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Energy Tax Provisions Expiring in 2020, 2021, 2022, and 2023 ("Tax Extenders")

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SUMMARY

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Energy Tax Provisions Expiring in 2020, 2021, 2022, and 2023 ("Tax Extenders")

This report briefly summarizes and discusses the economic impact of the energy-related tax provisions that are scheduled to expire in 2020, 2021, 2022, or 2023. Fourteen temporary energy tax provisions are scheduled to expire at the end of 2020. Five other temporary business tax provisions are scheduled to expire in 2021, 2022, or 2023. In the past, Congress has regularly acted to extend expired or expiring temporary tax provisions. Collectively, these temporary tax provisions are often referred to as "tax extenders." The provisions discussed in this report are listed below, grouped by type and scheduled year of expiration.

Renewable electricity provisions scheduled to expire in 2020:

- Production Tax Credit (PTC)

Alternative and renewable fuels provisions scheduled to expire in 2020:

- Second Generation (Cellulosic) Biofuel Producer Credit
- Special Depreciation Allowance for Second Generation (Cellulosic) Biofuel Plant Property
- Incentives for Alternative Fuel and Alternative Fuel Mixtures

Vehicles and vehicle refueling property provisions scheduled to expire in 2020:

- Alternative Motor Vehicle Credit for Qualified Fuel Cell Vehicles
- Alternative Fuel Vehicle Refueling Property
- Credit for Two-Wheeled Plug-In Electric Vehicles

Building energy-efficiency provisions scheduled to expire in 2020:

- Credit for Section 25C Nonbusiness Energy Property
- Credit for Construction of Energy-Efficient New Homes
- Energy-Efficient Commercial Building Deduction

Trust fund dedicated excise taxes scheduled to expire in 2020:

- Black Lung Disability Trust Fund: Increase in Amount of Excise Tax on Coal
- Oil Spill Liability Trust Fund Financing Rate

Other Expiring Energy Tax Provisions scheduled to expire in 2020:

- Credit for Production of Indian Coal
- Special Rule to Implement Electric Transmission Restructuring

Provisions expiring in 2021, 2022, or 2023:

- Credit for Residential Energy Property
- Investment Tax Credit (ITC)
- Five-Year Recovery Period for Certain Energy Property
- Incentives for Biodiesel and Renewable Diesel
- Credit for Carbon Oxide Sequestration

Most of these energy-related provisions were past tax extenders legislation. Most recently, energy tax extenders were extended in the Taxpayer Certainty and Disaster Tax Relief Act of 2019, enacted as Division Q of the Further Consolidated Appropriations Act, 2020 (P.L. 116-94). Most of the energy tax provisions extended in this legislation had expired at the end of 2017, and were retroactively extended through 2020.

This report does not include provisions that in the past have been classified as individual or business-related. Information on these provisions can be found in CRS Report R46243, *Individual Tax Provisions ("Tax Extenders") Expiring in 2020: In Brief*, coordinated by Molly F. Sherlock; and CRS Report R46271, *Business Tax Provisions Expiring in 2020, 2021, and 2022 ("Tax Extenders")*, coordinated by Molly F. Sherlock.

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Introduction

In the past, Congress has regularly acted to extend expired or expiring temporary tax provisions.[1] Collectively, these temporary tax provisions are often referred to as "tax extenders." This report briefly summarizes and discusses the economic impact of the energy-related tax provisions that are scheduled to expire before 2025.[2]

There are 14 energy-related temporary tax provisions scheduled to expire at the end of 2020. Most of these energy-related provisions were included in past tax extenders legislation. Most recently, energy tax extenders were extended in the Taxpayer Certainty and Disaster Tax Relief Act of 2019, enacted as Division Q of the Further Consolidated Appropriations Act, 2020 (P.L. 116-94). Most of the energy tax provisions that were extended in this legislation had expired at the end of 2017, and were retroactively extended through 2020.[3]

Several provisions are scheduled to expire after 2020 because they were previously granted longer-term extensions. For example, in 2015, Division P of the Consolidated Appropriations Act, 2016 (P.L. 114-113) included longer-term extensions of the investment tax credit (ITC) for solar energy as well tax credits for residential solar. The 30% ITC for solar was extended through 2019, with the credit rate reduced to 26% for facilities beginning construction in 2020 and 22% for facilities beginning construction in 2021.[4] The Bipartisan Budget Act of 2018 (BBA18; P.L. 115-123) extended and modified the ITC for nonsolar technologies to match what had been established for solar in P.L. 114-113. Five-year cost recovery that is generally available to ITC-eligible property, as well as wind property, was also extended through 2021. The tax credit for residential energy-efficient property was also extended through 2021 for nonsolar technologies, with a phaseout in 2020 and 2021. Whereas P.L. 116-44 extended most temporary energy tax provisions through 2020, it extended tax incentives for biodiesel and renewable diesel through 2022.

There are several options for Congress to consider regarding temporary provisions. Expiring provisions could be extended. When provisions are extended, they may or may not be otherwise modified. The extensions could be short term or long term, or temporary provisions could be made permanent. Another option would be to allow expired provisions to remain expired.

Table 1 provides information on the cost of extending temporary energy tax provisions. For most provisions, the most recent extension was in P.L. 116-94.

[1] CRS Report R45347, *Tax Provisions That Expired in 2017 ("Tax Extenders")*, by Molly F. Sherlock.

[2] There are no temporary energy-related tax provisions scheduled to expire in 2024.

[3] CRS Report R44990, *Energy Tax Provisions That Expired in 2017 ("Tax Extenders")*, by Molly F. Sherlock, Donald J. Marples, and Margot L. Crandall-Hollick.

[4] The business solar ITC is scheduled to return to its permanent rate of 10% in 2022. The credit for residential solar is scheduled to expire after 2021.

Table 1. Temporary Energy Tax Provisions: Cost of Recent Extension

Provision	10-Year Cost of 3-Year Extension in P.L. 116-94 (billions)
Renewable Electricity	
Production Tax Credit (PTC)	$2.1[a]
Alternative and Renewable Fuels	
Second Generation (Cellulosic) Biofuel Producer Credit	(i)
Special Depreciation Allowance for Second Generation (Cellulosic) Biofuel Plant Property	(ii)
Incentives for Alternative Fuel and Alternative Fuel Mixtures	$2.0
Vehicles and Vehicle Refueling Property	
Alternative Motor Vehicle Credit for Qualified Fuel Cell Vehicles	(i)
Alternative Fuel Vehicle Refueling Property	$0.3
Credit for Two-Wheeled Plug-In Electric Vehicles	(i)
Building Energy Efficiency	
Credit for Section 25C Nonbusiness Energy Property	$0.8
Credit for Construction of Energy-Efficient New Homes	$0.8
Energy-Efficient Commercial Building Deduction	$0.2
Trust Fund Dedicated Excise Taxes	
Black Lung Disability Trust Fund: Increase in Amount of Excise Tax on Coal	-$0.2[b]
Oil Spill Liability Trust Fund Financing Rate	none[c]
Other Expiring Energy Tax Provisions	
Credit for Production of Indian Coal	$0.1
Special Rule to Implement Electric Transmission Restructuring	none[d]
Provisions Expiring in 2021, 2022, or 2023	
Credit for Residential Energy Property	not extended in P.L. 116-94
Investment Tax Credit (ITC)	not extended in P.L. 116-94
Five-Year Recovery Period for Certain Energy Property	not extended in P.L. 116-94
Incentives for Biodiesel and Renewable Diesel	$15.2[e]
Credit for Carbon Oxide Sequestration	not extended in P.L. 116-94

Source: Joint Committee on Taxation, *Estimated Budget Effects of the Revenue Provisions Contained in the House Amendment to the Senate Amendment to H.R. 1865, the Further Consolidated Appropriations Act 2020 (Rules Committee Print 116-44)*, JCX-54-19R, December 17, 2019; and Joint Committee on Taxation, *List of Expiring Federal Tax Provisions 2020 – 2029*, JCX-1-20, January 16, 2020.

