's FY2013 budget to extend and modify certain energy tax credits, including the PTC, ITC, and grants in lieu of tax credits. As proposed, extending and expanding these provisions would cost \$3.9 billion over 10 years.

- a. In addition to extending the cellulosic biofuel producer credit through 2013, this legislation would expand the definition of qualifying fuel to include algae-based fuel.
- b. The extension proposed in S. 3521 would extend the PTC for wind through 2012, while also changing the December 31, 2013, expiration date from a placed-in-service deadline to a construction start date for all qualifying technologies. This change would also apply to the ability to claim the ITC in lieu of the PTC.
- c. S. 3521 would extend current tax credits for two-wheeled and three-wheeled vehicles, but not extend expired credits for low-speed vehicles. The credits would be available under IRC §30D, which provides tax credits for plug-in electric vehicles.

In early 2012, the Senate considered measures to extend some of the provisions listed in **Table 2**. On March 13, 2012, the Senate considered an amendment that would have extended several expiring energy tax incentives (S.Amdt. 1812 to S. 1813).⁴⁹ This amendment was not agreed to. The Senate also considered another measure proposing to extend the provisions included in S.Amdt. 1812 to S. 1813. The Repeal Big Oil Tax Subsidies Act (S. 2204) would have extended a number of renewable energy incentives, paying for the extension by scaling back certain tax incentives for major integrated oil companies. The JCT estimated that extending certain expiring energy provisions through 2012, as proposed in S. 2204, would cost \$11.7 billion over the 2012 through 2021 budget window.⁵⁰ Repealing certain tax incentives for major integrated oil and gas companies was estimated to raise \$24.0 billion in additional revenues over the same time period.⁵¹

Legislation has been introduced in the Senate that would extend most of the “tax extender” provisions, including a number of the energy-related provisions. **Table 2** notes which expired and expiring energy tax provisions would be extended under the Family and Business Tax Cut Certainty Act of 2012 (S. 3521), and the estimated cost of extending these provisions through 2013. In total, extending the energy-related provisions in S. 3521 through 2013 would cost an estimated \$18.1 billion over the 2013 to 2022 budget window.

⁴⁹ Specifically, this amendment sought to extend expired tax credits for residential energy efficiency, credits for plug-in electric vehicles, credits for alternative fuel refueling property, incentives for biodiesel and renewable diesel, credits for refined coal production, credits for manufacturers of energy-efficient new homes and appliances, allocate additional funds for the advanced energy manufacturing tax credit, modify and extend credits for cellulosic biofuel producers, extend the special allowance for cellulosic biofuel producers, extend the suspension of limitation on percentage depletion for marginal wells, and extend alternative fuels excise tax credits. The amendment would also have extended the Section 1603 grant in lieu of tax credit program and the ability to elect to receive the ITC instead of the PTC, providing a longer extension for offshore wind.

⁵⁰ This majority of this cost is attributable to provisions that would extend the PTC, extend the ITC in lieu of the PTC for offshore wind, extend the Section 1603 grants in lieu of tax credits program, expand the qualifying advanced energy manufacturing tax credit program, extend residential energy efficiency incentives, and extend incentives for biodiesel and renewable diesel.

⁵¹ U.S. Congress, Joint Committee on Taxation, *Estimated Budget Effects of S. 2204, the “Repeal Big Oil Tax Subsidies Act” Scheduled for Consideration on the Senate Floor on March 26, 2012*, committee print, 112th Cong., March 23, 2012, JCX-29-12.

The Tax Relief, Unemployment 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. 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,⁵² 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. Some of the provisions extended under P.L. 111-312 had been included in earlier versions of “tax extender” legislation.⁵³

The American Recovery and Reinvestment Act of 2009 (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.⁵⁴ 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.⁵⁵ Renewable energy production was also encouraged by ARRA’s provision increasing the funds available for the issue 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.

ARRA contained two tax provisions specifically encouraging 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.⁵⁶ 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 2010.⁵⁷ This cap has since been reduced to \$500 for 2011. The second energy

⁵² 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.

⁵³ For more information, see CRS Report RL32367, *Certain Temporary Tax Provisions that Expired in December 2009 (“Extenders”)*, by James M. Bickley.

⁵⁴ 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.

⁵⁵ The renewable energy PTC for wind facilities was extended through 2012.

⁵⁶ Prior to ARRA, the credit rate was 10%.

⁵⁷ Prior to ARRA, the credit caps ranged from \$50 to \$300, depending on the type of property installed. The credit was (continued...)

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 introduced.

There were also a number of other energy tax provisions in ARRA. First, the credit rates and limits for refueling and recharging property were temporarily increased. Second, the recovery period for depreciating smart meters was temporarily decreased from 10 years to five years. Third, a 20% tax credit was introduced for expenses related to qualified energy research.

