Energy Tax Policy: Issues in the 111th Congress

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Summary

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, being determined by the views and interests of the key players in this setting: politicians, special interest groups, bureaucrats, academic scholars, and fiscal dictates. 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 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. Recently enacted legislation 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.

In the 111th Congress energy tax legislation continues to be focused on increasing incentives for renewable energy production and conservation. The American Recovery and Reinvestment Act of 2009 (ARRA; P.L. 111-5) expanded and extended a number of tax incentives designed to promote renewable energy, conservation, and alternative technology vehicles. In addition, the President's 2010 and 2011 Budget Proposals contain a number of provisions that would, if enacted, continue to move energy policy toward promoting alternative energy sources by eliminating a number of the tax subsidies currently available to the oil and gas industry while also imposing additional taxes that would be borne—at least partially—by these industries. The President's 2011 Budget Proposal continued this policy direction through the proposed removal of a number of subsidies currently available to the coal industry.

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Introduction

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

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, but appears currently focused on promoting energy efficiency and renewable energy production while continuing to promote U.S. energy security.

This report begins with an overview of the economic rationale for intervention in energy markets. Energy markets are uniquely prone to a number of market failures. The nature of these market failures is reviewed, followed by an analysis of interventions with the potential to effectively address these market failures. After presenting the potential energy-related market failures and policy interventions, the current status of U.S. energy tax policy is examined.

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 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 reducing the nation's reliance on foreign, imported energy sources.

The primary vehicle for energy tax legislation in the 111th Congress to date has been 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. Additionally, the President's Fiscal Year 2010 and 2011 budget proposals contain provisions that would scale back existing incentives for energy production from fossil fuels, and if adopted would decrease the cost of alternative energy relative to energy produced from conventional fossil fuel (coal, oil, and gas) sources. Finally, the American Clean Energy and Security Act of 2009 (H.R. 2454), and several other bills, would control greenhouse gas (GHG) emissions through a cap-and-trade system.

This report concludes with a review of major energy tax legislation enacted in the 110th Congress. Legislation enacted in the 110th Congress shifted the focus of energy tax policy, emphasizing alternative and renewable fuels as well as conservation while removing subsidies for oil and gas

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

Economic Rationale for Intervention in Energy Markets

The primary goal of taxes in the U.S. economy is to raise revenues. There are times, however, when tax policy can be used to achieve other goals. These include the use of tax policy as an economic stimulus or the use of tax policy to achieve social objectives. Tax policy can also be used to correct for market failures, 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 social marginal cost of supply. The result is a system where cost and/or 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 and/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 as well as result in other damages to the land. In addition to causing environmental damage, the production and consumption of energy can also 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.[1]

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.[2]

Principal-Agent and Informational Inefficiencies

Market failures in energy use may also arise due to the principal-agent problem.[3] Generally, the principal-agent problem exists when one party, the agent, undertakes activities on the behalf of another party, the principal. When the incentives of the agent differ from those of the principal, the agent's activities are not undertaken in a way that is consistent with the principal's best interest. The result is an inefficient outcome. In energy markets, the principal-agent problem commonly arises when one party is responsible for making equipment purchasing choices while another party is responsible for paying the energy costs, which are related to the efficiency level of the purchased equipment.

For residential rental properties, the incentives for the landlords and tenants surrounding the adoption of energy-savings practices are often not aligned. Landlords will 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.[4] 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

[1] 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.

[2] 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.

[3] 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 Probelm on U.S. Residential Energy Use*, Lawrence Berkeley National Labratory, August 12, 2006, http://www.escholarship.org/uc/item/6f14t11t.

[4] 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.

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.[5]

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 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.[6]

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.[7] 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.[8] The tax serves to increase the price of the activity, and reduce the

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

[6] 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 2007-08 in the succeeding economic recession.

[7] There are non-tax options for addressing for addressing energy market failures such as regulation and private sector solutions.

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

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.[9] Current political momentum, however, is behind a cap-and-trade policy, as is 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 clean 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.[10] Second, while the subsidy is intended to enhance economic efficiency, subsidies may be inefficient to the extent they are funded using distortionary taxes.[11] Hence, the more efficient alternative may be to place a tax on the undesirable activity.

The tax code subsidizes research and development (R&D) because of the associated positive externalities generated. 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.[12] 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)).[13]

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 (energy-efficient technologies in the present context). 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 the market failure in rental property.