Notes: An (i) indicates a revenue loss of less than $50 million. An (ii) indicates a negligible revenue effect.

a. The PTC for nonwind technologies was extended for three years, though 2020. The PTC was also made available for wind facilities starting construction in 2020, at 60% of the full credit amount. This change

effectively extended the wind PTC for one year, although at a higher rate than was available for projects starting construction in 2019.

b. The increased amount was extended for one year, 2020.

c. An extension of the oil spill liability trust fund financing rate does not generate additional revenue because the Congressional Budget Office (CBO) baseline assumes expiring excise taxes are extended.

d. The estimated revenue loss in 2020 is offset by revenue gains in later years.

e. The tax incentives for biodiesel and renewable diesel were extended for five years, through 2022.

Provisions Expiring in 2020

Renewable Electricity

Production Tax Credit[5]

The renewable electricity production tax credit (PTC) is a per-kilowatt-hour (kWh) credit for electricity produced by a qualified energy resource. Under current law, facilities must begin construction before January 1, 2021, to be eligible for the tax credit. Eligible facilities can claim the tax credit for the first 10 years of qualified production. Resources that qualify for the full credit amount, 2.5 cents per kWh in 2020, include closed-loop biomass and geothermal. Wind facilities that began construction before January 1, 2017, are also eligible for the full credit amount. The credit is reduced by 20% for wind facilities that began construction in 2017, reduced by 40% for facilities that began construction in 2018, reduced by 60% for facilities that began construction in 2019, and reduced by 40% for wind facilities that begin construction in 2020. Other resources—including open-loop biomass, small irrigation power, municipal solid waste, qualified hydropower, and marine and hydrokinetic resources—are eligible for a half credit amount.

The PTC was enacted in 1992 as part of the Energy Policy Act (EPACT92; P.L. 102-486). When first enacted, the PTC was available for electricity generated using wind or closed-loop biomass systems. The credit was initially set to expire on June 30, 1999. Since 1999, the PTC has regularly been extended, often as part of tax extenders legislation. The credit has also been expanded to include additional qualifying resources. At several points in time, the PTC was allowed to lapse before a retroactive extension was enacted.

The PTC was enacted in 1992 to promote the "development and utilization of certain renewable energy sources."[6] The 1999 sunset was included to provide an "opportunity to assess the effectiveness of the credit."[7] When the PTC was extended as part of a tax extenders package in 1999, Congress noted that the PTC had been important to the development of environmentally friendly renewable power, and extended the credit to promote further development of wind (and other) resources.[8] Subsequent extensions of the PTC reflected a belief that the tax incentive

[5] Internal Revenue Code (IRC) §45. IRC §48(a)(5) for the investment tax credit (ITC) in lieu of PTC option.

[6] U.S. Congress, House Committee on Ways and Means, *Comprehensive National Energy Policy Act*, committee print, 102nd Cong., 2nd sess., May 5, 1992, H.Rept. 102-474, pp. 41-42.

[7] Ibid.

[8] U.S. Congress, Joint Committee on Taxation, *General Explanation of Tax Legislation Enacted in the 106th Congress*, committee print, April 19, 2001, JCS-2-01, p. 25.

contributed to the development of renewable-energy infrastructure, which advanced environmental and energy policy goals.[9]

Most recently, the Further Consolidated Appropriations Act of 2020 (P.L. 116-94) retroactively extended the PTC for 2018 and 2019 for nonwind technologies, and extended the credits forward through 2020 for all technologies. P.L. 116-94 extended the PTC for wind facilities starting construction in 2020 at a rate of 60% of the full credit. The PTC for wind facilities that began construction in 2019 remained at 40% of the full credit amount. Previously, the PTC was extended for one year for qualifying nonwind technologies, from 2016 through 2017, in BBA18. A two-year extension of the PTC for nonwind technologies was included in the Protecting Americans from Tax Hikes (PATH) Act of 2015, enacted as Division Q of the Consolidated Appropriations Act, 2016 (P.L. 114-113). Division P of P.L. 114-113 included a two-year extension of the PTC for wind (through 2016). The PTC for wind was also extended beyond 2016, through 2019, at reduced rates.

Taxpayers can elect to receive a 30% investment tax credit in lieu of the PTC. The ITC in lieu of PTC election was enacted in 2009 alongside the Section 1603 grants in lieu of tax credits that expired at the end of 2011.[10] In recent years, the option to elect the ITC in lieu of the PTC has been extended alongside the PTC in tax extenders legislation.

One policy rationale for supporting renewable electricity resources is to promote development of renewable-energy infrastructure that may not be technologically mature. With this policy rationale in mind, one question is when technologies have reached the point of maturity such that tax-related federal financial support can be eliminated.

Environmental considerations provide another policy rationale often used to support tax incentives for renewable electricity production. Some suggest that ongoing support for renewables can help address inefficiencies and market failures in energy production markets, where fossil-fuels-based electricity production and the associated pollution effects generate negative externalities. A more direct approach, however, would be to impose a price on pollution, as opposed to subsidizing a nonpolluting alternative.

For more information, see CRS Report R43453, *The Renewable Electricity Production Tax Credit: In Brief*, by Molly F. Sherlock.

Alternative and Renewable Fuels

Second Generation (Cellulosic) Biofuel Producer Credit[11]

The second generation biofuels producer credit is a nonrefundable income tax credit for each gallon of qualified second generation biofuel production. The amount of the credit per gallon is generally $1.01. Qualified second generation biofuel production is second generation biofuel produced by the taxpayer and sold by the taxpayer to another person for use (1) in the production of a qualified biofuel fuel mixture in such person's trade or business (other than casual off-farm production), (2) as a fuel in a trade or business, or (3) as biofuel sold at retail to another person and placed in the fuel tank of such other person. Fuel must be produced and used in the United States to qualify for the credit. Cellulosic biofuel is produced using lignocellulosic or

[9] U.S. Congress, Joint Committee on Taxation, *General Explanation of Tax Legislation Enacted in the 112th Congress*, committee print, February 2013, JCS-2-13, pp. 212-213.

[10] 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.

[11] IRC §40(b)(6).

hemicellulosic matter (cellulosic feedstock) available on a renewable or recurring basis. Qualified feedstocks for second generation biofuels include cultivated algae, cyanobacteria, or lemna.

The second generation biofuel producer credit was called the cellulosic biofuel producer credit when it was established in the Food, Conservation, and Energy Act of 2008 (P.L. 110-246), which scheduled the credit to expire on December 31, 2012. The American Taxpayer Relief Act of 2012 (ATRA; P.L. 112-240) modified the provision to algae-based fuels and changed the incentive's title to its current form, the second generation biofuel producer credit. It has subsequently been extended as part of tax extenders legislation. Most recently, the incentive was extended through the end of 2020 in P.L. 116-94.

Tax credits for second generation biofuels are motivated by a desire to reduce dependence on petroleum imports (i.e., enhance national energy security), address environmental concerns, and maintain farm incomes. Renewable fuel standards and blend mandates requiring certain amounts of biofuels may be boosting domestic production, but until recently second generation cellulosic biofuels were not economically competitive with other renewable fuel standards options.[12]

Special Depreciation Allowance for Second Generation (Cellulosic) Biofuel Plant Property[13]

Second generation biofuel plant property allows for the immediate first-year bonus depreciation of 50% of the cost of facilities that produce eligible biofuels. Previous federal tax law limited the eligibility for first-year bonus depreciation of cellulosic biofuels to facilities producing ethanol; those producing nonethanol fuels from cellulosic feedstocks did not qualify for the allowance.

