# DESCRIPTION OF ENERGY TAX CHANGES MADE BY PUBLIC LAW 117-169

Scheduled for a Public Hearing
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# INTRODUCTION

The House Committee on Ways and Means has scheduled a public hearing on April 19, 2023, titled "Hearing on the U.S. Tax Code Subsidizing Green Corporate Handouts and the Chinese Communist Party." This document,[1] prepared by the staff of the Joint Committee on Taxation describes the energy-related tax changes made by Public Law 117-169, commonly referred to as the Inflation Reduction Act ("IRA" or the "Act"). Unless otherwise indicated, all section references are to the Internal Revenue Code of 1986, as amended (the "Code").

[1] This document may be cited as follows: Joint Committee on Taxation, *Description of Energy Tax Changes Made by Public Law 117-169* (JCX-5-23), April 17, 2023. This document can be found on the Joint Committee on Taxation website, www.jct.gov.

## A. Energy Tax Provisions Changed by Public Law 117-169 That Are Currently in Effect

### 1. Extension and modification of credit for electricity produced from certain renewable resources (sec. 13101 of the Act and secs. 45 and 48 of the Code)

**Present Law Prior to the Enactment of Public Law 117-169**

**Renewable electricity production credit**

A 1.5 cent/kilowatt-hour income tax credit is allowed for electricity produced from qualified energy resources at qualified facilities (the "renewable electricity production credit") and sold to an unrelated person.[2] Qualified energy resources comprise wind, closed-loop biomass, open-loop biomass, geothermal energy, municipal solid waste, qualified hydropower production, and marine and hydrokinetic renewable energy. Qualified facilities are, generally, facilities that generate electricity using qualified energy resources. The credit rate is adjusted annually for inflation and rounded to the nearest one-tenth of a cent.

Facilities that rely on certain renewable resources have their credit rate reduced by 50 percent; these facilities are those that rely on open-loop biomass, municipal solid waste, qualified hydropower, and marine and hydrokinetic resources. The amount of the credit is also phased out as the market price of electricity exceeds certain threshold levels. The renewable electricity production credit is reduced over a three-cent phaseout range to the extent the annual average contract price per kilowatt-hour of electricity sold in the prior year from the same qualified energy resource exceeds eight cents (adjusted for inflation; 14.4 cents for 2022). The credit is also reduced by reason of grants, tax-exempt bonds, subsidized energy financing, and other credits, but the reduction cannot exceed 50 percent of the otherwise allowable credit.

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[2] Sec. 45. In addition to the renewable electricity production credit, section 45 also provides income tax credits for the production of Indian coal at qualified facilities through December 31, 2021.

| Table 1.–Summary of Credit for Electricity Produced from Certain Renewable Resources | | |
|---|---|---|
| Eligible electricity production activity (sec. 45) | Credit amount for 2022[1] (cents per kilowatt-hour) | Expiration[2] |
| Wind | 2.7 | December 31, 2021 |
| Closed-loop biomass | 2.7 | December 31, 2021 |
| Open-loop biomass (including agricultural livestock waste nutrient facilities) | 1.4 | December 31, 2021 |
| Geothermal | 2.7 | December 31, 2021 |
| Municipal solid waste (including landfill gas facilities and trash combustion facilities) | 1.4 | December 31, 2021 |
| Qualified hydropower | 1.4 | December 31, 2021 |
| Marine and hydrokinetic | 1.4 | December 31, 2021 |

[1] Credit rates are adjusted annually for inflation. See 87 Fed. Reg. 22286, April 14, 2022. In general, the credit is available for electricity produced during the first 10 years after a facility has been placed in service. The credit for wind is subject to phase-out rules described in the text below.

[2] Expires for property the construction of which begins after this date.

**Election to claim energy credit in lieu of renewable electricity production credit**

A taxpayer may make an irrevocable election to have certain property which is part of a qualified renewable electricity production facility be treated as energy property eligible for a 30 percent investment credit under section 48. For wind facilities, the credit is reduced by 20 percent for facilities the construction of which began in calendar year 2017, by 40 percent for facilities the construction of which begins in calendar years 2018, 2020, and 2021, and by 60 percent for facilities the construction of which begins in calendar year 2019. For purposes of the investment credit, qualified facilities are facilities otherwise eligible for the renewable electricity production credit with respect to which no credit under section 45 has been allowed. A taxpayer electing to treat a facility as energy property may not claim the renewable electricity production credit. The eligible basis for the investment credit for taxpayers making this election is the basis of the depreciable (or amortizable) property that is part of a facility capable of generating electricity eligible for the renewable electricity production credit.

**Extended sunset date for offshore wind facilities**

An extended sunset date applies for property used in qualified offshore wind facilities. Such property the construction of which begins before January 1, 2026, is eligible for a 30-percent investment credit and is not subject to the phasedown applicable to other wind facilities. Qualified offshore wind facilities are wind facilities that are located in the inland navigable waters of the United States or in the coastal waters of the United States. Offshore wind facilities

include property owned by the taxpayer necessary to condition electricity for use on the grid such as subsea cables and voltage transformers. For this purpose, coastal waters include the waters of the Great Lakes, the territorial seas, the exclusive economic zone, and the outer continental shelf, but only if such waters are treated as within the United States or a possession of the United States for purposes of section 45(e)(1). The extended sunset date and phasedown exemption do not apply to the offshore wind facilities that claim the renewable electricity production credit.

## Changes Made by Public Law 117-169

### In general

The provision extends the renewable electricity production credit for three years, allowing a credit for electricity produced at qualified facilities the construction of which begins before December 31, 2024. The provision applies this extension to electricity produced from solar energy, which had expired at the end of 2005. The provision also extends through December 31, 2024, the election to claim a credit in lieu of the production tax credit for these facilities; in the case of offshore wind facilities, the extended period for making such an election is changed such that offshore wind elections must also elect by December 31, 2024. For facilities placed in service after December 31, 2021, the provision eliminates the phasedown rules for both the production credit and the investment credit election in lieu of the production credit.[3] The provision also eliminates the fifty-percent credit rate reduction for qualified hydroelectric production and marine and hydrokinetic renewable energy.

### Modifications to credit rates

The provision modifies the credit rate structure, creating a base credit rate and an increased credit rate. The base credit rate is 0.3 cents per kilowatt hour (prior to any inflation adjustments). The increased credit rate is 1.5 cents per kilowatt hour (prior to any inflation adjustments). The increased credit rate is available with respect to facilities that have a maximum output of less than one megawatt of electricity (as measured in alternating current) or that satisfy certain prevailing wage and apprenticeship requirements described below (or for which the construction begins prior to the date that is 60 days after the Secretary publishes guidance relating to such wage and apprenticeship requirements). In applying the inflation adjustment to the base credit rate, the inflation-adjusted rate is rounded to the nearest one-twentieth of a cent.

#### Prevailing wages

A taxpayer can meet the prevailing wage requirements if it ensures that prevailing wages are paid to any laborers and mechanics employed by the taxpayer or any contractor or subcontractor in the construction of a qualified facility, and for the repair of such facility during the 10-year credit-eligible production period. Prevailing wages are wages paid at rates not less

[3] For facilities placed in service before this date, the present law phase-down rules remain (as well as the exemption from the phase-down rules for offshore wind facilities for which an election has been made to claim the energy credit in lieu of the renewable electricity production credit).

than the prevailing wage rates for construction, alteration, or repair of a similar character in the locality as determined by the Secretary of Labor, in accordance with subchapter IV of chapter 31, of title 40, United States Code.

A taxpayer that fails to pay prevailing wages may bring a facility into compliance with the prevailing wage requirement, and thus remain eligible for the increased credit rate, by paying any affected workers the difference between the actual compensation paid to such workers and the wages required to be paid to those workers to meet prevailing wage requirements, plus any applicable interest. This amount is multiplied by three in the case of intentional disregard of the requirements. In addition, such taxpayer must pay a penalty to the IRS equal to $5,000 per affected worker. The penalty is increased to $10,000 per affected worker in the case of intentional disregard of the requirements. The deficiency procedures do not apply with respect to the assessment or collection of these penalties, and payment must be made within 180 days of the penalty's determination.

Apprenticeship requirements

To be eligible for the enhanced credit, a taxpayer must also ensure that certain qualified apprenticeship requirements are satisfied by ensuring that not less than 15 percent (ten percent for projects the construction of which begins before calendar year 2023 and 12.5 percent for projects beginning in calendar year 2023) of the total labor hours of construction, alteration, or repair work on any applicable project are performed by qualified apprentices (including such work performed by any contractor or subcontractor). Labor hours are the total number of hours devoted to construction, alteration, or repair work by employees of the contractor or subcontractor and excludes certain hours worked by managers, owners, or certain other bona fide executives, administrators, or professionals. A qualified apprentice is an employee of the contractor or subcontractor who is participating in a registered apprenticeship program. In addition, the ratio of apprentice-to-journeyworker must meet the standard set by the Department of Labor or applicable State apprenticeship agency.

Each taxpayer, contractor, or subcontractor who employs four or more individuals to perform construction, alteration, or repair work with respect to the construction of a qualified facility must employ one or more qualified apprentices to perform such work. Exceptions from these requirements are provided for taxpayers that make a good faith effort to comply with the requirements of the provision by requesting qualified apprentices from a registered apprenticeship program but where such request is denied or where the registered apprenticeship program fails to respond to a request within five business days.

A taxpayer that fails to satisfy the apprenticeship requirements can come into compliance and thus remain eligible for the increased rate by paying a penalty in the amount of $50 per missing apprenticeship labor hour. In the case of intentional disregard of the apprenticeship rules, this amount is increased to $500 per labor hour.

**Domestic content bonus**

The provision increases the section 45 credit by 10 percent (calculated without regard to the application of the energy communities bonus described below) with respect to facilities that

meet certain domestic content requirements. To meet these requirements, a taxpayer must certify to the Secretary that any steel, iron, or manufactured product which is a component of a qualified facility (upon completion of construction) was produced in the United States. For purposes of steel and iron, this requirement shall be applied consistent with section 661.5 of title 49, Code of Federal Regulations. Manufactured products which are components of a qualified facilities are deemed to have been produced in the United States if not less than 40 percent (20 percent in the case of offshore wind facilities) of the total costs of all manufactured products of such facility are attributable to manufactured products (including components) which are mined, produced, or manufactured in the United States.

**Reduction of elective payment if domestic content rules are not satisfied**

As provided for section 6417, which is created by section 13801 of the Act (described below), certain taxpayers may elect to have the credit paid directly to the extent there is insufficient income tax liability to absorb the credit. The current provision contains a rule reducing the amount of this direct payment by 10 percent if the domestic content requirements described above for the domestic content bonus are not satisfied. This rule applies only to facilities having a maximum net output of at least one megawatt (as measured in alternating current) whose construction begins after December 31, 2023. An exception to the rule applies if the Secretary determines that the inclusion of steel, iron, or manufactured products which are produced in the United States increases the overall costs of construction of qualified facilities by more than 25 percent, or if the relevant steel, iron, or manufactured products are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality. This waiver does not apply for purposes of determining the availability of the domestic content bonus described above.