[9] 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.

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

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

[12] 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.

[13] See CRS Report RL31181, *Research and Experimentation Tax Credit: Current Status and Selected Issues for Congress*, by Gary Guenther for an overview of the research tax credit, an umbrella credit under which the energy research credit falls.

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.[14] 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.[15]

Taxes as a User Charge

Energy taxes may be employed as user charges for a public good or a quasi-public good.[16] 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.[17] 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.[18] 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.[19] 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.

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

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

[16] 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.

[17] 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.

[18] 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.

[19] Another argument is that the federal gas tax should be viewed as correcting the externality associated with gasoline powered vehicles. Even if the gas tax were to be viewed as one correcting for the carbon emissions, it would make more economic sense to tax all carbon emissions rather than just those coming from the burning of fossil fuels by motor (continued...)

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. 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 aimed at promoting energy conservation and the use of renewable energy sources. Recently, attention has focused on the transportation sector, in the nature of both technology and alternative fuels. **Table 1** contains a current list of energy-related tax expenditures.[20]

Energy conservation measures and domestic production of energy from renewable resources help reduce demand for fossil fuels 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 and technologies that may not have reached the stage where they are competitive in the market in the absence of subsidization.

Current energy tax policy is 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. The perceived means of achieving U.S. energy security have shifted over the years—and these shifts are clearly reflected in the current status of U.S. energy tax policy.

Energy tax policy proposed in the Obama Administration's Fiscal Year 2011 Budget Proposal differs substantially from current U.S. energy tax policy. If fully enacted, the FY2011 Budget Proposal would reduce or eliminate several energy tax policies that encourage energy production from the coal, oil, and gas industries, while expanding incentives for conservation and renewable energy production. 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).

(...continued)

vehicles.

[20] Tax expenditures are government revenue losses attributable to tax provisions that allow for special exclusions, exemptions, or deductions from income or provisions that provide special tax credits, preferential tax rates, of defer tax liability.

Table 1. Energy Tax Expenditures

billions of dollars

Tax Expenditure	Description	Cost 2008-2012	Expiration Date	I.R.C. Section
	Fossil Fuels			
Expensing of percentage over cost depletion	Firms that extract oil or gas are permitted to deduct 15% of sales (up to 25% for marginal wells depending on oil prices) to recover their capital investment in a mineral reserve.	$7.9	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).	$7.5	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.	$1.3	none	167(h)
Credit for enhanced oil recovery costs	A 15% income tax credit for the costs of recovering domestic oil by qualified "enhanced-oil-recovery" (EOR) methods. Other costs associated with tertiary injectants are also deductible.	$0.2	none	43, 193
Coal Production Credits	Production credit of $6.20-per-ton production credit for refined coal used to produce steam, or $2 per barrel-of-oil equivalent credit for refined coal used as a steel industry fuel, or a $1.625 per-ton production credit (all adjusted for inflation from 1992) for coal reserves owned by an Indian tribe.	$0.2	12/31/2009 (refined coal) 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; 15% for other advanced coal technologies	$0.8	none (credit allocation limit)	48A

Tax Expenditure	Description	Cost 2008-2012	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%.	$0.6	none	169
	Renewable Energy Production			
Credits for electricity production from renewable resources	Tax credit of 2.1¢/kWh for electricity produced from wind, closed-loop biomass, geothermal energy, and solar sources. Tax credit of 1.1¢/kWh for electricity produced from open-loop biomass, small irrigation, landfill gas, trash combustion, qualified hydropower, marine and hydrokinetic sources. The tax credit is given for 10 years after the date the facility is placed in service.	$7.1	Property must be placed in service by 12/31/13 (12/31/12 for wind)	45
Energy credit	Tax credit equal to 10% of investment in energy production using geothermal, microturbine, ground water for heating or cooling, 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.	(i)	none (geothermal, solar electric, solar hot water and small wind electric) 12/31/2016 (else)	48
Residential energy-efficient property credit	Tax credit for 30% of the cost of the purchase of solar electric property, solar water heating property, geothermal heat pump property, or small wind energy property. Fuel cell power plants receive 30% credit, limited to $500 for each 0.5 kilowatt of capacity.	$0.1	12/31/2016	25D