The special depreciation allowance for second generation biofuel plant property was introduced by the Tax Relief and Health Care Act of 2006 (P.L. 109-432). Most recently, the incentive was extended through the end of 2020 in P.L. 116-94. Allowing half the cost to be expensed when incurred provides a benefit because a tax deduction today is worth more than a tax deduction in the future, due to the time value of money (interest). From an economic perspective, allowing a special depreciation allowance for selected technologies can distort the allocation of resources, and may create economic inefficiencies. However, this incentive may also increase economic efficiency to the extent it addresses a market failure.

Incentives for Alternative Fuel and Alternative Fuel Mixtures[14]

The tax code provides tax credits for alternative fuels and alternative fuel mixtures. Specifically, there is a 50-cents-per-gallon excise tax credit for certain alternative fuels used as fuel in a motor vehicle, motor boat, or airplane and a 50-cents-per-gallon credit for alternative fuels mixed with a traditional fuel (gasoline, diesel, or kerosene) for use as a fuel. Qualifying fuels include liquefied petroleum gas; P Series fuels (certain renewable, nonpetroleum, liquid fuels); compressed or liquefied natural gas (CNG or LNG); any liquefied fuel derived from coal or peat through the Fischer-Tropsch process that meets certain carbon-capture requirements; liquefied hydrocarbons derived from biomass; and liquefied hydrogen. For propane, CNG, and LNG sold after December 31, 2015, the tax credit is based on gasoline-gallon or diesel-gallon equivalent. No fuel produced outside of the United States is eligible for the alternative fuels tax incentives.

[12] CRS Report R43325, *The Renewable Fuel Standard (RFS): An Overview*, by Kelsi Bracmort.

[13] IRC §168(l).

[14] IRC §§6426(d), 6427(e), and 6426(e).

The incentives of alternative fuel and alternative fuel mixtures were introduced under the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU; P.L. 109-59). Initially, the credits were to be available through September 30, 2009 (September 30, 2014, for hydrogen). The credit, however, has subsequently been extended. Most recently, the incentives were extended through the end of 2020 in P.L. 116-94.

Tax credits for alternative fuels are motivated by a desire to reduce dependence on petroleum imports (enhance national energy security), address environmental concerns, and maintain farm incomes.

Vehicles and Vehicle Refueling Property

Alternative Motor Vehicle Credit for Qualified Fuel Cell Vehicles[15]

Fuel cell vehicles (vehicles propelled by chemically combining oxygen with hydrogen to create electricity) may qualify for a federal tax credit. The credit is based on vehicle weight, with a base credit amount of $4,000 for vehicles weighing 8,500 pounds or less. Heavier vehicles may be eligible for larger credits, with the highest credit amount being $40,000 for vehicles weighing more than 26,000 pounds.

The alternative technology vehicle tax credit was enacted as part of the Energy Policy Act of 2005 (P.L. 109-58). The credit replaced a previously available clean-fuel-vehicle deduction (IRC §179A). When enacted, the tax credit for fuel cell vehicles was available for vehicles placed in service during 2006 through 2014. Alternative technology vehicle tax credits were available for hybrid, advanced lean-burn technology, and alternative fuel vehicles. The credits generally expired in 2009 or 2010 for vehicles other than fuel cell vehicles. After 2014, the credit for fuel cell vehicles has been extended as part of tax extenders. Most recently, the provision was extended through 2020 in P.L. 116-94.

Tax incentives for fuel cell vehicles may help address market failures in automobile markets. Specifically, if consumers fail to consider the negative environmental and potential energy security concerns associated with conventional gasoline- and diesel-fueled vehicles, the market may provide an inefficiently high level of such products. One way to address those "negative externalities" associated with fuel consumption through automobile use is to reduce the price of alternative technology vehicles.

A tax credit might address other barriers to adoption of alternative-technology vehicles. These include, for example, (1) the high up-front cost associated with alternative-technology vehicles, (2) the volatility of fuel prices, (3) technology risks associated with new, unfamiliar, or unproven technologies, and (4) a lack of complementary infrastructure (such as hydrogen fueling stations).

Because tax credits for fuel cell vehicles reduce the price of such vehicles relative to gasoline- and diesel-powered alternatives, such tax credits are intended to address the previously noted market failures and market barriers. A tax credit approach, however, may not be the most economically efficient mechanism for addressing the negative externalities associated with gasoline consumption and market barriers to fuel cell vehicle adoption. Relative to tax credits, rising gas prices have played a larger role in increasing consumer demand for alternative technology vehicles. Taxing gasoline directly—the activity associated with the negative externality—is arguably more economically efficient than subsidizing the purchase of select vehicles.

[15] IRC §30B.

Alternative Fuel Vehicle Refueling Property[16]

A 30% tax credit is provided for the cost of any qualified alternative fuel vehicle refueling property installed by a business or at a taxpayer's principal residence. The credit is limited to $30,000 for businesses at each separate location with qualifying property, and $1,000 for residences.

Clean fuel refueling property is generally any tangible equipment (such as a pump) used to dispense a fuel into a vehicle's tank. Qualifying property includes fuel storage and dispensing units and electric vehicle recharging equipment. A clean fuel is defined as any fuel at least 85% of the volume of which consists of ethanol (E85) or methanol (M85), natural gas, CNG, LNG, liquefied petroleum gas, or hydrogen, or any mixture of biodiesel and diesel fuel, determined without regard to any use of kerosene and containing at least 20% biodiesel. For the purposes of the credit, electricity is also considered a clean fuel.

For business taxpayers, the taxpayer's basis in the property is reduced by the amount of the credit. The credit for business property is treated as a portion of the general business credit. As part of the general business credit, unused credits may be carried back for one year or carried forward for 20 years. For nonbusiness property, the credit cannot exceed the excess of an individual's income tax liability over the sum of nonrefundable personal credits and the foreign tax credit over the taxpayer's tentative minimum tax. No credit is available for property used outside the United States. For property sold to a tax-exempt entity, the seller of the property may be able to claim the credit.

The credit for alternative fuel vehicle refueling property was introduced under the Energy Policy Act of 2005 (EPACT05; P.L. 109-58). The credit replaced a previously available deduction for business investment in clean fuel refueling property. The credit has been extended multiple times since being enacted in 2005; most recently, the incentives were extended through the end of 2020 in P.L. 116-94.

Tax credits for alternative fuel vehicle refueling property reduce after-tax capital costs to attract investment. Additionally, nontax federal incentives may also promote investment in alternative fuel vehicle refueling property. From an economic perspective, allowing special tax credits for selected technologies can distort the allocation of resources, and may create economic inefficiencies by encouraging investments in high-cost technologies, ones that would not otherwise be economical at current and expected prices and rates of return. However, the incentive may improve the allocation of resources, if it corrects a market failure.

Credit for Two-Wheeled Plug-In Electric Vehicles[17]

A tax credit is available for two-wheeled plug-in vehicles acquired before January 1, 2021. The credit is equal to 10% of the vehicle's cost, up to $2,500. To be eligible for the tax credit, vehicles must have a weight rating of less than 14,000 pounds; be propelled by a battery-powered electric motor with a battery capacity of at least 2.5 kilowatt hours; be manufactured for use on streets, roads, and highways; and be capable of achieving a speed of at least 45 miles per hour.

The American Recovery and Reinvestment Act (ARRA; P.L. 111-5) provided a tax credit for two- or three-wheeled vehicles, as well as low-speed four-wheeled vehicles. When enacted, the provision was scheduled to expire at the end of 2011. In ATRA, the provision was extended through 2013 for two- and three-wheeled vehicles, but not low-speed vehicles. No credit was

[16] IRC §30C.