**Energy communities bonus**

The provision increases the renewable electricity production tax credit rate by 10 percent (calculated without regard to the domestic content bonus described above) with respect to facilities located in an "energy community." An energy community is defined as: (1) a brownfield site; (2) a metropolitan statistical area or non-metropolitan area with an unemployment rate at or above the national average for the previous year which has (or had after 2009) 0.17 percent or greater direct employment or 25 percent or greater local tax revenues related to the extraction, processing, transport, or storage of coal, oil, or natural gas; or (3) a census tract (or directly adjoining tract) in which, in the period since 1999, a coal mine has closed, or, in the period since 2009, a coal-fueled power plant has been retired.

**Credit reduced for tax-exempt bonds**

The provision modifies the credit reduction for grants, tax-exempt bonds, subsidized energy financing, and other credits. As modified, the credit is only reduced for facilities financed with tax-exempt bonds. With respect to such bond-financed facilities, the credit is reduced by the lessor of 15 percent or a percentage calculated using as the numerator that amount of tax-exempt financing with respect to a facility (for the taxable year and all prior years) and as the denominator the aggregate amount of additions to the capitol account for such facility (for the taxable year and all prior years). For purposes of this calculation, the numerator includes

bond proceeds that are used for capital expenditures of qualified facilities but does not include proceeds that are used for other purposes, such as reserve funds.

### Effective Date

The provision is generally effective for facilities placed in service after December 31, 2021. The portion of the provision relating to tax-exempt bond financing applies to facilities the construction of which begins after the date of enactment of the Act. The domestic content and energy communities bonuses, the special rule reducing direct payments, and the increased credit rates for qualified hydroelectric and marine and hydrokinetic renewable energy are effective for facilities placed in service after December 31, 2022.

## 2. Extension and modification of energy credit (sec. 13102 of the Act and sec. 48 of the Code)

### Present Law Prior to the Enactment of Public Law 117-169

#### In general

A permanent nonrefundable 10-percent business energy credit[4] is allowed for the cost of new property that is equipment that either (1) uses solar energy to generate electricity, to heat or cool (or provide hot water for use in) a structure, or to provide solar process heat or (2) is used to produce, distribute, or use energy derived from a geothermal deposit, but only, in the case of electricity generated by geothermal power, up to (but not including) the electric transmission stage. Property used to generate energy for the purposes of heating a swimming pool is not eligible solar energy property.

In addition to the permanent credit, a number of energy technologies are entitled to the energy credit at rates of 10 percent or 30 percent, depending on the technology. These credits sunset for property the construction of which begins after the expiration date for that technology. In addition, the credit rate for solar energy property has been temporarily increased.

The energy credit is a component of the general business credit.[5] An unused general business credit generally may be carried back one year and carried forward 20 years.[6] The taxpayer's basis in the property is reduced by one-half of the amount of the credit claimed.[7] For projects whose construction time is expected to equal or exceed two years, the credit may be claimed as progress expenditures are made on the project, rather than during the year the

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[4] Sec. 48.

[5] Sec. 38(b)(1).

[6] Sec. 39.

[7] Sec. 50(c)(3).

property is placed in service. Public utilities must normalize the energy credit.[8] The credit is allowed against the alternative minimum tax.

**Increased credit rate for solar energy property**

For property the construction of which begins before January 1, 2024, the credit rate for otherwise eligible solar energy property is increased to 30 percent. For property the construction of which begins in calendar year 2020, 2021, and 2022 and that is placed in service by the end of calendar year 2025, the credit rate for otherwise eligible solar energy property is 26 percent. For property the construction of which begins in calendar year 2023 and that is placed in service by the end of calendar year 2025, the credit rate for otherwise eligible solar energy property is 22 percent. For property the construction of which begins after calendar year 2023 or that does not meet the 2025 deadline described above, the credit rate drops to the permanent 10-percent rate.

**Fiber optic solar property**

Equipment that uses fiber-optic distributed sunlight to illuminate the inside of a structure is eligible for a 30-percent credit (subject to a phase-down rule) for property the construction of which begins prior to January 1, 2024. Under the phase-down rule, the credit rate is reduced to 26 percent for property the construction of which begins in calendar year 2020, 2021, and 2022 and to 22 percent for property the construction of which begins in calendar year 2023. Eligible property must be placed in service before January 1, 2026.

**Fuel cells and microturbines**

The energy credit applies to qualified fuel cell power plants, but only for the construction of which begins prior to January 1, 2024. The credit rate is 30 percent and is subject to the same phase-down rule as fiber optic solar property (described above).

A qualified fuel cell power plant is an integrated system composed of a fuel cell stack assembly and associated balance of plant components that (1) converts a fuel into electricity using electrochemical means, and (2) has an electricity-only generation efficiency of greater than 30 percent and a capacity of at least one-half kilowatt. The credit may not exceed $1,500 for each 0.5 kilowatt of capacity.

The energy credit applies to qualifying stationary microturbine power plants for property placed in service prior to January 1, 2026. The credit is limited to the lesser of 10 percent of the basis of the property or $200 for each kilowatt of capacity.

A qualified stationary microturbine power plant is an integrated system comprised of a gas turbine engine, a combustor, a recuperator or regenerator, a generator or alternator, and associated balance of plant components that converts a fuel into electricity and thermal energy. Such system also includes all secondary components located between the existing infrastructure for fuel delivery and the existing infrastructure for power distribution, including equipment and controls for meeting relevant power standards, such as voltage, frequency and power factors.

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[8] Sec. 50(d)(2).

Such system must have an electricity-only generation efficiency of not less than 26 percent at International Standard Organization conditions and a nameplate capacity of less than 2,000 kilowatts.

**Geothermal heat pump property**

The energy credit applies to qualified geothermal heat pump property the construction of which begins prior to January 1, 2024. The credit rate is 10 percent. Qualified geothermal heat pump property is equipment that uses the ground or ground water as a thermal energy source to heat a structure or as a thermal energy sink to cool a structure.

**Small wind property**

The energy credit applies to qualified small wind energy property the construction of which begins prior to January 1, 2024. The credit rate is 30 percent and is subject to the same phase-down rule as fiber optic solar property (described above). Qualified small wind energy property is property that uses a qualified wind turbine to generate electricity. A qualifying wind turbine means a wind turbine of 100 kilowatts of rated capacity or less.

**Combined heat and power property**

The energy credit applies to combined heat and power ("CHP") property the construction of which begins prior to January 1, 2024. The credit rate is 10 percent.

CHP property is property: (1) that uses the same energy source for the simultaneous or sequential generation of electrical power, mechanical shaft power, or both, in combination with the generation of steam or other forms of useful thermal energy (including heating and cooling applications); (2) that has an electrical capacity of not more than 50 megawatts or a mechanical energy capacity of not more than 67,000 horsepower or an equivalent combination of electrical and mechanical energy capacities; (3) that produces at least 20 percent of its total useful energy in the form of thermal energy that is not used to produce electrical or mechanical power (or a combination thereof), and produces at least 20 percent of its total useful energy in the form of electrical or mechanical power (or a combination thereof); and (4) the energy efficiency percentage of which exceeds 60 percent. CHP property does not include property used to transport the energy source to the generating facility or to distribute energy produced by the facility.

The otherwise allowable credit with respect to CHP property is reduced to the extent the property has an electrical capacity or mechanical capacity in excess of any applicable limits. Property in excess of the applicable limit (15 megawatts or a mechanical energy capacity of more than 20,000 horsepower or an equivalent combination of electrical and mechanical energy capacities) is permitted to claim a fraction of the otherwise allowable credit. The fraction is equal to the applicable limit divided by the capacity of the property. For example, a 45 megawatt property would be eligible to claim 15/45ths, or one third, of the otherwise allowable credit. Again, no credit is allowed if the property exceeds the 50 megawatt or 67,000 horsepower limitations described above.

Additionally, systems whose fuel source is at least 90 percent open-loop biomass and that would qualify for the credit but for the failure to meet the efficiency standard are eligible for a credit that is reduced in proportion to the degree to which the system fails to meet the efficiency standard. For example, a system that would otherwise be required to meet the 60-percent efficiency standard, but which only achieves 30-percent efficiency, would be permitted a credit equal to one-half of the otherwise allowable credit (*i.e.*, a five-percent credit).

**Waste energy recovery property**

The energy credit applies to waste energy recovery property, but only for the construction of which begins prior to January 1, 2024. The credit rate is 30 percent and is subject to the same phase-down rule as fiber optic solar property (described above).

Waste energy recovery property is property that generates electricity solely from heat from buildings or equipment if the primary purpose of such building or equipment is not the generation of electricity. Qualified property does not include any property which has a capacity in excess of 50 megawatts. In the case of property that qualifies as both waste energy recovery property and CHP system property, no double benefit is permitted but a taxpayer may elect to claim the higher credit. The credit rate for waste energy recovery property is initially 30 percent, subject to the same phase-down and sunset rules as fiber optic solar property, fuel cell property, and small wind energy property.

**Election of energy credit in lieu of section 45 production tax credit**

In general, a taxpayer may make an irrevocable election to have certain property used in qualified facilities whose construction begins before January 1, 2022, be treated as energy property. For this purpose, qualified facilities are facilities otherwise eligible for the renewable electricity production credit with respect to which no credit under section 45 has been allowed. A taxpayer electing to treat a facility as energy property may not claim the renewable electricity production credit. For wind facilities, the credit is reduced by 20 percent for facilities the construction of which begins in calendar year 2017, by 40 percent for facilities the construction of which begins in calendar years 2018, 2020, and 2021, and by 60 percent for facilities the construction of which begins in calendar year 2019.

A special rule applies for elections made with respect to property used in qualified offshore wind facilities.[9] Qualified offshore wind facilities are qualified wind facilities (within the meaning of the section 45 renewable electricity production credit, without regard to any sunset date) that are located in the inland navigable waters of the United States or in the coastal waters of the United States, and include property owned by the taxpayer necessary to condition electricity for use on the grid such as subsea cables and voltage transformers. For this purpose, coastal waters include the waters of the Great Lakes, the territorial seas, the exclusive economic zone, and the outer continental shelf, but only if such waters are treated as within the United States or a possession of the United States for purposes of section 45(e)(1).[10] Such property the

[9] Sec. 48(a)(5)(F).

[10] A technical correction may be necessary to clarify the meaning of this term.

construction of which begins before January 1, 2026, is eligible for a 30 percent investment credit and is not subject to the phasedown applicable to other wind facilities.