Tax Expenditure	Description	Cost 2008-2012	Expiration Date	I.R.C. Section
Five-year cost recovery of certain energy property	Accelerated depreciation allowances are provided under the modified accelerated cost recovery system (MARCs) for investments in certain energy property. Specifically, certain solar, wind, fuel cell, 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.	$0.5	Cellulosic biofuel property must be placed in service by 12/31/2012	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 bind to be issued at par and without interest.	$0.5	volume limited	54, 54C
Credit for alcohol fuels	Income or excise tax credit. Ethanol tax credit generally 45¢ per gallon (extra 10¢ for small producers; alcohol tax credit generally 60¢ per gallon; $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.	$0.3 (ii)	12/31/09 for biodiesel, agri-biodiesel, renewable biodiesel, black liquor, and alternative fuels; 12/31/10 for alcohol fuels; 12/31/12 for cellulosic biofuel	40, 40A, 6426, 6427(e)
Energy Conservation				
Credit for nonbusiness energy property	Tax credit for 30% 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 $1,500 for 2009 and 2010 combined.	$2.1	12/31/2010	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.	$0.2	12/31/2019	179D
Exclusion of energy conservation subsidies provided by public utilities	Subsidies are not taxable as income.	$0.1	none	136

Tax Expenditure	Description	Cost 2008-2012	Expiration Date	I.R.C. Section
Energy-efficient home credit	Contractor may claim $1,000 credit for building homes 30% more efficient than the standard; $2,000 credit for homes 50% more efficient than the standard	$0.1	12/31/2009	45L
Credit for producing energy-efficient appliances	Tax credit based on energy efficiency, energy savings. Maximum credit is $75 for dishwashers, $200 for refrigerators, and $250 for clothes washers.	$0.3	12/31/2010 (earlier expiration for lower efficiency standards)	45M
Qualified energy conservation bonds	Federal government has authorized the issue of $3.2 billion in Qualified Energy Conservation ("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, public transportation projects or public education campaigns.	$0.1	volume limited	54D
	Alternative Technology Vehicles			
Hybrid vehicles	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 and is not subject to a volume cap.	$0.9	12/31/09 (12/31/10 for vehicles weighing more than 8,500 pounds)	30B

Tax Expenditure	Description	Cost 2008-2012	Expiration Date	I.R.C. Section
Other alternative fuel vehicles	Fuel cell vehicles receive a base credit of $8,000 (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. Lean burn vehicles are eligible for the same credit as hybrid vehicles. Alternative fuel vehicles can qualify for a credit of up to $5,000 for cars and light trucks and $40,000 for heavy vehicles. Credit amount varies according to the vehicle's incremental cost and ratio of alternative fuel use. Credits available for plug-in electric vehicles are available up to $7,500 (cars and light trucks) depending on kilowatt hour capacity of vehicle and $15,000 for heavy vehicles. 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 $4000, is available for conversion to a plug-in electric drive vehicle.	$0.1	12/31/2010 for advanced lean burn vehicles, and alternative fuel vehicles; 12/31/11 for electric drive low speed vehicles and conversion to plug-in vehicle 12/31/2014 for fuel cell vehicles. 12/31/2009 for plug-in low speed vehicles and heavy vehicles. Credit for plug-in vehicle volume capped.	30, 30B, 30D
	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 under the otherwise applicable rules.	$3.8	12/31/2013	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.	$2.6	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 and/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.	$0.6	none	141, 142

Tax Expenditure	Description	Cost 2008-2012	Expiration Date	I.R.C. Section
Credit for producing fuels from a non-conventional source	A production tax credit of $3 per barrel of oil-equivalent (in 1979 dollars) for certain types of liquid, gaseous, and solid fuels produced from selected types of alternative energy sources (termed "non-conventional fuels"), and sold to unrelated parties. The full credit is available if oil prices fall below $23.50 per barrel (in 1979 dollars); the credit is phased out as oil prices rise above $23.50 (in 1979 dollars) over a $6 range (i.e., the inflation-adjusted $23.50 plus $6). The phase out limit does not apply to coke or coke gas. In addition, a $1.00 per gallon tax credit is available for both biodiesel and renewable biodiesel production, while a 10¢ per gallon small producer credit is only available on the former. Further, a 50¢ per gallon credit is available on the production of alternative fuels.	$0.6	placed in service by 12/31/2009 (coke credit)	45K, 40A, 6426
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.	$1.3	various	168(e)
Deferral of gains from the sale of electric transmission property	A taxpayer may elect to recognize the gain from the sale of certain electric transmission property over an eight year period.	$0.3	12/31/2009	451
Credits for clean fuel vehicle refueling property	A 50% credit (capped at $50,000 for business property and $2,000 for nonbusiness property) for 2009 and 2010) and a 30% credit for hydrogen property (capped at $200,000).	$0.1	12/31/10 (12/31/14 for hydrogen refueling property)	30C

Source: CRS compilation based on Joint Committee on Taxation, *Tax Expenditures for Energy Production and Conservation*, JCX-25-09R, April 21, 2009.