[17] IRC §30D(g).

available in 2014. The provision was reinstated for two-wheeled vehicles in the PATH Act of 2015 (Division Q of P.L. 114-113), extended through 2017 in BBA2018, and extended through 2020 in P.L. 116-94.

Credits for two-wheeled plug-in electric vehicles were enacted as a unique provision, because such vehicles do not qualify for other plug-in electric vehicle tax credits.[18] Tax credits for such vehicles can support emerging technologies, or encourage consumers to purchase vehicles that might be more energy efficient than conventional alternatives. There may be concerns regarding the equity of vehicles tax benefits, if tax credits tend to be largely claimed by high-income taxpayers.[19] If these taxpayers would have bought qualifying vehicles absent tax benefits, then the tax incentives are not leading to additional purchases and are providing a windfall benefit to purchasers.

Building Energy Efficiency

Credit for Section 25C Nonbusiness Energy Property[20]

The nonbusiness energy property tax credit provides homeowners with a nonrefundable[21] tax credit for investments in both high-efficiency energy property (e.g., heating, cooling, and water-heating appliances) and investments in certain energy-efficiency improvements (e.g., energy-efficient insulation, windows, and doors).

For installations made during 2011 through 2020, the amount of the credit is calculated as 10% of expenditures on building-envelope improvements plus the cost of each energy-efficient property capped at a specific amount (ranging from $50 to $300), excluding labor and installation costs.[22] Given the price of high-efficiency heating, cooling, and water-heating appliances, taxpayers generally claim the maximum amount of the credit for energy-efficient property. In addition, the credit is subject to a lifetime cap of $500 per taxpayer.

Residential energy-efficiency tax credits were first introduced in the late 1970s, but were allowed to expire in 1985. EPACT05 (P.L. 109-58) enacted the Section 25C credit as a temporary provision in effect for 2006 and 2007. This nonrefundable tax credit was equal to 10% of qualified expenditures, subject to certain limitations for specific types of property and a $500 lifetime limitation per taxpayer. The Section 25C credit expired at the end of 2007. In 2008, the Emergency Economic Stabilization Act of 2008 (EESA; P.L. 110-343) reinstated and modified the Section 25C credit for the 2009 tax year. The American Recovery and Reinvestment Act of 2009 (ARRA; P.L. 111-5) further extended the credit for two years (2009 and 2010) and expanded it. Under ARRA, the credit equaled 30% of qualified expenditures for energy-efficiency improvements and energy property, eliminating the technology-specific credit amounts.[23] In addition, the lifetime credit cap was lifted from $500 to $1,500 for 2009 and 2010. These changes

[18] See the new qualified plug-in electric-drive vehicle credit, IRC §30D.

[19] The tax credit for plug-in electric vehicles tends to be claimed by higher-income taxpayers. See CRS In Focus IF11017, *The Plug-In Electric Vehicle Tax Credit*, by Molly F. Sherlock.

[20] IRC §25C.

[21] Nonrefundable tax credits cannot exceed a taxpayer's income tax liability, meaning those taxpayers with little to no tax liability generally cannot claim these tax benefits.

[22] For more information on energy related caps, see CRS Report R42089, *Residential Energy Tax Credits: Overview and Analysis*, by Margot L. Crandall-Hollick and Molly F. Sherlock.

[23] The changes that ARRA made to the Section 25C credit in 2009 superseded the 2009 changes that had been made to the credit by EESA.

expired at the end of 2010, and the credit as structured *before ARRA* (10% of expenditures subject to a $500 lifetime cap) was subsequently extended several times on a temporary basis. The 25C credit was extended for two years—2015 and 2016—by the PATH Act of 2015 (Division Q of P.L. 114-113) and extended through 2017 in BBA2018. Most recently, the credit was extended through 2020 in P.L. 116-94.

The amount of the investment resulting from the Section 25C credit is unclear. Some researchers found that tax incentives that reduced the price of energy-efficiency property would lead to additional investment.[24] Others found that the tax credits were instead more likely associated with windfall gains to credit recipients as opposed to additional energy-efficiency investment.[25] Further, the fact that the incentive is delivered as a nonrefundable credit limits the provision's ability to motivate investment for low- and middle-income taxpayers with limited tax liability. The administration of residential energy-efficiency tax credits has also had compliance issues, as identified in a Treasury Inspector General for Tax Administration (TIGTA) report.[26]

Credit for Construction of Energy-Efficient New Homes[27]

Contractors building energy-efficient homes and producers of manufactured energy-efficient homes are eligible for a tax credit for each qualifying new home they build that is purchased before 2021. The amount of the credit is equal to $2,000 per home for homes built by contractors and $1,000 per manufactured home.

To be eligible, an energy-efficient new home is required to have annual heating and cooling consumption that is at least 50% (30% in the case of manufactured homes) below a comparable unit. The home is also required to be in accordance with the standards of the 2006 International Energy Conservations Code.[28] Contractors and manufacturers claiming this credit are required to submit certification to an eligible certifier before claiming the credit. This credit is part of the general business credit and hence can be carried back one year and carried forward 20 years.

The tax credit for energy-efficient new homes was introduced under the Energy Policy Act of 2005 (EPACT05; P.L. 109-58). Initially, the credit was set to expire at the end of 2007. It was subsequently extended several times.[29] Most recently, the credit was extended through the end of 2020 in P.L. 116-94.

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[24] See Kevin A. Hassett and Gilbert E. Metcalf, "Energy Tax Credits and Residential Conservation Investment: Evidence from Panel Data," *Journal of Public Economics*, vol. 57, no. 2 (June 1995), pp. 201-217.

[25] See Michael J. Walsh, "Energy Tax Credits and Housing Improvement," *Energy Economics*, vol. 11, no. 4 (October 1989), pp. 275-284; and Jeffery A. Dubin and Steven E. Henson, "The Distributional Effects of the Federal Energy Tax Act," *Resources and Energy*, vol. 10, no. 3 (1988), pp. 191-212.

[26] Treasury Inspector General For Tax Administration, *Processes Were Not Established to Verify Eligibility for Residential Energy Credits*, Reference Number: 2011-41-038, April 19, 2011, at http://www.treasury.gov/tigta/auditreports/2011reports/201141038fr.pdf.

[27] IRC §45L.

[28] In addition, heating and cooling equipment efficiency must correspond to the minimum allowed under the regulations established by the Department of Energy pursuant to the National Appliance Energy Conservation Act of 1987 (P.L. 100-12) in effect at the time construction is completed. Qualified homes must be constructed such that building-envelope components contribute at least one-fifth of the 50% in required energy consumption reduction (one-third of 30% in required energy consumption reduction in the case of manufactured homes). Energy Star-labeled homes may qualify for the tax credit.

[29] The Tax Relief and Health Care Act of 2006 (P.L. 109-432) extended the credit through December 31, 2008. The Emergency Economic Stabilization Act of 2009 (EESA; P.L. 110-343) extended the credit through December 31, 2009. The Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010 (P.L. 111-312) extended the credit through December 31, 2011. The American Taxpayer Relief Act of 2012 (P.L. 112-240) extended the credit until

The tax credit is designed to encourage builders to install energy-efficient technologies in new homes. Energy-efficient new homes tend to have higher up-front costs, and it is not clear if market prices accurately reflect or capitalize the value of energy-efficient improvements. If energy efficiency is not accurately reflected in housing prices, builders may underinvest in efficiency technologies absent the credit. On the other hand, if market prices do reflect the cost associated with these technologies, the credit may be a windfall gain to the builder.