**Table 2.–Summary of Investment Tax Credits for Energy Property**

| Qualified Energy Property (sec. 48) | Credit Rate | Maximum Credit | Expiration[4] |
|---|---|---|---|
| Equipment to produce energy from a geothermal deposit (geothermal energy property) | 30% (in lieu of production tax credit) | None | January 1, 2022 |
| | 10% | None | None |
| Equipment to use ground or ground water for heating or cooling (geothermal heat pumps) | 10% | None | January 1, 2024 |
| Equipment that uses fiber-optics to distribute sunlight inside a structure (fiber optic solar property) | 30% | None | January 1, 2020 |
| | 26% | | January 1, 2023 |
| | 22% | | January 1, 2024 |
| Microturbine property (< 2 megawatt electrical generation power plants of ≥ 26% efficiency) | 10% | $200 per kilowatt of capacity | January 1, 2024 |
| Combined heat and power property (simultaneous production of electrical/mechanical power and useful heat > 60 percent efficiency) | 10% | None | January 1, 2024 |
| Solar electric or solar hot water property | 30% | None | January 1, 2020 |
| | 26% | | January 1, 2023 |
| | 22% | | January 1, 2024 |
| | 10% | | None |
| Fuel cell property (generates electricity through electrochemical process) | 30% | $1,500 for each ½ kilowatt of capacity | January 1, 2020 |
| | 26% | | January 1, 2023 |
| | 22% | | January 1, 2024 |

| Table 2.–Summary of Investment Tax Credits for Energy Property | | | |
|---|---|---|---|
| **Qualified Energy Property (sec. 48)** | **Credit Rate** | **Maximum Credit** | **Expiration[4]** |
| Small (< 100 kilowatt capacity) wind electrical generation property | 30% | None | January 1, 2020 |
| | 26% | | January 1, 2023 |
| Waste energy recovery property | 26% | None | January 1, 2023 |
| | 22% | | January 1, 2024 |
| Wind, biomass, municipal solid waste, qualified hydropower, and marine and hydrokinetic property | 30% (in lieu of production tax credit) | None | January 1, 2022<br>January 1, 2026, in the case of offshore wind facilities[5] |

[4] For all eligible property, construction of the property must begin before the expiration date, except where otherwise noted. For credits subject to a rate phase down, except where noted, construction must begin before the dates listed and placed in service before January 1, 2026.

[5] In the case of wind facilities other than offshore wind facilities, the available investment tax credit is reduced by 20 percent for facilities the construction of which begins in 2017, by 40 percent for facilities the construction of which begins in 2018, by 60 percent for facilities the construction of which begins in 2019, and by 40 percent for facilities the construction of which begins after 2019.

## Changes Made by Public Law 117-169

### In general

The provision generally extends the temporary portions of the energy credit for one year, through December 31, 2024, except for geothermal heat pump property, which is extended through December 31, 2034.[11] The provision also adds a credit for energy storage technology, qualified biogas property, and microgrid controller property and modifies the eligibility requirements of certain other qualified property (described in more detail below).

The provision modifies the credit rate structure, creating a base credit rate and an increased credit rate. The base credit rate is six percent (two percent in the case of microturbine property). The increased credit rate is 30 percent (10 percent in the case of microturbine property). The increased credit rate is available with respect to energy projects that have a maximum output of less than one megawatt of electrical (as measure in alternating current) or thermal energy and for energy projects that meet certain prevailing wage and apprenticeship

[11] The provision does not extend the expiration dates under section 48(a)(5), relating to energy credits claimed in lieu of the renewable electricity production credit. Those expiration dates are extended by section 13101 of the Act, described above.

requirements (or for which construction began more than 60 days before the Secretary publishes guidance with respect to such prevailing wage and apprenticeship requirements).

The provision also modifies the credit rate phase-down rules. In the case of qualified fuel cell property, qualified small wind property, qualified solar energy property, and qualified solar fiber optic property the credit rate is 26 percent for property the construction of which begins after December 31, 2019, that is placed in service before January 1, 2022. For geothermal heat pump property, the base credit rate phases down to 5.2 for property the construction of which begins in calendar year 2033 and to 4.4 percent for property the construction of which begins in calendar year 2024. The increased credit rates for geothermal heat pump property during the phase-down period are 26 percent for property the construction of which begins in calendar year 2033 and 22 percent for property the construction of which begins in calendar year 2034.

The provision gives the Secretary authority to issue regulations and other guidance necessary to carry out the purposes of the provision, including those that require recordkeeping or information reporting.

**Wage and apprenticeship requirements**

The prevailing wage and apprenticeship requirements follow a structure similar to that set forth in section 45(b)(7) and 45(b)(8), as modified by section 13101 of the Act. Generally, the prevailing wage rules require that the taxpayer ensure that any laborers and mechanics employed by the taxpayer or any contractor or subcontractor in the construction, alteration, or repair of a project are paid wages at a rate not less than the prevailing wage rates for construction, alteration, or repair of a similar character in the locality where the project is located as determined by the Secretary of Labor, in accordance with subchapter IV of chapter 31, of title 40, United States Code. The apprenticeship requirements require that, generally, not less than a certain percentage of total labor hours of the construction, alteration, or repair work (including work performed by any contractor of subcontractor) on a project must be performed by qualified apprentices.[12]

**Energy storage technology**

As mentioned above, the provision adds a credit for energy storage technology. Energy storage technology consists of either (1) property (other than property primarily used in the transportation of goods or individuals and not for the production of electricity) which receives, stores, and delivers energy for conversion to electricity (or, in the case of hydrogen, which stores energy), and has a nameplate capacity of not less than five kilowatt-hours, and (2) thermal energy storage property. Property placed in service before the date of enactment of the provision that is modified to increase its capacity to at least five kilowatts (or if already having a capacity of at least five kilowatts, increases its capacity by at least an additional five kilowatts), is treated as qualifying property except that the basis of any existing property prior to such modification is not taken into account.

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[12] See the explanation of section 13101 of the Act for a more detailed description of these requirements, including procedural rules and penalties.

Thermal energy storage property is property comprising a system which (1) is directly connected to a heating, ventilation, or air conditioning system, (2) removes heat from, or adds heat to, a storage medium for subsequent use, and (3) provides energy for the heating or cooling of the interior of a residential or commercial building. Thermal energy property does not include a swimming pool, combined heat and power system property, or a building or its structural components.

The provision modifies section 50 to allow public utilities to elect not to normalize energy credits resulting from energy storage technology, unless prohibited by a State or political subdivision, by any agency or instrumentality of the United States, or by a public service or public utility commission or other similar body of any State or political subdivision that regulates public utilities. Such an election must be made separately with respect to each energy storage technology by the due date (including extensions) of the Federal tax return for the taxable year in which the energy storage technology is placed in service by the taxpayer. Once made, an election may only be revoked with the consent of the Secretary. An election may only be made with respect to energy storage technology that has a maximum capacity of greater than 500 kilowatt-hours.[13]

Generally, any contract or arrangement between a service provider and a service recipient with respect to energy storage technology that purports to be a service contract shall be treated as such and not as a lease of property under section 7701(e).

Energy storage property includes property co-located with a facility claiming an electricity production credit to the extent it is separable from such facility.

Energy storage technology does not include any property the construction of which begins after December 31, 2024.

**Qualified biogas property**

As mentioned above, the provision adds a credit for qualified biogas property. Qualified biogas property is property comprising a system that converts biomass (as defined in section 45K(c)(3))[14] into a gas which consists of not less than 52 percent methane by volume, or is concentrated by such system into a gas which consists of not less than 52 percent methane, and which captures such gas for sale or productive use, and not for disposal via combustion. Qualified biogas property includes any property which is part of such system which cleans or conditions such gas. Gas produced using qualified biogas property (for which an energy credit has been allowed) may not be used to generate credits under the section 45 renewable electricity production credit.

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[13] This modification to section 50 also permits public utilities to make a similar election under the clean electricity investment credit established by section 13702 of the Act. A technical correction may be necessary to reflect this intent.

[14] As in effect on the date of enactment of the provision.

Qualified biogas property does not include any property the construction of which begins after December 31, 2024.

**Microgrid controllers**

As mentioned above, the provision adds a credit for microgrid controllers. The term "microgrid controller" means equipment which is part of a qualified microgrid that is designed and used to monitor and control the energy resources and loads on such microgrid. A qualified microgrid is an electrical system that includes equipment which (1) is capable of generating not less than four kilowatts and not greater than 20 megawatts of electricity, (2) is capable of operating in connection with the electrical grid, and as a single controllable entity with respect to such grid, as well as independently (and disconnected) from such grid, and (3) is not part of a bulk-power system (as defined in section 215 of the Federal Power Act (16 U.S.C. sec. 824o)).

The term "microgrid controller" does not include any property the construction of which begins after December 31, 2024.

**Fuel cells using electromechanical processes**

The provision modifies the definition of qualified fuel cell property to include linear generator assemblies. Linear generator assemblies generate electricity using an electromechanical process. Linear generator assemblies do not include any assembly which contains rotating parts.

**Dynamic glass**

The provision modifies the definition of fiber optic solar property to include electrochromic glass, which uses electricity to change its light transmittance properties in order to heat or cool a structure.

**Coordination with low-income housing credit**

The provision modifies the energy credit's basis reduction rule such that it does not apply for purposes of determining eligible basis under the section 42 low-income housing credit.

**Interconnection property**

The provision provides that qualified energy property includes amounts paid or incurred by a taxpayer for qualified interconnection property in connection with the installation of certain energy property (as defined in section 48(a)(3)). The rule only applies to energy property that has a maximum output of not greater than five megawatts (as measured in alternating current). In addition, the interconnection property must be used to provide for the transmission or distribution of the electricity produced or stored by such energy property and be properly chargeable to a taxpayer's capital account.

Qualified interconnection property is, with respect to an energy project which is not a microgrid controller, tangible property that is part of an addition, modification, or upgrade to a transmission or distribution system, and which is required at or beyond the point where the

energy project interconnects to such transmission or distribution system in order to accommodate such interconnection. Qualified interconnection property must be built or funded by the taxpayer and the original use of such property, pursuant to an interconnection agreement, must commence with a utility.

An interconnection agreement is an agreement with a utility for the purposes of interconnecting the taxpayer's energy property to the utility's transmission or distribution system. For this purpose, a utility is the owner or operator of an electrical transmission or distribution system that is subject to the regulatory authority of a State or political subdivision thereof, any agency or instrumentality of the United States, a public service or public utility commission or other similar body of any State or political subdivision thereof, or the governing or ratemaking body of an electric cooperative.

In the case of expenses paid or incurred for interconnection property, amounts otherwise chargeable to a capital account with respect to such expenses must be reduced under rules similar to the rules of section 50(c) (which reduces the basis of energy property for which a credit has been allowed).