Carbon Tax / Climate Change⁵⁸

Legislation has been introduced in the 112th Congress to limit carbon and greenhouse gas (GHG) emissions (see the Save Our Climate Act of 2011 (H.R. 3242) and the Managed Carbon Price Act of 2012 (H.R. 6338)).⁵⁹ Members in the 111th Congress introduced seven stand-alone proposals that would have controlled GHG emissions. The proposals employed market-based approaches—either a cap-and-trade or carbon tax system, or some combination thereof—to reduce GHG emissions. The legislative proposals varied in their overall approaches in controlling GHG emissions. Some controlled emissions by setting a quantity (or cap); others controlled emissions by setting a price (or tax/fee). In addition, the proposals differed in their inclusion of particular design elements, such as whether or not to allow offsets (emission reduction opportunities from economic sectors not directly addressed by the primary approach).

Three of the proposals—H.R. 594 (Stark), H.R. 1337 (Larson), and H.R. 2380 (Inglis)—would have used a carbon tax approach to address carbon dioxide (CO₂) emissions from fossil fuel combustion. H.R. 1683 (McDermott) would have established a program that may be described as a dynamic carbon tax: the tax rate would be linked with annual emission allocations (or caps).

These carbon tax proposals, however, were not widely seen as the primary energy and climate change legislative proposal in the 111th Congress. Instead, cap-and-trade programs constituted the primary energy and climate change legislative proposals in the 111th Congress. Cap-and-trade legislative vehicles included H.R. 2454 and S. 1733. The American Clean Energy and Security Act of 2009 (H.R. 2454) (Waxman/Markey) which passed the House would have established cap-and-trade programs.⁶⁰ The Clean Energy Jobs and American Power Act (S. 1733), which was

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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.

⁵⁸ Carbon tax and climate change issues are largely beyond the scope of this report. See CRS Report R42731, *Carbon Tax: Deficit Reduction and Other Considerations*, by Jonathan L. Ramseur, Jane A. Leggett, and Molly F. Sherlock; CRS Report R40242, *Carbon Tax and Greenhouse Gas Control: Options and Considerations for Congress*, by Jonathan L. Ramseur and Larry Parker; and CRS Report R40556, *Market-Based Greenhouse Gas Control: Selected Proposals in the 111th Congress*, by Larry Parker, Brent D. Yacobucci, and Jonathan L. Ramseur for a complete discussion on carbon tax (and other market-based approaches) to control greenhouse gas emissions.

⁵⁹ Greenhouse gases are those that trap heat in the earth's atmosphere. Carbon dioxide is a greenhouse gas that enters the atmosphere through the burning of fossil fuels, solid waste, and wood products, among other activities. Increases in the level of greenhouse gases in the earth's atmosphere are thought to be associated with climate change.

⁶⁰ See CRS Report R40643, *Greenhouse Gas Legislation: Summary and Analysis of H.R. 2454 as Passed by the House* (continued...)

considered and ordered to be reported by the Committee on the Environment and Public Works, would have also relied on a cap-and-trade program to reduce greenhouse gas emissions.⁶¹ H.R. 1666 (Doggett) would have also created a cap-and-trade system, but in the early years of the program, the number of emission allowances distributed would be based on achieving a specified allowance price. The latter proposal would not have allowed offsets to be used for compliance purposes, while the former two would have allowed covered entities to satisfy an increasing percentage (approximately 30% in 2012) of their compliance obligation with offsets.

A key element in GHG emission reduction bills was how, to whom, and for what purpose the value of emission allowances or carbon tax revenue would have been distributed. The distribution strategy is a critical policy decision, because it would affect (1) the overall cost of the program and (2) how program costs are distributed throughout the economy. In the early years of the program, H.R. 2454 would have distributed allowances at no cost to both covered and non-covered entities to support various policy objectives. In addition, an increasing percentage (approximately 18% in 2016) of the allowances would have been sold through auction. Auction revenues would also have been used to further various policy objectives.

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of Representatives, coordinated by Mark Holt and Gene Whitney, for a detailed analysis of H.R. 2454.

⁶¹ For a comparison of H.R. 2454 and S. 1733 see CRS Report R40896, *Climate Change: Comparison of the Cap-and-Trade Provisions in H.R. 2454 and S. 1733*, by Brent D. Yacobucci, Jonathan L. Ramseur, and Larry Parker.

Appendix. Energy Tax Legislation Prior to the 111th Congress

This appendix describes legislation enacted during the 108th, 109th, and 110th 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 \$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 \$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.⁶²

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.

⁶² 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 Congress

Energy tax policy in the 110th Congress represented a shift towards increased taxes (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.⁶³ 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 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 trucks, increased renewable fuel standards, and increased a number of energy-efficiency standards for household and commercial appliance equipment.

⁶³ 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.

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.⁶⁴ 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.⁶⁵

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.

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Acknowledgments

Portions of this report are drawn from prior reports written by Donald Marples and Salvatore Lazzari.

⁶⁴ 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.

⁶⁵ 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.