Energy-Efficient Commercial Building Deduction[30]

A deduction is allowed for certain energy-saving property used in domestic commercial buildings.[31] Qualifying energy-efficient commercial building property includes property installed as part of (1) the interior lighting system; (2) the heating, cooling, ventilation, or hot water system; or (3) the building envelope. To be deductible, property must reduce a building's annual energy and power costs by 50% or more as compared to a similar reference building meeting the minimum energy standards described in Standard 90.1-2007 of ASHRAE/IESNA.[32] The maximum deduction allowed is $1.80 per square foot. A reduced deduction may be available if a single system is upgraded (lighting, heating and cooling, or building envelope) and the 50% reduction threshold is not met. Separate energy cost reduction percentage thresholds are specified for single-system upgrades. The maximum deduction for a single-system improvement is $0.60 per square foot. Government entities making energy-efficiency upgrades to public buildings, such as schools, can allocate the Section 179D deduction to designers of energy-efficient commercial building property.

The deduction for energy-efficient commercial building property was enacted in EPACT05 (P.L. 109-58). When first enacted, the deduction was scheduled to be available for the 2006 and 2007 tax years. The deduction was extended for one year, through 2008, in tax extenders legislation enacted late in 2006 (Tax Relief and Health Care Act of 2006; P.L. 109-432). A longer-term (five-year) extension was enacted in the Emergency Economic Stabilization Act (P.L. 110-343). A stated rationale claimed

> [t]he Congress recognizes that a substantial portion of U.S. energy consumption is attributable to commercial buildings, and that the design and construction of commercial buildings is a multi-year process. Hence, the Congress believes that a long-term extension of the deduction for energy efficient commercial buildings is necessary to ensure that buildings currently in the design phase will be able to claim the deduction.[33]

Since 2014, short-term extensions of the deduction for energy-efficient commercial building property have been included in tax extenders legislation. Most recently, the provision was extended through 2020 in P.L. 116-94.

The business profit-maximizing (average cost-minimizing) objective should, in theory, promote an economically efficient level of investment in energy-saving property. However, market outcomes may lead to less investment in building energy efficiency than is socially desirable if

December 31, 2013, and adopted the 2006 International Energy Conservation Code.

[30] IRC §179D.

[31] For a more detailed overview, see CRS Committee Print CP10003, Tax Expenditures: Compendium of Background Material on Individual Provisions—A Committee Print Prepared for the Senate Committee on the Budget, 2018, by Jane G. Gravelle et al., pp. 107-113.

[32] American Society of Heating, Refrigerating, and Air Conditioning Engineers and the Illuminating Engineering Society of North America standards.

[33] U.S. Congress, Joint Committee on Taxation, *General Explanation of Tax Legislation Enacted in the 110th Congress*, committee print, March 2009, JCS-1-09, p. 344.

(1) consumption of energy has negative external costs, such as pollution, that are not considered when building owners make energy property decisions (i.e., there are negative externalities associated with building energy consumption); or (2) if the person choosing the energy equipment is not the same person responsible for paying the energy bills (i.e., there is a "principal-agent" issue), and energy-savings investments cannot be recouped via higher rents or appreciated asset value. In these circumstances, federal financial assistance, through a tax incentive, for example, may improve upon market outcomes. The tax deduction may not be the most economically efficient way to address market inefficiency. If building energy consumption is associated with pollution-related negative externalities, a direct price on pollution would arguably be a more economically efficient policy.

There are also some considerations related to the specifics of the deduction for energy-efficient commercial property. Most of the deduction is claimed by taxpayers constructing new buildings, because the energy-efficiency threshold is tied to recent efficiency standards. For older buildings, it can be more difficult to complete retrofits that meet energy-savings targets tied to recent building standards. Meeting certification requirements can also be costly and burdensome, potentially preventing certain taxpayers from claiming the deduction. Conversely, stringent certification requirements can help prevent fraudulent deduction claims.

Trust Fund-Dedicated Excise Taxes

Black Lung Disability Trust Fund: Increase in Amount of Excise Tax on Coal[34]

Internal Revenue Code (IRC) Section 4121 imposes the black lung excise tax (BLET) on sales or use of domestically mined coal. Generally, a producer that sells the coal is liable for the tax. Producers that use their own domestically mined coal, such as integrated utilities or steel companies, are also liable for the tax. The tax is imposed on "coal from mines located in the United States" and does not apply to imported coal (very little domestically consumed coal is imported).[35] The BLET does not apply to exported coal under the Export Clause of the U.S. Constitution. A credit or refund can be claimed if coal is taxed before it is exported. The tax is designed to support the Black Lung Disability Trust Fund for domestic miners.

The tax rate depends on how coal is mined. Effective January 1, 2021, the tax on underground-mined coal will be the lesser of (1) 50 cents per ton, or (2) 2% of the sale price. The tax on surface-mined coal will be the lesser of (1) 25 cents per ton, or (2) 2% of the sales price. Currently, through 2020, the tax rates are $1.10 per ton for coal from underground mines or 55 cents per ton for coal from surface mines, with the tax being no more than 4.4% of the sale price.

The Black Lung Benefits Revenue Act of 1977 (P.L. 95-227) first imposed the Section 4121 excise tax on coal. When enacted, the tax was 50 cents per ton for coal from underground mines, and 25 cents per ton for coal from surface mines. The tax was limited to 2% of the sales price. The tax was effective for sales after March 31, 1978.

The Black Lung Benefits Revenue Act of 1981 (P.L. 97-119) doubled the excise tax rates to $1.00 per ton for coal from underground mines, and 50 cents per ton for coal from surface mines, not to exceed 4% of the sales price. The higher rates were effective January 1, 1982. The doubled rates were temporary, and scheduled to revert to the previous rates on January 1, 1996. Before the

[34] IRC §4121.

[35] In 2019, U.S. coal consumption was 587.3 million short tons. Coal imports were 6.7 million short tons that same year. See U.S. Energy Information Administration, Monthly Energy Review-Table 6.1: Coal Overview, June 25, 2020, available at https://www.eia.gov/totalenergy/data/monthly/.

increased rates could expire, the Consolidated Omnibus Budget Reconciliation Act of 1985 (P.L. 99-272) again increased the BLET rates to $1.10 for underground-mined coal, and 55 cents for surface-mined coal, not to exceed 4.4% of the sales price. The Omnibus Budget Reconciliation Act of 1987 (P.L. 100-203) extended these rates through 2013. Increased excise tax rates on coal were again extended in 2008. The Emergency Economic Stabilization Act of 2008 (EESA; P.L. 110-343) extended the higher excise tax rates through 2018. The higher excise tax rates expired at the end of 2018, but were then reinstated, effective through December 31, 2020, in P.L. 116-94.

The Black Lung Disability Trust Fund continues to have expenses in excess of revenues, especially when legacy debt and the associated payments of principal and interest are considered.[36] At the higher excise tax rates, excise tax revenues exceed benefit payments and administrative costs, allowing debts accumulated within the trust fund to be repaid. Reduced coal excise tax rates generate revenue that is less than benefit payments and administrative expenses. When outlays from the Black Lung Disability Trust fund exceed revenues, the trust fund borrows from the general fund. This can be viewed as shifting the burden of paying for Black Lung Disability benefits from the coal industry to taxpayers generally. If Black Lung Disability benefits continue to be paid out of the trust fund, at current levels, choices about extending the increased excise tax rates on coal might be viewed as a choice regarding who pays for these benefits and the debt associated with past benefits paid: the coal industry or taxpayers. An alternative option would be to reduce Black Lung Disability benefit payments.

For more information, see CRS Report R45261, *The Black Lung Program, the Black Lung Disability Trust Fund, and the Excise Tax on Coal: Background and Policy Options*, by Scott D. Szymendera and Molly F. Sherlock.