**Domestic content bonus**

Where certain domestic content requirements are satisfied, the provision increases the energy credit rate by two percentage points (ten percentage points where the wage and apprenticeship requirements are met). The domestic content requirements are similar to those provided for in section 45(b)(9).[15]

**Reduction of elective payment if domestic content rules are not satisfied**

As provided for in section 6417, which is created by section 13801 of the Act, certain taxpayers may elect to have the credit paid directly to the extent there is insufficient income tax liability to absorb the credit. The current provision contains a special rule reducing the amount of this direct payment by 10 percent if the domestic content requirements described above for the domestic content bonus are not satisfied. This rule is similar to those provided in section 45(b)(10).[16]

**Credit reduced for tax-exempt bonds**

The energy credit is reduced when the qualified property is financed using tax-exempt bonds. The rules governing this reduction are similar to those provided in section 45(b)(3).[17]

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[15] See description in explanation of section 13101 of the Act. For purposes of the domestic content and the energy communities bonuses, a qualified facility includes a facility for which an election under section 48(a)(5) has been made to claim in an investment credit in lieu of a production credit.

[16] *Ibid.*

[17] *Ibid.*

**Energy communities bonus**

If energy property is placed in service in an "energy community," the provision increases the energy credit rate by two percentage points (ten percentage points where the wage and apprenticeship requirements are met). The definition of energy community is that same that set forth in section 45(b)(11).[18]

## Effective Date

In general, the provision is effective for property placed in service after December 31, 2021, including the modified credit rate for geothermal heat pump property. For the new types of qualified property (energy storage technology, qualified biogas property, microgrid controllers, linear generator assemblies, dynamic glass, and interconnection property) and related rules, the provision is effective for property placed in service after December 31, 2022. The domestic content and energy communities bonuses and the special rule reducing direct payments are also effective for property placed in service after December 31, 2022. The portion of the provision relating to tax-exempt bond financing applies to facilities the construction of which begins after the date of enactment of the Act.

## 3. Increase in energy credit for solar and wind facilities placed in service in connection with low-income communities (sec. 13103 of the Act and sec. 48 of the Code)

## Present Law Prior to the Enactment of Public Law 117-169

A summary of present law may be found above in the description of sections 13101 and 13102 of the Act.

## Changes Made by Public Law 117-169

The provision modifies the section 48 energy credit to add a bonus for certain qualified solar and wind facilities placed in service in connection with low-income communities. Qualified solar and wind facilities are facilities that generate electricity solely from solar or wind property,[19] have a maximum net output of less than five megawatts (as measured in alternating current), and are either (1) located in a low-income community (as defined in section 45D(e)) or on Indian land (as defined in section 2601(2) of the Energy Policy Act of 1992 (25 U.S.C. sec. 3501(2))) or (2) part of a qualified low-income residential building project or a qualified low-income economic benefit project. In the case of facilities located in a low-income community or on Indian land, the bonus credit rate is 10 percentage points. In the case of facilities that are part of a qualified low-income residential building project or a qualified low-income economic benefit project, the bonus credit rate is 20 percentage points.

[18] *Ibid.*

[19] Eligible property includes energy storage technology installed in connection with such energy property. In the case of wind facilities, the facilities must either be small wind facilities under section 48(a)(3)(A)(vi) or an election for an investment credit in lieu of a production credit must have been made under section 48(a)(5).

A facility is treated as part of a qualified low-income residential building project if the facility is installed on a residential rental building[20] which participates in a covered housing program (as defined in section 41411(a) of the Violence Against Women Act of 1994 (34 U.S.C. 12491(a)(3)), a housing assistance program administered by the Department of Agriculture under title V of the Housing Act of 1949, a housing program administered by a tribally designated housing entity (as defined in section 4(22) of the Native American Housing Assistance and Self-Determination Act of 1996 (25 U.S.C. 4103(22))) or such other affordable housing programs as the Secretary may provide, and the financial benefits of the electricity produced by such facility are allocated equitably among the occupants of the dwelling units of such building.

A facility is treated as part of a qualified low-income economic benefit project if at least 50 percent of the financial benefits of the electricity produced by such facility are provided to households with income of (1) less than 200 percent of the poverty line (as defined in section 36B(d)(3)(A)) applicable to a family of the size involved or (2) less than 80 percent of area median gross income (as determined under section 142(d)(2)(B)). For purposes of determining whether a facility is part of a qualified low-income residential building project or a qualified low-income economic benefit project, electricity acquired at a below-market rate shall be taken into account as a financial benefit.

The bonus under this provision is subject to an annual capacity limitation of 1.8 gigawatts for each of calendar years 2023 and 2024 and zero thereafter. The Secretary is required to establish (within 180 days after the date of the provision's enactment) a program to allocate the capacity limitation to qualified solar and wind facilities. In establishing such program, the Secretary must provide procedures to allow for an efficient allocation process, including, when appropriate, consideration of multiple projects in a single application if such projects will be placed in service by a single taxpayer.

Facilities that have been awarded credits must be placed in service within four years of the date such facilities have been allocated electricity generation capacity by the Secretary. If a facility is not placed in service within this four-year period, the electric generation capacity allocated to such facility may be reallocated by the Secretary. In addition, if the annual capacity limitation for 2023 is not fully allocated, the unallocated portion is added to the amount available in calendar year 2024.

The bonus credit is subject to recapture if the property to which it relates ceases to meet the applicable requirements, notwithstanding the fact such property still qualifies for the energy credit under section 50(a).

**Effective Date**

The provision is effective beginning January 1, 2023.

[20] For this purpose, a facility installed next to a building or in a building complex's common area may be treated as installed on a residential building.

**4. Extension and modification of credit for carbon oxide sequestration (sec. 13104 of the Act and sec. 45Q of the Code)**

**Present Law Prior to the Enactment of Public Law 117-169**

**In general**

A credit is available for the capture and sequestration of carbon oxide and carbon dioxide. Significant changes to the credit rate and structure were made in 2018 by the Bipartisan Budget Act of 2018 ("BBA").[21] These changes were effective for taxable years beginning after December 31, 2017.

**Carbon dioxide captured using equipment placed in service before February 9, 2018 (pre-BBA)**

For carbon dioxide captured using equipment placed in service before February 9, 2018, a credit of $10 per metric ton is available for qualified carbon dioxide that is captured by the taxpayer at a qualified facility, used by such taxpayer as a tertiary injectant (including carbon dioxide augmented waterflooding and immiscible carbon dioxide displacement) in a qualified enhanced oil or natural gas recovery project ("EOR uses") and disposed of by such taxpayer in secure geological storage.[22]

For carbon dioxide captured in taxable years beginning after December 31, 2017, using equipment placed in service before February 9, 2018, a credit of $10 per metric ton is also available for carbon dioxide that is "utilized" by a taxpayer in a prescribed manner. For this purpose, "utilization" of qualified carbon dioxide means: (1) the fixation of such carbon dioxide through photosynthesis or chemosynthesis, such as through the growing of algae or bacteria, (2) the chemical conversion of such qualified carbon dioxide to a material or compound which results in secure storage, or (3) the use of such carbon dioxide for any other purpose for which a commercial market exists (except for EOR uses), as determined by the Secretary.[23]

Finally, for carbon dioxide captured using equipment placed in service before February 9, 2018, a credit of $20 per metric ton is available for qualified carbon dioxide captured by a taxpayer at a qualified facility and disposed of by such taxpayer in secure geological storage without being used as a tertiary injectant or utilized by a taxpayer in a prescribed manner.

All three credit amounts are adjusted for inflation using 2008 as the base year. For 2022, as adjusted for inflation, the $10 credit is increased to $12.53 per metric ton and the $20 credit is increased to $25.07 per metric ton of carbon dioxide.[24]

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[21] Pub. L. 115-123, sec. 41119.

[22] Sec. 45Q(a)(2).

[23] Sec. 45Q(f)(5).

[24] Notice 2022-38, 2022-39 I.R.B. 239, September 26, 2022.

Secure geological storage includes storage at deep saline formations, oil and gas reservoirs, and unminable coal seams. The Secretary, in consultation with the Administrator of the Environmental Protection Agency, the Secretary of Energy, and the Secretary of the Interior, is required to establish regulations for determining adequate security measures for the secure geological storage of carbon dioxide such that the carbon dioxide does not escape into the atmosphere.[25]

Qualified carbon dioxide is defined as carbon dioxide captured from an industrial source that (1) would otherwise be released into the atmosphere as an industrial emission of greenhouse gas, and (2) is measured at the source of capture and verified at the point or points of injection. Qualified carbon dioxide includes the initial deposit of captured carbon dioxide used as a tertiary injectant but does not include carbon dioxide that is recaptured, recycled, and re-injected as part of an enhanced oil or natural gas recovery project process. A qualified enhanced oil or natural gas recovery project is a project that would otherwise meet the definition of an enhanced oil recovery project under section 43, if natural gas projects were included within that definition. Only qualified carbon dioxide captured and disposed of, used, or utilized within the United States or a possession of the United States is taken into account.

In general, a qualified facility is any industrial facility or direct air capture facility located in the United States or a possession of the United States the construction of which begins before January 1, 2026, and the construction of carbon capture equipment begins before such date or is integrated into the original planning and design of the facility.

Qualified facilities also must capture a minimum amount of carbon oxide. For electricity generation facilities that emit 500,000 metric tons or more of carbon oxide in a taxable year, the facility must capture at least 500,000 metric tons of carbon oxide. For facilities that emit less than 500,000 metric tons of carbon oxide or non-power facilities that emit at least 500,000 metric tons of carbon oxide, the facility must generally capture at least 100,000 metric tons of carbon oxide per taxable year. However, where the carbon oxide is captured at a facility that emits less than 500,000 metric tons of carbon oxide and is being utilized for commercial purposes, this minimum amount is reduced to 25,000 metric tons of carbon oxide. Direct air capture facilities (described below) must also capture at least 100,000 metric tons of carbon oxide per taxable year to be qualified facilities.

Credits are generally attributable to the person that captures and physically or contractually ensures the disposal, utilization, or use as a tertiary injectant, of the qualified carbon dioxide. Such persons may elect to transfer the credit to the taxpayer that disposes of, utilizes, or uses (as a tertiary injectant) the qualified carbon dioxide.

[25] Final Treasury regulations for section 45Q were published in the Federal Register on January 15, 2021. T.D. 9944, 86 Fed. Reg. 4728, January 15, 2021.

Credits are subject to recapture with respect to any qualified carbon dioxide that ceases to be captured, disposed of, or used as a tertiary injectant in a manner consistent with the credit rules.[26] The credit is part of the general business credit.

The credit sunsets at the end of the calendar year in which the Secretary, in consultation with the Administrator of the Environmental Protection Agency, certifies that 75 million metric tons of qualified carbon dioxide have been taken into account for purposes of the credit. As of May 11, 2018, the credit had been claimed for 72,087,903 tons of qualified carbon dioxide.[27]

**Carbon oxide captured using equipment placed in service on or after February 9, 2018 (post-BBA)**

For carbon captured using equipment placed in service on or after February 9, 2018, the definition of qualified carbon is expanded to include all carbon oxides, not just carbon dioxide. In addition, qualified carbon is no longer limited to carbon capture from industrial sources, but includes carbon captured directly from the ambient air at direct air capture facilities (excluding the capture of carbon dioxide deliberately released from naturally occurring subsurface springs or carbon dioxide captured using natural photosynthesis).