Notes: i- less than $50 million per year; ii- the credit from excise tax for alcohol fuels results in a reduction of excise tax receipts of $13.6 billion from 2008 – 2012. These estimates are based on the January 2008 Congressional Budget Office baseline for tax expenditures under present law as of October 31, 2008. *- indicates that the provision was modified under ARRA. **Table 2** provides the additional revenue loss associated with the ARRA modification.

Energy tax policy—like all tax policy—can lead to unintended consequences. Notably, this issue has arisen in the 111th Congress in its deliberations concerning "black liquor." In the context of taxes, the term "black liquor" currently refers 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" is eligible for the alternative fuels tax credit, which was not the congressional intent of the provision.[21] Recognizing the unintended consequence, Senate Finance Committee Chairman Max Baucus[22] stated in response to draft legislation, "Our measure ensures this tax credit is used consistently as the law intended, not through an unintended loophole," and Senate Finance Committee Ranking Member Charles Grassley[23] stated, "The paper industry was not intended to receive the alternative fuels tax credit when the credit was enacted.... This staff draft proposal is meant to clarify that legislative intent."

A further unintended consequence of "black liquor" and selected other 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.[24]

Fossil Fuel Production

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. Between 2008 and 2012, the total cost of tax expenditures related to fossil fuels is estimated to be $18.5 billion.

Among the capital cost subsidies, the allowance of the percentage depletion method is estimated to cost the most in foregone revenue, $7.9 billion between 2008 and 2012.[25] 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

[21] 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 6 months of 2009, more than $2.5 billion have been claimed for this tax credit, mostly by the paper industry.

[22] 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.

[23] Ibid.

[24] 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.

[25] 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.

property.[26] The expensing of exploration and development costs is also a relatively large tax expenditure, estimated to cost the federal government $7.5 billion in revenue losses over the 2008 through 2012 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, enhanced oil recovery costs and investing in clean coal facilities collectively are estimated to result in approximately $1.2 billion between 2008 and 2012.

Renewable Energy Production

Several tax incentives subsidize the production of energy from renewable sources. While the specific incentives differ in design, they all 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 2008 and 2012, the total cost of tax expenditures related to the production of renewable energy is estimated to be $8.5 billion.[27]

Among the renewable energy tax expenditures, the credit for electricity production from renewable sources is the most expensive, with an estimated cost of $7.1 billion over the 2008 through 2012 budget window.[28] This production tax credit provides a varying incentive for electricity generation from selected renewable energy sources.[29] Other renewable energy production tax incentives include credits for the production or blending of alcohol fuels and renewable diesel.

In terms of budgetary impact, there are a number of smaller tax expenditures related to renewable energy. First, there is the energy credit, which provides a credit equal to either 10% or 30% of eligible investment in renewable energy production.[30] 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 investors receive a federal tax credit in lieu of interest payments.[31]

[26] 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.

[27] Estimates in this section, and in **Table 1**, are based on current law as of October 31, 2008. The American Recovery and Reinvestment Act of 2009 (ARRA; P.L. 111-5) made changes to incentives for renewable energy production with an estimated additional cost of $3.6 billion between 2009 and 2013. These provisions are discussed in more detail below.

[28] Under the ARRA taxpayers may elect to take an investment tax credit in lieu of this production credit. This provision is discussed below.

[29] Electricity produced from wind, closed-loop biomass, selected solar and geothermal sources receive a credit equal to 2.1 cents per kilowatt-hour, while that sourced from open-loop biomass, small irrigation, municipal solid waste, hydro, marine, and hydrokinetic sources receive a credit of 1 cent per kilowatt-hour.

[30] For example, energy produced from a micro-turbine or geothermal deposit is eligible for a 10% credit, while fuel cell and small wind property is eligible for a credit of 30%.