Oil Spill Liability Trust Fund Financing Rate[37]

Through December 31, 2020, there is a 9 cents per barrel excise tax on domestic crude oil and imported petroleum products. The tax is generally paid by refinery operators, for crude oil received at a refinery, or by the person importing petroleum products. Revenues from the tax finance the Oil Spill Liability Trust Fund (OSLTF). The OSLTF is used to pay for damages resulting from oil spills or threats of oil spills.

The OSLTF was established in 1986 in the Omnibus Budget Reconciliation Act of 1986 (P.L. 99-509). Although Congress initially established the fund in 1986, it did not immediately authorize the fund's use or provide funding. In 1990, a 5 cents per-barrel tax on oil took effect to support the fund. The tax was to be suspended if fund balances exceeded $1 billion. The 5 cents per-barrel tax on oil was allowed to expire at the end of 1994. Congress reinstated the tax in 2006 in the Energy Policy Act of 2005 (P.L. 109-58). This act also increased the maximum fund balance to $2.7 billion. In 2008, the Emergency Economic Stabilization Act of 2008 (EESA; P.L. 110-343) increased the tax rate to 8 cents per barrel through 2016; in 2017, the rate increased to 9 cents per barrel. In addition to increasing the tax rate, EESA repealed the requirement that the tax be suspended if the fund's unobligated balance exceeded $2.7 billion. The Bipartisan Budget Act of 2018 (P.L. 115-123) extended the 9 cents per-barrel excise tax on oil through December 31, 2018. The tax lapsed after 2018, and thus was not in effect for 2019, before being reinstated for 2020 at the 9 cents per-barrel rate in P.L. 116-94.

[36] See Department of the Treasury, Bureau of Fiscal Service, "Treasury Bulletin," March 2020, pp. 88-89, available at https://www.fiscal.treasury.gov/files/reports-statements/treasury-bulletin/b2020-1.pdf.

[37] IRC §4611.

The OSLTF provides an immediate source of funds for federal responses to oil spills and compensation for certain damages. Historically, the per-barrel oil excise tax has been the primary source of financing for the trust fund. At the start of FY2020, the OSLTF had a balance of $6.8 billion.[38] The OSLTF balance is expected to increase to $10.7 billion by the end of FY2024, as fund receipts, including investment income, are expected to exceed fund expenses over the next several years.

For more information, see CRS In Focus IF11160, *The Oil Spill Liability Trust Fund Tax: Background and Reauthorization Issues in the 116th Congress*, by Jonathan L. Ramseur.

Other Expiring Energy Tax Provisions

Credit for Production of Indian Coal[39]

The credit for Indian coal production provides a tax credit for Indian coal produced from reserves that were owned by an Indian tribe or held in trust by the United States for a tribe on June 14, 2005. The amount of the credit is $2.00 per ton (adjusted for inflation; $2.525 per ton in 2019). The credit is available for coal sold after December 31, 2005, and before January 1, 2021. The coal does not need to be sold for the production of electricity or any specific purpose. Before 2015, the credit was only available for Indian coal produced at facilities that were placed in service before January 1, 2009.

Indian coal was added to the production tax credit (PTC) as a new qualifying resource by the Energy Policy Act of 2005 (P.L. 109-58). When enacted, the credit was available for coal sold to an unrelated third party during the seven-year period beginning after December 31, 2005, and ending before January 1, 2013. The credit was $1.50 per ton of coal sold during the first four years of the period, and $2.00 per ton for coal sold during the last three years of the period. Congress extended the credit for Indian coal for one year in ATRA, reasoning such an extension would "encourage continued mining of coal resources on Indian lands."[40] The credit has subsequently been extended as part of tax extenders. In addition to extending the credit through 2016, the PATH Act modified the provision, removing the January 1, 2009, placed-in-service requirement and modifying the third party sale requirement. The PATH Act also exempts the credit from the alternative minimum tax (AMT). The credit for the production of Indian coal was extended through 2017 in BBA2018 and through 2020 in P.L. 116-94.

Proponents of the Indian coal PTC have argued the credit helps compensate Indian coal producers for more restrictive regulatory requirements faced by coal producers on Indian lands, and encourages investment and jobs on Indian lands.[41] Concerns related to the credit include environmental and social considerations related to the use of coal-fired power.[42]

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[38] See Department of the Treasury, Bureau of Fiscal Service, "Treasury Bulletin," March 2020, pp. 107-108, available at https://www.fiscal.treasury.gov/files/reports-statements/treasury-bulletin/b2020-1.pdf.

[39] IRC §45.

[40] U.S. Congress, Joint Committee on Taxation, *General Explanation of Tax Legislation Enacted in the 112th Congress*, committee print, February 2013, JCS-2-13, p. 211.

[41] Adam Lidgett, "Mont. Sens. Float Bill To Extend Indian Coal Tax Credit," Law360, April 28, 2017, available at https://www.law360.com/articles/918463/mont-sens-float-bill-to-extend-indian-coal-tax-credit.

[42] Valerie Volcovici, "In Montana's Indian country, tribes take opposite sides on coal," Reuters, August 21, 2017, available at http://www.reuters.com/article/us-usa-trump-energy-tribes-insight/in-montanas-indian-country-tribes-take-opposite-sides-on-coal-idUSKCN1B10D3.

Special Rule to Implement Electric Transmission Restructuring[43]

IRC Section 451(k) permits taxpayers to elect to recognize any capital gain from the sale of qualifying electricity transmission property to an independent transmission company, pursuant to a Federal Energy Regulatory Commission (FERC) restructuring policy, evenly over eight years beginning with the year of the sale. The sale proceeds must be reinvested in other electricity assets within four years. This special tax incentive is available for sales made through December 31, 2020.

Generally, any gain realized from a sale or disposition of a capital asset is recognized in the tax year in which the gain was realized, unless there is a specific exemption or deferral. The recognition of gain over eight years, rather than in the year of sale, is a deferral, rather than a complete forgiveness, of tax liability. The economic benefit derives from the reduction in the present value of the tax owed below what the tax would otherwise be if it were required to be recognized in the year of sale.

The deferral of gain on the sale of transmission assets was enacted on a temporary basis as part of the American Jobs Creation Act of 2004 (P.L. 108-357), with the goal of encouraging energy transmission infrastructure reinvestment and assisting those in the industry who are restructuring. It is intended to foster a more competitive industry by facilitating the unbundling of transmission assets held by vertically integrated utilities. Under restructuring, states and Congress have considered rules requiring the separate ownership of generation and distribution and transmission assets. However, vertically integrated electric utilities still own a large segment of the nation's transmission infrastructure. The tax provision encourages the sale of transmission assets by vertically integrated electric utilities—the unbundling of electricity assets—to independent system operators or regional transmission organizations, who would own and operate the transmission lines. The provision is intended to improve transmission management and service, and facilitate the formation of competitive electricity markets. In recent years, this provision has been extended as part of tax extenders legislation. Most recently, the provision was extended through 2020 in P.L. 116-94.

The restructuring of the electric power industry has resulted in significant reorganization of power assets in recent years. In particular, it may result in a significant disposition of transmission assets and possibly, depending on the nature of the transaction, trigger an income tax liability and interfere with industry restructuring. Under an income tax system, the sale for cash of business assets subject to depreciation deductions triggers a tax on taxable income in the year of sale to the extent of any gain. Corporations pay capital gains on sales of capital assets, such as shares of other corporations. But gains on the sale of depreciable assets involve other rules. For example, sales of personal property, such as machinery, are taxed partly as capital gains and partly as ordinary income. The overall taxable amount is the difference between the sales price and basis, which is generally the original cost minus accumulated depreciation. That amount is taxed as ordinary income to the extent of previous depreciation allowances (depreciation is "recaptured").