For EOR uses and for qualified carbon oxide utilization, the credit rate for carbon oxide captured using equipment placed in service on or after February 9, 2018, is $12.83 per metric ton in 2017, increasing linearly each calendar year to $35 per metric ton by December 31, 2026, and adjusted for inflation thereafter. For qualified carbon oxide disposed of in secure geological storage, the credit rate is $22.66 per metric ton in 2017, increasing linearly each calendar year to $50 per metric ton by December 31, 2026, and adjusted for inflation thereafter. For 2022, the credit rates are $25.15 and $37.85 respectively.[28]

Carbon oxide captured using equipment placed in service on or after February 9, 2018, is not subject to the 75 million metric ton cap applicable to the pre-February 9, 2018 credit rules. Instead, taxpayers may claim the credit during the 12-year period beginning on the date the carbon capture equipment is originally placed in service. For this purpose, eligible carbon capture equipment must be placed in service at a qualified facility the construction of which begins before January 1, 2026.[29]

In general, a qualified facility has the same definition as a pre-BBA qualified facility, except that it is placed in service on or after February 9, 2018. Special rules apply for additional

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[26] Sec. 45Q(f)(4).

[27] Notice 2020-40, 2020-25 I.R.B. 954, June 15, 2020. This is the most recent assessment published by the I.R.S.

[28] Treas. Reg. sec. 1.45Q-1(d).

[29] Sec. 45Q(d).

carbon capture equipment installed on or after February 9, 2018, at a pre-BBA qualified facility. The credit is reduced for certain tax-exempt bonds.[30]

## Changes Made by Public Law 117-169

### In general

The provision extends and modifies the section 45Q credit for carbon oxide sequestration. The provision extends the credit so that it is available with respect to qualified facilities the construction of which begin before January 1, 2033. The provision also modifies the credit rates.

### Modification of credit rates

The provision modifies the base tax credit rate. In the case of facilities and equipment originally placed in service after December 31, 2022, or with respect to additional carbon capture equipment installed after such date at a facility placed in service before such date, the base credit rate is reduced to $17 (adjusted for inflation after 2026) per metric ton for qualified carbon oxide captured by the taxpayer using carbon capture equipment which is disposed of by the taxpayer in secure geological storage without being first used for EOR uses. The provision also reduces the base credit to $12 (adjusted for inflation after 2026) per metric ton where the captured carbon oxide is first used for EOR uses or utilized in a manner prescribed by section 45Q.

In the case of carbon oxide captured at direct air capture facilities placed in service after December 31, 2022, or with respect to additional carbon capture equipment installed after such date at such facilities placed in service before such date, the credit amounts described above are increased to $36 and $26 per ton, respectively.

### Modification of definition of qualified facility

The provision also modifies the definition of qualified facility for facilities or equipment the construction of which begins after the date of enactment of the Act. In the case of a direct air capture facility, the minimum amount of carbon oxide that must be captured for a facility to qualify is reduced to 1,000 metric tons per taxable year.

In the case of an electricity generating facility, the minimum amount is reduced to 18,750 metric tons per taxable year; any carbon capture equipment associated with the applicable electric generating unit at such facility must have a capture design capacity of not less than 75 percent of the baseline carbon oxide production of such unit. For this purpose, an applicable electric generating unit means the principal electric generating unit for which the carbon capture equipment is originally planned and designed.

In the case of an applicable electric generating unit originally placed in service more than one year prior to the date on which construction of the carbon capture equipment begins, the baseline carbon oxide production is generally the average annual carbon oxide production, by

[30] Sec. 45Q(f)(3).

mass, from such unit during the three years with the highest annual carbon oxide production during the 12-year period preceding the date on which construction of such carbon capture equipment began. In the case of an applicable generating unit that was originally placed in service more than one year but not more than three years prior to the date on which construction of the carbon capture equipment begins, the baseline is measured using the period beginning on the date such unit was placed in service and ending on the date on which construction of such carbon capture equipment began. Where construction of the carbon capture equipment begins either before or not more than one year after the applicable electric generating unit is originally[31] placed in service, the baseline carbon oxide production is the designed annual carbon oxide production, by mass, as determined based on an assumed capacity factor of 60 percent.

**Increased credit amount for qualified facilities and carbon capture equipment**

The total amount of credit is multiplied by five for qualified facilities or carbon capture equipment that meet certain prevailing wage and apprenticeship requirements.

The prevailing wage and apprenticeship requirements generally follow the structure established in section 13101 of the Act, which modifies the renewable electricity production credit. Generally, the prevailing wage rules require that the taxpayer ensure that any laborers and mechanics employed by the taxpayer or any contractor or subcontractor in the construction, alteration, or repair of a project are paid wages at a rate not less than the prevailing wage rates for construction, alteration, or repair of a similar character in the locality where the project is located as determined by the Secretary of Labor, in accordance with subchapter IV of chapter 31, of title 40, United States Code. The apprenticeship requirements require that, generally, not less than a certain percentage of total labor hours of the construction, alteration, or repair work (including work performed by any contractor of subcontractor) on a project must be performed by qualified apprentices, similar to the rules of section 45(b)(8).[32]

**Credit reduced for tax-exempt bonds**

The provision changes the rules for reducing the credit when a carbon oxide capture project is financed using tax-exempt bonds. The rules governing this reduction are similar to those provided in section 13101 of the Act, which modifies the renewable electricity production credit (described above).

**Modification of the expiration of the credit for facilities placed in service before the enactment of the Bipartisan Budget Act of 2018**

The provision modifies the credit termination rules for facilities placed in service before the enactment of the Bipartisan Budget Act of 2018 (February 9, 2018). Under the provision, even if the Secretary has not certified that 75 million metric tons of qualified carbon dioxide

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[31] A technical correction may be necessary to reflect this intent.

[32] See the explanation of section 13101 for a more detailed description of these requirements, including procedural rules and penalties.

have been taken into account for purposes of the credit by December 31, 2022, the credit terminates on January 1, 2023.

**Election for certain facilities located in an area affected by a Federally declared disaster**

In the case of qualified carbon oxide captured using carbon capture equipment which is originally placed in service at a qualified facility on or after the date of enactment of the Bipartisan Budget Act of 2018 (February 9, 2018), the taxpayer may elect, at such time and in such manner as the Secretary may prescribe, to have the 12-year period begin on the first day of the first taxable year in which a credit is claimed so long as (1) no taxpayer claimed a credit with respect to such carbon capture equipment for any prior taxable year, (2) the qualified facility at which such carbon capture equipment is placed in service is located in an area affected by a Federally declared disaster (as defined by section 165(i)(5)(A)) after the carbon capture equipment is originally placed in service, and (3) such Federally declared disaster results in a cessation of the operation of the qualified facility or the carbon capture equipment after such equipment is originally placed in service.

**Regulatory authority**

The provision expands the Secretary's specific regulatory authority to issue regulations or other guidance for the purpose of adjusting the baseline carbon oxide production with respect to any applicable electric generating unit at any electricity generating facility if, after the date on which the carbon capture equipment is placed in service, modifications which are chargeable to capital account are made to such unit that result in a significant increase or decrease in carbon oxide production.

## Effective Date

The provision is generally effective for facilities and equipment placed in service after December 31, 2022. The rules modifying the definition of a qualified facility are effective for facilities and equipment the construction of which begins after the date of enactment of the Act. The modification of the expiration of the credit for facilities placed in service before the enactment of the Bipartisan Budget Act of 2018 is effective on the date of enactment of the Act. The election for certain facilities located in an area affected by a Federally declared disaster is effective for carbon oxide captured and disposed of after December 31, 2021.

### 5. Extension of incentives for biodiesel, renewable diesel and alternative fuels (sec. 13201 of the Act and secs. 40A, 6426, and 6427 of the Code)

## Present Law Prior to the Enactment of Public Law 117-169

**Biodiesel**

Present law provides an income tax credit for biodiesel fuels (the "biodiesel fuels credit"). The biodiesel fuels credit is the sum of three credits: (1) the biodiesel mixture credit, (2) the biodiesel credit; and (3) the small agri-biodiesel producer credit. The biodiesel fuels credit is treated as a general business credit. The amount of the biodiesel fuels credit is includible in gross income. The biodiesel fuels credit is coordinated to take into account benefits

from the biodiesel excise tax credit and payment provisions discussed below. The credit does not apply to fuel sold or used after December 31, 2022.

Biodiesel is monoalkyl esters of long chain fatty acids derived from plant or animal matter that meet (1) the registration requirements established by the EPA under section 211 of the Clean Air Act (42 U.S.C. sec. 7545) and (2) the requirements of the American Society of Testing and Materials ("ASTM") D6751. Agri-biodiesel is biodiesel derived solely from virgin oils including oils from corn, soybeans, sunflower seeds, cottonseeds, canola, crambe, rapeseeds, safflowers, flaxseeds, rice bran, mustard seeds, camelina, or animal fats.

Biodiesel may be taken into account for purposes of the credit only if the taxpayer obtains a certification (in such form and manner as prescribed by the Secretary) from the producer or importer of the biodiesel that identifies the product produced and the percentage of biodiesel and agri-biodiesel in the product.

Biodiesel mixture credit

The biodiesel mixture credit is $1.00 for each gallon of biodiesel (including agri-biodiesel) used by the taxpayer in the production of a qualified biodiesel mixture. A "qualified biodiesel mixture" is a mixture of biodiesel and diesel fuel that is (1) sold by the taxpayer producing such mixture to any person for use as a fuel, or (2) used as a fuel by the taxpayer producing such mixture. The sale or use must be in the trade or business of the taxpayer and is to be taken into account for the taxable year in which such sale or use occurs. No credit is allowed with respect to any casual off-farm production of a qualified biodiesel mixture.

Per IRS guidance, a mixture need only contain 1/10th of one percent of diesel fuel to be a qualified mixture. Thus, a qualified biodiesel mixture can contain 99.9 percent biodiesel and 0.1 percent diesel fuel.

Biodiesel credit (B-100)

The biodiesel credit is $1.00 for each gallon of biodiesel that is not in a mixture with diesel fuel (100 percent biodiesel or B-100) and which during the taxable year is (1) used by the taxpayer as a fuel in a trade or business or (2) sold by the taxpayer at retail to a person and placed in the fuel tank of such person's vehicle.