[31] See CRS Report R40523, *Tax Credit Bonds: Overview and Analysis*, by Steven Maguire for additional information on tax credit bonds.

Energy Conservation

Incentives for energy 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 2008 and 2012, the total cost of tax expenditures related to energy conservation is estimated to be $2.9 billion.[32]

The bulk of spending on energy conservation encourages property owners to undertake energy-efficiency improvements on existing buildings. The credit for nonbusiness energy property, which provides homeowners up to a $1,500 tax credit for expenditures on energy-efficient property such as windows, doors, furnaces, and boilers, is the largest energy conservation tax expenditure, with an estimated cost of $2.1 billion during the 2008 through 2012 budget window. In addition, 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 are two additional tax incentives designed to encourage manufacturers to build energy-efficient products. First, the energy-efficient home credit gives homebuilders up to a $2,000 credit for new energy-efficient homes. This credit expires December 31, 2009. Second, the credit for producing energy-efficient appliances makes manufacturers of energy-efficient dishwashers, refrigerators, and clothes washers eligible for a credit. The cost of these two programs to the federal government is $0.4 billion over the 2008 through 2012 budget window.

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

Various credits are currently in place for the purchase alternative technology vehicles.[33] The tax code defines alternative technology vehicles to include 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. Between 2008 and 2012, the total cost of tax expenditures related to hybrid and alternative technology vehicles is estimated to be $1.0 billion.[34]

[32] Provisions enacted under ARRA added an additional $2.0 billion in tax expenditures related to energy conservation during the 2009 through 2013 budget window. These provisions are discussed below.

[33] 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.

[34] Modifications to tax provisions relating to alternative technology vehicles under ARRA are estimated to cost an additional $0.1 billion over the 2009 through 2013 budget window. These provisions are discussed in further detail below.

Other Energy Tax Provisions

There are a number of other energy tax provisions that do not fall under the fossil fuel, renewable energy, energy 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 $3.8 billion over the 2008 through 2012 budget window). The remaining provisions include those giving special tax treatment for energy related Publicly Traded Partnerships, 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 2008 and 2012, the total cost of tax expenditures related to other energy tax provisions is estimated to be $9.3 billion.[35]

Energy Tax Legislation in the 111th Congress

Energy tax legislation in the 111th Congress has continued to focus on increasing incentives for renewable energy production and energy conservation. Further, recent legislation illustrates how the tax system can attempt to encourage specific behavior, while discouraging other behavior, in a quest to achieve a policy goal. The American Recovery and Reinvestment Act of 2009 (ARRA; P.L. 111-5) utilizes incentives to encourage the production of energy from renewable sources and promote energy conservation. In contrast, the President's Fiscal Year 2010 and 2011 Budget Proposals aim to promote renewable energy through the elimination of several incentives for conventional energy. As the 111th Congress progresses, it is expected that the focus of energy tax policy will continue to be on the promotion of renewable energy production and energy conservation.

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

From the perspective of energy tax policy, ARRA modified incentives for renewable energy production, energy conservation, alternative technology vehicles, as well as a number of other energy tax incentives.[36] Taken together, these incentives are estimated to reduce federal revenue collections by nearly $6 billion over the five-year 2009 through 2013 budget window and nearly $20 billion over the 2009-2019 budget window. **Table 2** categorizes and provides details on the specific provisions contained within ARRA. Collectively, ARRA's energy tax provisions lower the cost of selected renewable energy relative to energy from other sources, such as oil and gas.

[35] Modifications to other energy provisions under ARRA are estimated to cost an additional $0.2 billion over the 2009 through 2013 budget window. These provisions are discussed in further detail below.

[36] 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.

Table 2. Energy Tax Provisions Enacted Under American Recovery and Reinvestment Act of 2009