[43] IRC §451(k).

Provisions Expiring in 2021, 2022, or 2023

Provisions Expiring in 2021

Credit for Residential Energy Property[44]

The residential energy-efficient property tax credit allows taxpayers to claim a tax credit for properties installed on their residence that generate renewable energy (e.g., solar panels, geothermal heat pumps, small wind energy, fuel cells). The amount of the credit is calculated as a percentage of expenditures on technologies that generate renewable energy, including labor and installation costs. Through 2019, the credit rate was 30%. The credit rate is 26% in 2020 and is scheduled to be reduced to 22% in 2021. The credit is scheduled to expire December 31, 2021.

The residential energy-efficient property credit was enacted for two years, 2006 and 2007, as part of the Energy Policy Act of 2005 (EPACT05; P.L. 109-58). The credit was extended for the 2008 tax year by the Tax Relief and Health Care Act of 2006 (P.L. 109-432). The Emergency Economic Stabilization Act of 2008 (EESA; P.L. 110-343) extended the tax credit for eight years, through 2016. Division P of P.L. 114-113 extended the Section 25D credit for solar technologies through 2021, with the full 30% credit rate available through 2019, with the credit rate reduced to 26% in 2020 and 22% in 2021. The Bipartisan Budget Act of 2018 (BBA18; P.L. 115-123) extended the credit for eligible nonsolar technologies—fuel cell plants, small wind energy property, and geothermal heat pump property—through 2021 and harmonized the credit rates for solar and nonsolar technologies. Under BBA18, the credit rates for nonsolar technologies was 30% for property placed in service before the end of 2019, falling to 26% in 2020 and 22% in 2021.

The goal of the residential energy-efficiency tax credit is to promote investment in energy-efficient and renewable-energy property. Investment in residential energy efficiency and renewable on-site generation may be below the socially optimal level because market failures in the production and consumption of electricity lead consumers to consume more electricity derived from pollution-generating energy resources than they would otherwise. In recent years, increased installations of residential renewable-energy property—of solar property in particular—can be attributed to declining costs as well as various forms of financial incentives, including the federal tax credits.

Investment Tax Credit[45]

The energy investment tax credit (ITC) is a credit against the cost of investments in qualified renewable-energy property. There is a permanent ITC for solar and geothermal technologies equal to 10% of the cost basis of the investment. Temporarily, the credit rate for solar is 30% through 2019, before being reduced to 26% in 2020 and 22% in 2021. Investments in small wind property (i.e., a wind turbine with 100 kilowatts of capacity or less) may qualify for a 30% ITC through 2019, with the credit rate reduced to 26% in 2020 and 22% in 2021. Investments in fuel cell power plants and fiber-optic solar may qualify for the ITC at these same rates. The credit for fuel cells is limited to $1,500 per 0.5 kilowatts in capacity. Investments in microturbines, combined heat and power (CHP) systems, and geothermal heat pumps qualify for a 10% ITC through 2021.

[44] IRC §25D.

[45] IRC §48.

The expiration dates for the ITC are commence-construction deadlines. In other words, construction must have begun on the property by the deadline for the property to be tax credit eligible.[46] The energy credit is part of the general business credit, and as such unused credits may be carried back for one year and carried forward for up to 20 years. The taxpayer's basis in property eligible for the ITC must be reduced by one-half of the credit amount. For construction projects with durations of two or more years, credits may be claimed as construction progresses rather than at the time the property is placed in service.

The energy tax credit was established as part of the Energy Tax Act of 1978 (P.L. 95-618), which created a refundable, temporary, 10% tax credit for alternative and renewable-energy property. The rationale behind the credits at the time of enactment was primarily to reduce U.S. consumption of oil and natural gas by encouraging the commercialization of renewable-energy technologies. Subsequent legislation extended and modified the renewable-energy ITC, including converting the ITC to a nonrefundable credit in 1980 (P.L. 96-223) and making the 10% credit for solar and geothermal permanent in 1992 (P.L. 102-486).

From 1992 until the Energy Policy Act of 2005 (EPACT05; P.L. 109-58), the permanent solar and geothermal credits were the only renewable-energy ITCs. EPACT05 temporarily increased the solar ITC to 30% and expanded the eligible technologies to include fiber-optic, microturbine, and fuel cell technologies. The Emergency Economic Stabilization Act of 2008 (P.L. 110-343) provided a long-term extension of the temporary components of the energy credit and expanded the credit to include geothermal heat pump, qualified small wind energy, and CHP technologies.

In 2015, the Consolidated Appropriations Act, 2016 (P.L. 114-113) further extended the credit. The 30% credit rate for solar electric or heating property (but not fiber-optic solar) was extended through 2019. Further, the termination date was changed from a placed-in-service deadline to a construction start date. The credit was set at 26% for property beginning construction in 2020, and 22% for property beginning construction in 2021. To qualify for a rate in excess of 10%, property must be placed in service by December 31, 2023.

The Bipartisan Budget Act of 2018 (P.L. 115-123) extended the ITC for five years for fiber-optic solar, fuel cell, small wind, microturbine, CHP, and geothermal heat pump property. For property eligible for a 30% credit through 2019, the credit rate is reduced following the reduction schedule for solar enacted in P.L. 114-113. All termination dates were changed to construction start deadlines. Current law for the energy credit is summarized in **Table 2**.

Table 2. Energy Credit: Summary of Current Law

Eligible Technology	Credit Rate	Expiration Date (End of Year)
Solar, Fiber Optic Solar, Fuel Cells, Small Wind	30%	2019
	26%	2020
	22%	2021
Microturbines, Combined Heat and Power, Geothermal Heat Pump	10%	2021
Solar, Geothermal Energy	10%	Permanent

Notes: Credit expiration dates are start-of-construction deadlines. For nonpermanent credits, property generally must be placed in service by December 31, 2023. Wind property may be eligible for the Section 45 production tax credit (PTC), and elect to receive the ITC in lieu of PTC through 2020.

[46] This is in contrast to a placed-in-service deadline, where the property must be available for use by the deadline.

The energy credit reduces the cost of installing renewable-energy equipment and increases the rate of return on renewable-energy system investments. Effective tax rates for ITC-eligible energy investments are lower than effective tax rates for investments in other forms of energy capital, which has likely increased investment in eligible technologies. Research also indicates that the ITC contributes to reduced CO2 emissions, although the magnitude of the effect is estimated to be small.[47]

Many factors influence decisions to invest in renewable-energy capacity. Falling costs for solar property in recent years have led to increased investment. Further, state-level policies, including renewable portfolio standards, have also been credited with increasing renewable-energy capacity.[48] Thus, it is difficult to isolate the effects of tax credits.

For more information, see CRS In Focus IF10479, *The Energy Credit: An Investment Tax Credit for Renewable Energy*, by Molly F. Sherlock.

Five-Year Recovery Period for Certain Energy Property[49]

The cost of assets that provide services over an extended period of time is deducted over a period of years as depreciation. Aside from the desire for economic stimulus, traditional economic theories suggest that tax depreciation should match economic (physical) depreciation of assets. Depreciation provisions that allow earlier deductions for depreciation are valuable because of the time value of money. Most electric generating capacity is depreciated over 20 years. The recovery period for certain renewable-energy equipment, including ITC-eligible technologies and wind energy property, is five years. Solar illumination, fuel cell, microturbine, CHP, and small wind property is eligible for five-year cost recovery if construction begins before January 1, 2022.