Small agri-biodiesel producer credit

The Code provides a small agri-biodiesel producer income tax credit, in addition to the biodiesel and biodiesel mixture credits. The credit is 10 cents per gallon for up to 15 million gallons of agri-biodiesel produced by small producers, defined generally as persons whose agri-biodiesel production capacity does not exceed 60 million gallons per year. The agri-biodiesel must (1) be sold by such producer to another person (a) for use by such other person in the production of a qualified biodiesel mixture in such person's trade or business (other than casual off-farm production), (b) for use by such other person as a fuel in a trade or business, or, (c) who sells such agri-biodiesel at retail to another person and places such agri-biodiesel in the fuel tank of such other person; or (2) used by the producer for any purpose described in (a), (b), or (c).

### Biodiesel mixture excise tax credit

The Code also provides an excise tax credit for biodiesel mixtures. The credit is $1.00 for each gallon of biodiesel used by the taxpayer in producing a biodiesel mixture for sale or use in a trade or business of the taxpayer. A biodiesel mixture is a mixture of biodiesel and diesel fuel that (1) is sold by the taxpayer producing such mixture to any person for use as a fuel, or (2) is used as a fuel by the taxpayer producing such mixture. No credit is allowed unless the taxpayer obtains a certification (in such form and manner as prescribed by the Secretary) from the producer of the biodiesel that identifies the product produced and the percentage of biodiesel and agri-biodiesel in the product.

The credit does not apply to any sale or use for any period after December 31, 2022. This excise tax credit is coordinated with the income tax credit for biodiesel such that credit for the same biodiesel cannot be claimed for both income and excise tax purposes.

### Payments with respect to biodiesel fuel mixtures

If any person produces a biodiesel fuel mixture in such person's trade or business, the Secretary is to pay such person an amount equal to the biodiesel mixture credit. The biodiesel fuel mixture credit must first be taken against tax liability for taxable fuels. To the extent the biodiesel fuel mixture credit exceeds such tax liability, the excess may be received as a payment. Thus, if the person has no section 4081 liability, the credit is refundable. The Secretary is not required to make payments with respect to biodiesel fuel mixtures sold or used after December 31, 2022.

## Renewable diesel

Renewable diesel is liquid fuel that (1) is derived from biomass (as defined in section 45K(c)(3)), (2) meets the registration requirements for fuels and fuel additives established by the EPA under section 211 of the Clean Air Act, and (3) meets the requirements of the ASTM D975 or D396, or an equivalent standard established by the Secretary. ASTM D975 provides standards for diesel fuel suitable for use in diesel engines. ASTM D396 provides standards for fuel oil intended for use in fuel-oil burning equipment, such as furnaces. Renewable diesel also includes fuel derived from biomass that meets the requirements of a Department of Defense specification for military jet fuel or an ASTM specification for aviation turbine fuel.

For purposes of the Code, renewable diesel is generally treated the same as biodiesel. In the case of renewable diesel that is aviation fuel, kerosene is treated as though it were diesel fuel for purposes of a qualified renewable diesel mixture. Like biodiesel, the incentive may be taken as an income tax credit, an excise tax credit, or as a payment from the Secretary. The incentive for renewable diesel is $1.00 per gallon. There is no small producer credit for renewable diesel. The incentives for renewable diesel do not apply to renewable diesel sold or used after December 31, 2022.

## Alternative fuel

The Code provides two per-gallon excise tax credits with respect to alternative fuel: the alternative fuel credit, and the alternative fuel mixture credit. For this purpose, the term

"alternative fuel" means liquefied petroleum gas, P-Series fuels (as defined by the Secretary of Energy under 42 U.S.C. sec. 13211(2)), compressed or liquefied natural gas, liquefied hydrogen, liquid fuel derived from coal through the Fischer-Tropsch process ("coal-to-liquids"),[33] compressed or liquefied gas derived from biomass, or liquid fuel derived from biomass. Such term does not include ethanol, methanol, or biodiesel. "Alternative fuel" also does not include fuel (including lignin, wood residues, or spent pulping liquors) derived from the production of paper or pulp.

The alternative fuel credit is allowed against section 4041 liability, and the alternative fuel mixture credit is allowed against section 4081 liability. Neither credit is allowed unless the taxpayer is registered with the Secretary. The alternative fuel credit is 50 cents per gallon of alternative fuel or gasoline gallon equivalents of nonliquid alternative fuel sold by the taxpayer for use as a motor fuel in a motor vehicle or motorboat, sold for use in aviation, or so used by the taxpayer.

The alternative fuel mixture credit is 50 cents per gallon of alternative fuel used in producing an alternative fuel mixture for sale or use in a trade or business of the taxpayer. An "alternative fuel mixture" is a mixture of alternative fuel and taxable fuel (gasoline, diesel fuel or kerosene) that contains at least 1/10 of one percent taxable fuel. For purposes of the alternative fuel mixture credit, alternative fuel does not include liquefied petroleum gas, compressed or liquefied natural gas, or compressed or liquefied gas derived from biomass. The mixture must be sold by the taxpayer producing such mixture to any person for use as a fuel, or used by the taxpayer producing the mixture as a fuel. The credits do not apply to fuel sold or used after December 31, 2021.

A person may file a claim for payment equal to the amount of the alternative fuel credit (but not the alternative fuel mixture credit). The alternative fuel credit must first be applied to the applicable excise tax liability under section 4041 or 4081, and any excess credit may be taken as a payment. The payment provision for alternative fuel expired after December 31, 2021.

## Changes Made by Public Law 117-169

The provision extends the incentives for biodiesel, renewable diesel, and alternative fuel, and related mixtures, through December 31, 2024.

The provision creates a special rule to address claims regarding excise tax credits and claims for payment for alternative fuel sold or used during the period beginning on January 1, 2022, through the close of the last calendar quarter beginning before the date of enactment (June 30, 2022). In particular, the provision directs the Secretary to issue guidance within 30 days of the date of enactment. Such guidance is to provide for a one-time submission of claims covering those periods. The guidance is to provide for a 180-day period for the submission of such claims (in such manner as prescribed by the Secretary) to begin no later than 30 days after such guidance is issued. Such claims shall be paid by the Secretary of the Treasury not later than 60

[33] For coal-to-liquids produced after December 30, 2009, the fuel must be certified as having been derived from coal produced at a gasification facility that separates and sequesters 75 percent of such facility's total carbon dioxide emissions.

days after receipt. If the claim is not paid within 60 days of the date of the filing, the claim shall be paid with interest from such date determined by using the overpayment rate and method under section 6621.

## Effective Date

The provision is effective for fuel sold or used after December 31, 2021.

### 6. Extension of second generation biofuel incentives (sec. 13202 of the Act and sec. 40(b)(6) of the Code)

## Present Law Prior to the Enactment of Public Law 117-169

The second generation biofuel producer credit is a nonrefundable income tax credit for each gallon of qualified second generation biofuel fuel production of the producer for the taxable year. The amount of the credit per gallon is $1.01. The provision does not apply to qualified second generation biofuel production after December 31, 2021.

"Qualified second generation biofuel production" is any second generation biofuel which is produced by the taxpayer and which, during the taxable year, is: (1) sold by the taxpayer to another person (a) for use by such other person in the production of a qualified second generation biofuel mixture in such person's trade or business (other than casual off-farm production), (b) for use by such other person as a fuel in a trade or business, or (c) who sells such second generation biofuel at retail to another person and places such cellulosic biofuel in the fuel tank of such other person; or (2) used by the producer for any purpose described in (1)(a), (b), or (c).[34] Special rules apply for fuel derived from algae.

"Second generation biofuel" means any liquid fuel that (1) is produced in the United States and used as fuel in the United States, (2) is derived by or from qualified feedstocks and (3) meets the registration requirements for fuels and fuel additives established by the Environmental Protection Agency ("EPA") under section 211 of the Clean Air Act. "Qualified feedstock" means any lignocellulosic or hemicellulosic matter that is available on a renewable or recurring basis, and any cultivated algae, cyanobacteria, or lemna. Second generation biofuel does not include fuels that (1) are more than four percent (determined by weight) water and sediment in any combination, (2) have an ash content of more than one percent (determined by weight), or (3) have an acid number greater than 25 ("unprocessed or excluded fuels"). It also does not include any alcohol with a proof of less than 150.

The second generation biofuel producer credit cannot be claimed unless the taxpayer is registered with the IRS as a producer of second generation biofuel. Second generation biofuel eligible for the section 40 credit is precluded from qualifying as biodiesel, renewable diesel, or

[34] In addition, for fuels derived from algae, cyanobacteria, or lemna, a special rule provides that qualified second generation biofuel includes fuel that is sold by the taxpayer to another person for refining by such other person into a fuel that meets the registration requirements for fuels and fuel additives under section 211 of the Clean Air Act.

alternative fuel for purposes of the applicable income tax credit, excise tax credit, or payment provisions relating to those fuels.

Because it is a credit under section 40(a), the second generation biofuel producer credit is part of the general business credits in section 38. However, the credit can only be carried forward three taxable years after the termination of the credit. Under section 87, the credit is included in gross income.

**Changes Made by Public Law 117-169**

The provision extends the credit through December 31, 2024.

**Effective Date**

The provision applies to qualified second generation biofuel production after December 31, 2021.

### 7. Sustainable aviation fuel credit (sec. 13203 of the Act and new sec. 40B of the Code)

**Present Law Prior to the Enactment of Public Law 117-169**

**Renewable diesel for aviation**

Renewable diesel includes fuel derived from biomass that meets the requirements of a Department of Defense specification for military jet fuel or an ASTM specification for aviation turbine fuel.

For purposes of certain incentive provisions in the Code, renewable diesel is generally treated the same as biodiesel. In the case of renewable diesel that is aviation fuel meeting the requirements above, the renewable diesel fuel incentives are applied with respect to such fuel by treating kerosene though it were diesel fuel for purposes of a qualified renewable diesel mixture. Like the biodiesel incentive, the renewable diesel incentive may be taken as an excise tax credit against section 4081 liability, and, to the extent the excise tax credit exceeds the claimant's section 4081 liability, then the excess may be claimed either as a payment from the Secretary under section 6427(e) or as a refundable income tax credit under section 34. Alternatively, the renewable diesel incentive may be taken as a nonrefundable income tax credit under section 40A, which is included in gross income under section 87. The incentive for renewable diesel is $1.00 per gallon. There is no small producer credit for renewable diesel. The incentives for renewable diesel expire after December 31, 2022.

**Changes Made by Public Law 117-169**

The provision creates a new general business credit, the sustainable aviation fuel credit under section 40B, and adds related excise tax credit and payment rules under section 6426(k) and 6427(e)(1). For this purpose, "sustainable aviation fuel" is a liquid fuel, the portion of which is not kerosene, that (1) meets the requirements of either ASTM International Standard D7566 or the Fischer Tropsch provisions of ASTM International Standard D1655, Annex A1, (2) is not derived from coprocessing an applicable material (or materials derived from an applicable

material) with a feedstock that is not biomass, [35] (3) is not derived from palm fatty acid distillates or petroleum, and (4) has been certified, as provided by the provision, to achieve at least a 50-percent lifecycle greenhouse gas reduction percentage in comparison with petroleum-based jet fuel.