billions of dollars

Tax Expenditure	Changes Under ARRA	Cost 2009-2013	I.R.C. Section
	Renewable Energy Production		
Extension of the renewable energy production tax credit	Extended the placed in service dates for wind through December 31, 2012 and December 31, 2013 for other facilities.	2.9	45
Election of investment credit in lieu of the production credit	Businesses that place in service facilities producing electricity from a renewable resource can elect to claim an investment credit in lieu of the production credit.	0.3	48
Modify energy credit	Remove cap for wind systems and remove cutback to credit for subsidized energy financing.	0.2	48
Credit for residential energy-efficient property	Increased the credit rate to 30% and removed credit limits.	0.1	25D
Increase limitation on new clean renewable energy bonds	Increased funds available for the issue of new clean renewable energy bonds.	0.1	54D
	Energy Conservation		
Extend and increase credit for nonbusiness energy property	Removed maximum amounts previously associated with credit and increased the credit rate to 30% up to at $1,500 maximum.	1.9	25C
Increase limitation on qualified energy conservation bonds	Increased funds available for the issue of qualified energy conservation bonds.	0.1	136
	Alternative Technology Vehicles		
Modify alternative motor vehicle credit and credit for plug-in electric vehicles	Modified existing credit and added credit for low-speed two and three wheeled vehicles.	0.1	30D
Credit for plug-in vehicle conversion	Introduced credit for plug-in electric drive conversion kits. Credit is 10% of expenditures limited to $4,000. The credit expires on January 1, 2012.	(i)	30B
	Other		
Changes to credit for refueling and recharging property	Increased credit rate from 30% to 50% and limits from $30,000 to $50,000 for business property and $1,000 to $2,000 for nonbusiness property; added $200,000 limit for hydrogen property.	0.1	30C

Tax Expenditure	Changes Under ARRA	Cost 2009-2013	I.R.C. Section
Five-year recovery period for depreciation of smart meters	Reduced recovery period for smart meters from 10 years to five years for property placed in service before January 1, 2011.	0.1	168(e)
Research credit for qualified energy research	Added a 20% credit for qualified expenses on energy research during 2009 and 2010.	(i)	41

Source: CRS and Joint Committee on Taxation, JCX-18-09

Notes: The revenue losses are losses associated with the provisions as enacted under ARRA.

Provisions enacted under ARRA extended and expanded a number of incentives to encourage the production of energy using renewable resources. Specifically, the renewable energy production tax credit (PTC) was extended through 2013.[37] The PTC provides a credit per kilowatt-hour of electricity produced by a variety of qualified renewable resources.[38] In addition, provisions in ARRA temporarily allow firms to claim the business energy investment tax credit in lieu of the PTC. Additionally, ARRA allowed projects eligible for a PTC or investment tax credit to substitute a one time grant from the U.S. Treasury. Allowing investors to take a one time grant instead of future tax credits addresses uncertainty renewable energy investors may have regarding future tax positions.

The expansion and extension of the energy credit and the credit for residential energy-efficient property also promote renewable energy production. Under ARRA, caps previously associated with certain energy credits were removed. Businesses can now claim an uncapped 30% tax credit for qualified small wind energy property.[39] In addition, individuals are now allowed to claim an uncapped 30% tax credit for qualified solar heating property, small wind energy property, and geothermal heat pumps.[40] Renewable energy production was also further encouraged by ARRA's provision increasing the funds available for the issue of new clean renewable energy bonds.

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 can claim a 30% tax.[41] 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.[42] The second energy conservation provision increased funds available for the issue of qualified energy conservation bonds.

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

The total cost of these energy tax provisions enacted under ARRA is estimated to be $5.9 billion over the 2009 through 2013 budget window. The majority of these revenue losses, $3.6 billion,

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

[38] Qualified renewable sources include wind, open-loop biomass, closed-loop biomass, geothermal, qualified hydroelectric, landfill gas, municipal solid waste, and marine energy sources.

[39] Prior to ARRA, the credit was capped at $4,000.

[40] Prior to ARRA, the credits were capped at $2,000, $4,000 and $2,000, respectively.

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

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

are for incentives promoting energy production from renewable sources. Incentives to encourage energy conservation had revenue losses of $2 billion over the 2009 through 2013 budget window. Modification to the incentives for alternative technology vehicles are associated with $0.1 billion in revenue losses over the 2009 through 2013 budget window, while other energy tax provisions are associated with revenue losses of $0.2 billion over the same time period.

The President's Fiscal Year 2010 and 2011 Budget Proposals

A reduction in or the repeal of selected tax preferences for the oil and gas industry appears to be the focus of energy tax policy in the President's Fiscal Year 2010 and 2011 Budget Proposals. Specifically, the FY2010 and FY 2011 Budget Proposals contain several provisions directly targeting the oil and gas industries. These provisions include the domestic manufacturing deduction for oil and gas production, the repeal of percentage depletion, and the expensing of intangible drilling costs—three provisions which have been scaled back in recent years—along with the repeal of the deduction for tertiary injectants and credits for enhanced oil recovery projects and production from marginal wells. In addition, the FY2010 and FY2011 Budget Proposals would levy an excise tax on oil and gas production on the Outer Continental Shelf and increase the amortization period for geological and geophysical costs from five to seven years.