Accelerated depreciation deductions may be especially helpful for certain energy industries, where there are substantial up-front costs associated with capital-intensive activities. Deferring income taxes until later in an asset's life reduces the after-tax cost of investing in certain energy property. Currently, full and immediate expensing (100% bonus depreciation) for equipment available through 2022—provided by the 2017 tax revision (P.L. 115-97)—restricts the applicability of any acceleration in cost recovery provided through special provisions for energy-related equipment to a narrow set of taxpayers.[50]

Provisions Expiring in 2022

Incentives for Biodiesel and Renewable Diesel[51]

There are three tax credits for biodiesel: the biodiesel mixture credit, the biodiesel credit, and the small agri-biodiesel producer credit. Each gallon of biodiesel, including agri-biodiesel (biodiesel

[47] Brian C. Murray et al., "How Effective are US Renewable Energy Subsidies in Cutting Greenhouse Gas Emissions?" *American Economic Review: Papers & Proceedings*, vol. 105, May 2014, pp. 569-574; and William D. Nordhaus, Stephen A. Merrill, and Paul T. Beaton, eds., *Effects of U.S. Tax Policy on Greenhouse Gas Emissions*, (Washington, DC: The National Academies Press), 2013.

[48] Christine L. Crago and Eric Koegler, "Drivers of Growth in Commercial-Scale Solar PV Capacity," *Energy Policy*, vol. 120, September 2018, pp. 481-491.

[49] IRC §§168(e)(3)(B)(vi)(I) and 48(a)(3)(A).

[50] The five-year recovery period applies to certain taxpayers that are excluded from utilizing the temporary 100% bonus depreciation. These taxpayers furnish electricity for sale at rates set through a federal, state, or local government agency; a public service or public utility commission; or an electric cooperative.

[51] IRC §§40A, 6426(c) and 6427(e).

made from virgin oils), may be eligible for a $1.00 tax credit. The mixtures tax credit may be claimed as an instant excise tax credit against the blender's motor and aviation fuels excise taxes. Credits in excess of excise tax liability may be refunded. The biodiesel and small agri-biodiesel credits may be claimed as income tax credits. The mixtures credit is proportionate to the fraction of biodiesel in the mixture—a blend of 80% diesel with 20% virgin biodiesel would qualify for a 20-cent-per-gallon tax credit. The tax credits for biodiesel expire on December 31, 2022.

Additionally, an eligible small agri-biodiesel producer credit of 10 cents is available for each gallon of "qualified agri-biodiesel production." An eligible "small agri-biodiesel producer" is defined as any person who, at all times during the taxable year, has annual productive capacity for agri-biodiesel not in excess of 60 million gallons. The number of gallons that may be taken into account for the small agri-biodiesel producer credit may not exceed 15 million. The eligible small agri-biodiesel producer credit is effective for taxable years ending after August 8, 2005, and sunsets after December 31, 2022.

The tax code generally treats renewable diesel fuel like biodiesel for the purposes of the biodiesel fuels credit. Thus, renewable diesel sold or used after December 31, 2005, is eligible for a $1.00 per gallon tax credit. Renewable diesel cannot qualify as agri-biodiesel.

The biodiesel tax incentives were introduced under the American Jobs Creation Act of 2004 (P.L. 108-357) and modified and extended by the Energy Policy Act of 2005 (P.L. 109-58). Subsequently, the credits have been extended, most recently through the end of 2022 in the Further Consolidated Appropriations Act of 2020 (P.L. 116-94).

Tax credits for biofuels are motivated by a desire to reduce dependence on petroleum imports (enhance national energy security), address environmental concerns, and maintain farm incomes. Although the use of biofuels continues to increase, offsetting domestic petroleum consumption, it is not clear that the tax incentives are responsible for driving this change. Renewable fuel standards and blend mandates requiring certain amounts of biofuels may be boosting domestic production.[52] If nontax policies are responsible for enhancing biofuel production, and tax policies fail to induce additional production, the tax credits provide a windfall to taxpayers without necessarily resulting in additional use of biofuels.

Provisions Expiring in 2023

Credit for Carbon Oxide Sequestration[53]

The credit for carbon oxide (including carbon dioxide and carbon monoxide) provides a credit for the capture and sequestration of carbon emissions generated by the use of coal and natural gas in the electric power sector and potentially of carbon emissions from industrial applications, such as cement and steel.

The carbon oxide sequestration credit (previously the carbon dioxide sequestration credit) is the sum of four components: (1) $20 (adjusted to $23.82 for 2020) per metric ton of carbon oxide captured using carbon capture equipment placed in service before February 9, 2018, that is not used as a tertiary injectant; (2) $10 (adjusted to $11.91 for 2020) per metric ton of carbon oxide captured using carbon capture equipment placed in service before February 9, 2018, that is used as a tertiary injectant; (3) $31.77 in 2020 per metric ton of carbon oxide captured using carbon capture equipment placed in service on or after February 9, 2018, that is not used as a tertiary

[52] See CRS Report R43325, *The Renewable Fuel Standard (RFS): An Overview*, by Kelsi Bracmort.

[53] IRC §45Q.

injectant, during the first 12 years following the facility being placed in service; and (4) $20.22 in 2020 per metric ton of carbon oxide captured using carbon capture equipment placed in service on or after February 9, 2018, that is used as a tertiary injectant, during the first 12 years following the facility being placed in service. Carbon oxide that is not used as a tertiary injectant must be disposed of in a secure geological facility.

For carbon dioxide captured at facilities placed in service before February 9, 2018, the credit applies until the IRS, in consultation with the Environmental Protection Agency, certifies that 75 million metric tons of carbon dioxide has been captured or used as a tertiary injectant. As of June 2020, the total amount of carbon oxide taken into account for the purposes of Section 45Q was 72,097,903 metric tons.[54]

For carbon oxide captured at facilities placed in service on or after February 9, 2018, for calendar years 2017 through 2026, the dollar amount of the credit is a linear interpolation between $22.66 and $50 for carbon oxide that is captured and stored, and between $12.83 and $35 for carbon oxide that is used as a tertiary injectant. The $50 and $35 credit amounts will be adjusted for inflation for calendar years after 2026. Facilities must begin construction before January 1, 2024, to qualify for the credit.[55]

The credit for carbon dioxide sequestration was introduced as part of the Energy Improvement and Extension Act of 2008, enacted as Division B of P.L. 110-343. The credit was enacted alongside several other provisions designed to encourage cleaner, more efficient, and environmentally responsible use of coal specifically and greenhouse gas emissions reductions more broadly.

The Bipartisan Budget Act of 2018 (P.L. 115-123) changed the credit from the carbon dioxide to the carbon oxide credit (carbon oxide includes carbon monoxide in addition to carbon dioxide) and expanded and extended the credit. Specifically, the $10 per ton tax credit for carbon that is used as a tertiary injectant is to increase to $35 over time. The $20 per ton tax credit for carbon that is captured and not used as a tertiary injectant is to increase to $50 over time. The 75 million ton cap was eliminated for facilities placed in service on or after February 9, 2018. Qualifying carbon capture equipment instead must be under construction before the end of 2023 for carbon captured to qualify. Qualifying facilities can then claim tax credits for 12 years after a carbon capture project is placed in service. The legislation also changed requirements for eligible taxpayers, providing flexibility that could facilitate the use of tax-equity financing.

Tax credits for carbon capture and sequestration potentially support deployment of low- and zero-emissions energy technologies and the use of domestic energy resources. Similar to tax credits that support renewable energy, tax credits for carbon capture and sequestration can help address market failures in energy production markets, where fossil-fuels-based electricity production and the associated pollution effects generate negative externalities. As was noted above, a more direct approach to addressing these externalities and supporting carbon capture and sequestration technologies would be to impose a price on pollution or emissions, as opposed to subsidizing carbon capture and sequestration.

[54] IRS Notice 2020-40.

[55] IRS Notice 2020-12.

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