**Calculation of the credit**

The sustainable aviation fuel credit for the taxable year is, with respect to any sale or use of a qualified mixture which occurs during such taxable year, an amount equal to the product of the number of gallons of sustainable aviation fuel in such mixture multiplied by the sum of (1) $1.25 plus (2) the applicable supplementary credit amount with respect to such sustainable aviation fuel.

The applicable supplementary credit amount is one cent for every percentage point above 50 percent for which the sustainable aviation fuel is certified, as described below, to reduce emissions as in comparison with petroleum jet fuel. The maximum applicable supplementary amount is 50 cents.

A "qualified mixture" means a mixture of sustainable aviation fuel and kerosene if (1) such mixture is produced by the taxpayer in the United States, (2) such mixture is used by the taxpayer (or sold by the taxpayer for use) in an aircraft, (3) such sale or use is in the ordinary course of the trade or business of the taxpayer, and (4) the transfer of such mixture to the fuel tank of such aircraft occurs in the United States.

**Certification requirements and registration**

No credit shall be allowed unless the sustainable aviation fuel has been certified to achieve at least a 50-percent lifecycle greenhouse gas reduction in comparison with petroleum-based jet fuel. For purposes of certification, the certification must be in accordance with (1) the most recent Carbon Offsetting and Reduction Scheme for International Aviation that has been adopted by the International Civil Aviation Organization ("ICAO") with the agreement of the United States, or (2) any similar methodology which satisfies the criterial under section 211(o)(1)(H) of the Clean Air Act (42 U.S.C. 7545(o)(1)(H)) as in effect on the date of enactment of this section.

No credit shall be allowed with respect to any sustainable aviation fuel unless the producer or importer of such fuel is registered with the Secretary and provides certification (in such form and manner as the Secretary shall prescribe) from an unrelated party demonstrating compliance with (1) any general requirements, supply chain traceability requirements, and information transmission requirements under the Carbon Offsetting and Reduction Scheme for International Aviation, or similar requirements in the case of a similar methodology established

[35] "Applicable material" means monoglycerides, diglycerides, and triglycerides, free fatty acids, and fatty acid esters. The term "biomass" has the same meaning given such term in section 45K(c)(3) (meaning any organic material other than—(A) oil and natural gas (or any product thereof), and (B) coal (including lignite) or any product thereof).

as described above, and (2) such other information with respect to such fuel as the Secretary may require for purposes of carrying out this provision.

**Inclusion in gross income**

The sustainable aviation fuel income tax credit under section 40B is included in gross income under section 87.

**Excise tax credit and payment provisions and coordination rules**

The sustainable aviation fuel credit under section 6426(k) may be used to offset section 4081 tax liability or if there is insufficient section 4081 tax liability, the taxpayer may claim a payment under section 6427(e) or a refundable income tax credit under section 34 for the excess credit. The registration requirements and definitions for the income tax credit also apply for this purpose.

Under rules prescribed by the Secretary, the amount of the section 40B income tax credit with respect to any sustainable aviation fuel is to be reduced to account for any benefit provided with respect to such sustainable aviation fuel under the related excise tax and payment provisions. Additionally, section 40A(d)(1) excludes sustainable aviation fuel from the definition of biodiesel and therefore cannot qualify for the biodiesel incentives.

**Sunset**

The sustainable aviation fuel credit (income tax credit, excise tax credit and outlay payments) does not apply to any sale or use after December 31, 2024.

**Renewable diesel credit for aviation eliminated**

The provision eliminates the category of renewable diesel relating to aviation fuel meeting Department of Defense specifications for military fuel or an ASTM standard for aviation turbine fuel. Fuel that qualifies as sustainable aviation fuel cannot qualify as biodiesel or renewable diesel.

**Effective Date**

The provision applies to fuel sold or used after December 31, 2022.

### 8. Clean hydrogen (sec. 13204 of the Act and new sec. 45V of the Code)

**Present Law Prior to the Enactment of Public Law 117-169**

The Code provides a credit of 50 cents per gallon of alternative fuel (or gasoline gallon equivalents of nonliquid alternative fuel) sold by the taxpayer for use as a motor fuel in a motor vehicle or motorboat, sold for use in aviation or so used by the taxpayer. For this purpose,

liquefied hydrogen is an alternative fuel. The alternative fuel credit expired December 31, 2021.[36]

## Changes Made by Public Law 117-169

### Credit for production of clean hydrogen

The provision creates a new credit for hydrogen, the "clean hydrogen production credit."[37] For any taxable year, the credit is an amount equal to the product of (1) the kilograms of qualified clean hydrogen produced in that year by the taxpayer at a qualified clean hydrogen production facility during the ten-year period beginning on the date such facility was originally placed in service by (2) the applicable amount.

The "applicable amount" is equal to the applicable percentage of $0.60 (or $3.00 in the case of the increased credit described below), rounded to the nearest 0.1 cent.[38] The "applicable percentage" is

- 20 percent in the case of qualified clean hydrogen which is produced through a process that results in a lifecycle greenhouse gas emissions rate of not greater than four kilograms of $CO_2e$ per kilogram of hydrogen and not less than 2.5 kilograms of $CO_2e$ per kilogram of hydrogen
- 25 percent in the case of qualified clean hydrogen which is produced through a process that results in a lifecycle greenhouse gas emissions rate of less than 2.5 kilograms of $CO_2e$ per kilogram of hydrogen and not less than 1.5 kilograms of $CO_2e$ per kilogram of hydrogen
- 33.4 percent in the case of qualified clean hydrogen which is produced through a process that results in a lifecycle greenhouse gas emissions rate of less than 1.5 kilograms of $CO_2e$ per kilogram of hydrogen and not less than 0.45 kilograms of $CO_2e$ per kilogram of hydrogen

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[36] Section 13201 of the Act extends the alternative fuel credit through December 31, 2024.

[37] The Department of Energy has noted that "[h]ydrogen purification and enrichment are key technology needs that cross-cut hydrogen production options. The quality of the hydrogen produced must meet the hydrogen quality requirements as described in Appendix C." Appendix C, regarding hydrogen quality, provides that the hydrogen fuel index *(i.e.*, mole fraction of a fuel mixture that is hydrogen) must be at least 99.97 percent. Department of Energy, *Hydrogen and Fuel Cell Technologies Office Multi-Year Research, Development and Demonstration Plan* (June 2015) at p. 3.1-5, and Appendix C at p. C-2 https://www.energy.gov/sites/default/files/2015/06/f23/fcto_myrdd_production.pdf and https://www.energy.gov/sites/prod/files/2014/03/f12/appendix_c.pdf.

[38] The $0.60 amount (or the $3.00 in the case of the enhanced credit) is indexed for inflation by multiplying such amount by the inflation adjustment factor (as determined under section 45(e)(2) by substituting 2022 for 1992 in subparagraph (B) thereof) for the calendar year in which the qualified hydrogen is produced. If any amount as adjusted is not a multiple of 0.1 cent, such amount is rounded to the nearest multiple of 0.1 cent.

- 100 percent in the case of qualified clean hydrogen which is produced through a process that results in a lifecycle greenhouse gas emissions rate of less than 0.45 kilograms of $CO_2e$ per kilogram of hydrogen.

Definitions

The term "lifecycle greenhouse gas emissions" has the same meaning given such term under subparagraph (H) of section 211(o)(1) of the Clean Air Act as in effect on the date of enactment of the Act. However, such term only includes emissions through the point of production (well-to-gate) as determined under the most recent Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation model ("GREET") developed by the Argonne National Laboratory or a successor model (as determined by the Secretary).

"Qualified clean hydrogen" means hydrogen that is produced through a process that results in a lifecycle greenhouse gas emissions rate of not greater than 4 kilograms of $CO_2e$ per kilogram of hydrogen. The hydrogen must be produced in the United States or a possession of the United States in the ordinary course of a trade or business of the taxpayer for sale or use. The production and sale or use of such hydrogen must be verified by an unrelated party. In the case of any hydrogen for which a lifecycle greenhouse gas emissions rate has not been determined, a taxpayer producing such hydrogen may file a petition with the Secretary for determination of the lifecycle greenhouse gas emissions rate with respect to such hydrogen.

A "qualified clean hydrogen production facility" is a facility owned by the taxpayer that produces qualified clean hydrogen and the construction of which begins before January 1, 2033. To qualify for the increased credit amount, a qualified clean hydrogen production facility must also satisfy certain prevailing wage and apprenticeship requirements described below.

Regulations

Not later than one year after the date of enactment, the Secretary is to issue regulations or other guidance to carry out the purposes of this provision, including regulations or other guidance for determining lifecycle greenhouse gas emissions.[39]

Special rules

For facilities owned by more than one taxpayer, rules similar to the rules of section 45(e)(3) apply for purposes of the provision. Rules similar to the rule under section 45(b)(3) (credit reduced for tax-exempt bonds) apply for purposes of the provision. No credit is allowed with respect to qualified clean hydrogen produced at a facility which includes carbon capture equipment for which a credit is allowed to any taxpayer under section 45Q for the taxable year or any prior taxable year. Thus, a facility is disqualified for purposes of section 45V, if a section

[39] In the floor debate of this provision in the Senate, the Senators expressed an intent that the Secretary to have discretion in determining lifecycle greenhouse gas emissions, including to determining the appropriate treatment of renewable electricity credits, environmental attribute agreements, and other such agreements. See, 168 Cong. Rec. S4165-S4166 (daily ed. August 22, 2022) (colloquy between Senators Carper and Wyden regarding section 13204 of the Inflation Reduction Act of 2022).

45Q credit is claimed for the taxable year or any prior taxable year with respect to such facility containing carbon capture equipment.

Modification of existing facilities

A special placed-in-service rule applies for existing facilities modified to produce qualified clean hydrogen. In the case of any facility that was originally placed in service before January 1, 2023, and prior to the modification, did not produce qualified clean hydrogen, and after the date such facility was originally placed in service is (1) modified to produce clean hydrogen, and (2) the amounts paid or incurred with respect to such modification are properly chargeable to the capital account of the taxpayer, such facility is deemed to have been originally placed in service as of the date that the property required to complete the modification is placed in service.

**Increased credit amount for qualified clean hydrogen production facilities**

In the case of a qualified clean hydrogen production facility that satisfies certain prevailing wage and apprenticeship requirements, the amount of credit determined with respect to qualified clean hydrogen is multiplied by five. A facility meets these requirements if it is either (1) a facility, the construction of which begins prior to the date that is 60 days after the Secretary publishes guidance with respect to the prevailing wage and apprenticeship requirements and, meets the prevailing wage requirements with respect to the alteration or repair of such facility that occurs after such date; or (2) a facility that satisfies the prevailing wage and apprenticeship requirements.