The FY2010 and FY2011 Budget Proposals also contains several additional proposals that would be borne—at least partially—by the oil and gas industry. The Budget Proposals would reinstate the superfund excise taxes and environmental income tax.[43] Notable among the Superfund taxes is the excise tax on domestic crude oil and on imported petroleum products, which is taxed at a rate of 9.7 cents per barrel. Further the FY2010 and FY2011 Budget Proposals would repeal the last-in, first-out (LIFO) method of inventory accounting. This method of inventory accounting values the goods sold as the most recent inventory purchase. During a period of rising prices, this method of inventory accounting increases production costs and reduces taxable income and tax liabilities.

In addition to items common to both Budget Proposals, the FY2011 Budget Proposal also contains several proposals targeted at the coal industry. The elimination of percentage depletion for fossil fuels is estimated to raise nearly $1.1 billion over the 2011-2020 budget window and represents nearly one-half of the projected revenue gain from repeal of the coal industry tax preferences identified in the FY2010 Budget Proposal.

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 FY 2010 and FY2011 Budget Proposal would decrease the relative cost of alternative energy production by increasing the cost of coal, oil, and gas production.[44]

[43] See CRS Report RL31410, *Superfund Taxes or General Revenues: Future Funding Issues for the Superfund Program*, by Jonathan L. Ramseur, Mark Reisch, and James E. McCarthy and CRS Report RL33426, *Superfund: Implementation and Selected Issues*, by Jonathan L. Ramseur for more information on Superfund taxes.

[44] Note that the FY 2010 and FY2011 Budget Proposals represent one of many possible options to reduce the economic distortions associated with the tax treatment of energy production.

American Energy Production and Price Reduction Act (H.R. 3505)

This act proposes to increase energy production domestically. Specifically, the act seeks to increase American oil production, encourage the use of nuclear and solar energy production, as well as provide incentives for natural gas and clean coal. Additionally, the act would expand a number of existing credits promoting energy efficiency.

Carbon Tax / Climate Change[45]

As of the date of this report, Members in the 111th Congress have introduced seven stand-alone proposals that would control greenhouse gas (GHG) emissions.[46] The proposals offered to date would employ market-based approaches—either a cap-and-trade or carbon tax system, or some combination thereof—to reduce GHG emissions. The legislative proposals are varied in their overall approaches in controlling GHG emissions. Some control emissions by setting a quantity (or cap); others control emissions by setting a price (or tax/fee). In addition, the proposals differ 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 use a carbon tax approach to address carbon dioxide (CO_2) emissions from fossil fuel combustion. H.R. 1683 (McDermott) would establish 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, are not widely seen as the primary energy and climate change legislative proposal in the 111th Congress. Instead, cap-and-trade programs have constituted the primary energy and climate change legislative proposals in the 111th Congress. Current cap-and-trade legislative vehicles include H.R. 2454 and S. 1733. The American Clean Energy and Security Act of 2009 (H.R. 2454) (Waxman/Markey) which has passed the House would establish cap-and-trade programs.[47] The Clean Energy Jobs and American Power Act (S. 1733), was considered and ordered to be reported by the Committee on the Environment and Public Works, would also rely on a cap-and-trade program to reduce greenhouse gas emissions.[48] H.R. 1666 (Doggett) would also create 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 allow offsets to be used for compliance purposes, while the former two would allow covered entities to satisfy an increasing percentage (approximately 30% in 2012) of their compliance obligation with offsets.

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[45] Carbon tax and climate change issues are, however, largely beyond the scope of this report. See 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.

[46] 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.

[47] See CRS Report R40643, *Greenhouse Gas Legislation: Summary and Analysis of H.R. 2454 as Passed by the House of Representatives* , coordinated by Mark Holt and Gene Whitney, for a detailed analysis of H.R. 2454.

[48] 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.

A key element in GHG emission reduction bills is how, to whom, and for what purpose the value of emission allowances or carbon tax revenue would be 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 distribute 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 be sold through auction. As with the distribution of no-cost allowances, auction revenues would be used to further various policy objectives.

Tax Extenders

A number of energy tax provisions expired at the end of 2009 and others are scheduled to expire at the end of 2010.[49] Many of these provisions have been included in comprehensive tax extender legislation.[50]

The most recent House-passed version of H.R. 4213, the American Jobs and Closing Tax Loopholes Act of 2010, proposed extending 11 energy tax provisions. In terms of revenue cost, the most significant provisions are the extension of the excise tax credits and outlay payments for biodiesel and renewable diesel ($868 million over the 2010-2020 budget window) and a temporary modification to the credit for nonbusiness energy property ($145 million over the 2010-2020 budget window).[51] Other provisions would extend credits for the construction of energy efficient new homes and heavy hybrid vehicles.

The Small Business Jobs Tax Relief Act of 2010

The Small Business Jobs Tax Relief Act of 2010 (H.R. 5486), which passed the House on June 15, 2010, is designed to tax cuts for small businesses to help them grow and create new jobs.[52] Included in the act's revenue offset provisions is a provision that would make crude tall oil ineligible for the cellulosic biofuel producer tax credit (IRC §40).[53] This proposal is estimated to raise $1.8 billion over 10 years.

[49] For a list of expiring legislation, see U.S. Congress, Joint Committee on Taxation, *List Of Expiring Federal Tax Provisions 2009-2020*, committee print, 111th Cong., 2nd sess., January 20, 2010, JCX-3-10 (Washington: GPO, 2010).

[50] For a description of the tax extender bills and their current status, see CRS Report RL32367, *Certain Temporary Tax Provisions Scheduled to Expire in 2009 ("Extenders")*, by James M. Bickley

[51] U.S. Congress, Joint Committee on Taxation, *Estimated Revenue Effects Of The Revenue Provisions Contained In H.R. 4213, The "American Jobs And Closing Tax Loopholes Act Of 2010", Scheduled For Consideration By The House Of Representatives*, committee print, 111th Cong., 2nd sess., May 28, 2010, JCX-30-10.

[52] Committee on Ways and Means, "House Approves Tax Relief for Small Businesses," press release, June 15, 2010, http://waysandmeans.house.gov/press/PRArticle.aspx?NewsID=11221.

[53] Crude tall oil is a corrosive by-product from the kraft (sulfate) process that turns pinewood into pulp and paper products. A second by-product of the kraft process, "black liquor," was made ineligible for the cellulosic biofuel producer tax credit by the Health Care and Education Reconciliation Act of 2010 (P.L. 111-152).

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.[54] 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.

There were two provisions included in H.R. 6 that were not included in the enacted law. H.R. 6 included renewable portfolio standards that would have required a minimum amount of electricity sold by suppliers be generated using renewable resources (or credits purchased if the minimum renewable standard was not met). Additionally, H.R. 6 included provisions that would have repealed a number of subsidies that were currently available to the oil and gas industry. The approximately $22 billion saved by eliminating these subsides, under H.R. 6, would have been used to support a variety of energy efficiency and renewable energy tax incentives (such as extending the credit for electricity production from renewable resources).

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.[55] The first provision promotes cellulosic ethanol through a blenders' credit of $1.01 per gallon, which applies to ethanol 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.

[54] 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.

[55] 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.

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

The Emergency Economic Stabilization Act of 2008 (P.L. 110-343), included $17 billion in energy tax incentives. These provisions were primarily extensions of existing provisions (extenders), but also including several new energy tax incentives. The new provisions included $10.9 billion in renewable energy tax incentives aimed at clean energy production, $2.6 billion in incentives targeted toward cleaner vehicles and fuels, and $3.5 billion in tax breaks to promote energy conservation and energy efficiency.

The cost of the energy tax extenders legislation in the Emergency Economic Stabilization Act of 2008 was fully financed, or paid for, by raising taxes on the oil and gas industry (mostly by reducing oil and gas tax breaks) and by other tax increases. The oil and gas tax increases came from cutbacks in the IRC §199 manufacturing deduction for income attributable to oil and gas production, which was frozen at 6% (rather than increasing to 9% as scheduled), reforming the foreign tax credit provisions, and from increasing the per-barrel tax rate on refinery crude oil under the Oil Spill Liability Trust Fund provisions.

Appendix. Energy Tax Legislation Prior to the 110th Congress

This appendix briefly overviews legislation enacted during the 108th and 109th Congresses responsible for shaping current energy tax policy.

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.[56]

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

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

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

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

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

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

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

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