Prevailing wage requirements

A taxpayer can meet the prevailing wage requirements if it ensures that prevailing wages are paid to any laborers and mechanics employed by the taxpayer or any contractor or subcontractor in the construction of a qualified clean hydrogen production facility, and for the alteration or repair of such facility during the 10-year credit-eligible production period. Prevailing wages are wages paid at rates not less than the prevailing wage rates for construction, alteration, or repair of a similar character in the locality as determined by the Secretary of Labor, in accordance with subchapter IV of chapter 31, of title 40, United States Code. For purposes of determining an increased credit amount for a taxable year, the alteration and repair requirement is applied to such taxable year in which the alteration or repair of the qualified facility occurs. Rules similar to the rules set forth in section 45(b)(7)(B) of the renewable electricity production credit apply regarding penalties for failing to satisfy the prevailing wage requirements.[40]

Apprenticeship requirements

To be eligible for the enhanced credit, a taxpayer also must ensure that certain qualified apprenticeship requirements are satisfied. The apprenticeship requirements generally require that not less than a certain percentage of total labor hours of the construction, alternation, or

[40] See the explanation of section 13101 of the Act for a more detailed description of these procedural rules and penalties.

repair work (including work performed by any contractor or subcontractor) on a project must be performed by qualified apprentices, similar to the rules of section 45(b)(8).[41]

Guidance

The Secretary shall publish regulations or other guidance to carry out the purposes of the provision, including regulations or other guidance which provides for requirements for recordkeeping or information reporting.

**Credit for electricity produced from renewable resources allowed if electricity is used to produce clean hydrogen**

The provision permits a taxpayer to receive both the section 45 credit for electricity produced from renewable resources and the credit for production of clean hydrogen. The electricity will be treated as sold to an unrelated person if such electricity is used at a qualified clean hydrogen production facility to produce clean hydrogen and such use and production is verified (in such form or manner as the Secretary may prescribe). A similar rule applies for purposes of the "zero-emission nuclear power production credit" (under section 45U).

**Election to treat clean hydrogen production facilities as energy property**

In lieu of the clean hydrogen production credit, the provision permits a taxpayer to elect to treat specified clean hydrogen facilities (or any portion of such facility) as energy property. The energy percentage with respect to such property ranges from 1.2 percent to six percent depending on the type of qualified clean hydrogen that the facility is designed and reasonably expected to produce. No credit is allowed under section 45V or section 45Q for any taxable year with respect to any specified clean hydrogen production facility or any carbon capture equipment included at such facility. A "specified clean hydrogen production facility" is a qualified clean hydrogen production facility (1) that is placed in service after December 31, 2022, (2) with respect to which no credit has been allowed under sections 45V or 45Q, and the taxpayer makes an irrevocable election to have this provision apply, and (3) for which an unrelated third party has verified (in such form or manner as the Secretary may prescribe) that such facility produces hydrogen through a process which results in lifecycle greenhouse gas emissions that are consistent with the hydrogen that such facility was designed and expected to produce.

The Secretary is to issue such regulations or other guidance as the Secretary determines necessary to carry out the purposes of this section, including regulations or other guidance which recaptures so much of any credit allowed under this provision as exceeds the amount of the credit that would have been allowed if the expected production were consistent with the actual verified production (or all of the credit so allowed in the absence of such verification).

[41] For more detail, see the description of section 13101 of the Act, which explains such apprenticeship requirements.

**Termination of excise tax credit for hydrogen**

The provision terminates the alternative fuel excise tax credit as it relates to hydrogen.

**Credit monetization**

In lieu of the clean hydrogen production credit, certain taxpayers may elect a direct payment or transfer credits. See discussion *infra*, sections 13801 and 13802 of the Act relating to credit monetization.

## Effective Date

The provision as it relates to the clean hydrogen production credit applies to hydrogen produced after December 31, 2022. The provision as it relates to the credit reduced for tax-exempt bonds, applies to facilities the construction of which begins after the date of enactment. The rule regarding modification of existing facilities applies to modifications made after December 31, 2022.

The provision as it relates to renewable electricity used to produce clean hydrogen applies to electricity produced after December 31, 2022.

The provision as it relates to the energy property election for clean hydrogen production facilities applies to property placed in service after December 31, 2022, and for any property the construction of which begins prior to January 1, 2023, only to the extent of the basis thereof attributable to the construction, reconstruction, or erection after December 31, 2022.

The termination of the alternative fuel excise tax credit incentives for hydrogen applies to fuel sold or used after December 31, 2022.

### 9. Extension, increase, and modifications of nonbusiness energy property credit (sec. 13301 of the Act and sec. 25C of the Code)

## Present Law Prior to the Enactment of Public Law 117-169

A 10-percent credit is available to individuals for the purchase of qualified energy efficiency improvements to existing homes.[42] A qualified energy efficiency improvement is any energy efficient building envelope component (1) that is installed in or on a dwelling located in the United States and owned and used by the taxpayer as the taxpayer's principal residence; (2) the original use of which commences with the taxpayer; and (3) that reasonably can be expected to remain in use for at least five years. The credit is nonrefundable, and unused credits may not be carried forward to future tax years.

Energy efficient building envelope components are building envelope components that meet (1) the applicable Energy Star program requirements, in the case of a roof or roof products; (2) the version 6.0 Energy Star program requirements, in the case of an exterior window, a

[42] Sec. 25C.

skylight, or an exterior door, and (3) the prescriptive criteria for such components established by the 2009 International Energy Conservation Code, as in effect on the date of enactment of the American Recovery and Reinvestment Tax Act of 2009,[43] in the case of any other component.

Building envelope components are (1) insulation materials or systems which are specifically and primarily designed to reduce the heat loss or gain for a dwelling when installed in or on such dwelling unit, (2) exterior windows (including skylights); (3) exterior doors; and (4) metal or asphalt roofs installed on a dwelling unit, but only if such roof has appropriate pigmented coatings or cooling granules that are specifically and primarily designed to reduce the heat gain of such dwelling unit.

Additionally, credits are available for the amount of the residential energy property expenditures paid or incurred by the taxpayer during the taxable year. Residential energy property expenditures are expenditures made by the taxpayer for qualified energy property (1) that is installed on or in connection with a dwelling unit located in the United States and owned and used by the taxpayer as the taxpayer's principal residence; and (2) the original use of which commences with the taxpayer. Unlike qualified energy efficiency improvements, residential energy efficiency improvements include both qualified energy property and expenditures for labor costs properly allocable to the onsite preparation, assembly, or original installation of the qualified energy property. The allowable credit for the purchase of certain qualified energy property is (1) $50 for each advanced main air circulating fan, (2) $150 for each qualified natural gas, propane, or oil furnace or hot water boiler, and (3) $300 for each item of energy efficient building property.

An advanced main air circulating fan is a fan used in a natural gas, propane, or oil furnace and which has an annual electricity use of no more than two percent of the total annual energy use of the furnace (as determined in the standard Department of Energy test procedures).

A qualified natural gas, propane, or oil furnace or hot water boiler is a natural gas, propane, or oil furnace or hot water boiler with an annual fuel utilization efficiency rate of at least 95.

Energy efficient building property is: (1) an electric heat pump water heater which yields a Uniform Energy Factor of at least 2.2 in the standard Department of Energy test procedure, (2) an electric heat pump which achieves the highest efficiency tier established by the Consortium for Energy Efficiency, as in effect on January 1, 2009,[44] (3) a central air conditioner which achieves the highest efficiency tier established by the Consortium for Energy Efficiency, as in

[43] Pub. L. No. 111-5.

[44] These standards are a seasonal energy efficiency ratio ("SEER") greater than or equal to 15, an energy efficiency ratio ("EER") greater than or equal to 12.5, and heating seasonal performance factor ("HSPF") greater than or equal to 8.5 for split heat pumps, and SEER greater than or equal to 14, EER greater than or equal to 12, and HSPF greater than or equal to 8.0 for packaged heat pumps.

effect on January 1, 2009,[45] and (4) a natural gas, propane, or oil water heater which has a Uniform Energy Factor of at least 0.82 or thermal efficiency of at least 90 percent.

Generally, the credit is available for property placed in service prior to January 1, 2022. The maximum credit for a taxpayer for all taxable years is $500, and no more than $200 of such credit may be attributable to expenditures on windows.

The taxpayer's basis in the property is reduced by the amount of the credit. Special proration rules apply in the case of jointly owned property, condominiums, and tenant-stockholders in cooperative housing corporations. If less than 80 percent of the property is used for nonbusiness purposes, only the portion of expenditures that is used for nonbusiness purposes is taken into account.

For purposes of determining the amount of expenditures made by any individual with respect to any dwelling unit, expenditures which are made from subsidized energy financing are not taken into account. The term "subsidized energy financing" means financing provided under a Federal, State, or local program a principal purpose of which is to provide subsidized financing for projects designed to conserve or produce energy.

## Changes Made by Public Law 117-169

### In general

The provision extends the section 25C credit for nonbusiness energy property for 11 years, through December 31, 2032, and renames the credit the "energy efficient home improvement credit." The provision also increases from ten percent to 30 percent the credit rate for qualified energy efficient improvements. The provision replaces the lifetime credit limitation with an annual limitation of $1,200. The credit limit with respect to any item of qualified property is generally limited to $600. For windows, the limit is $600 for all exterior windows and skylights combined. In the case of doors, the limit is $250 for any exterior door and $500 for all exterior doors combined. In the case of heat pumps, heat pump water heaters, biomass stoves, and boilers, the annual limit is $2,000 for all such property combined, applied separately from the $1,200 limit described above. The effect of these limits is thus that the maximum possible credit for a taxpayer in a given year is $3,200.

The provision modifies the standards for energy efficient building envelope components such that a qualifying component must meet (1) in the case of an exterior window, a skylight, or an exterior door, the applicable Energy Star program requirements, and (2) in the case of any other component, the prescriptive criteria for such component established by the International Energy Conservation Code ("IECC") standard in effect as of the beginning of the calendar year which is two years prior to the calendar year in which such component is placed in service.

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[45] These standards are a SEER greater than or equal to 16 and EER greater than or equal to 13 for split systems, and SEER greater than or equal to 14 and EER greater than or equal to 12 for packaged systems.

The provision eliminates roofs as building envelope components for purposes of the credit but clarifies that air sealing materials or systems can qualify.

The provision expands the definition of residential energy efficient property expenditures to include expenditures at any dwelling unit located in the United States that is used as a residence by the taxpayer, regardless of whether the taxpayer owns such dwelling unit or whether such dwelling unit is the taxpayer's principal residence.

**Qualified energy property**

The provision modifies the definition of "qualified energy property" to include any of the following which meet or exceed the highest efficiency tier (not including any advanced tier) established by the Consortium for Energy Efficiency which is in effect as of the beginning of the calendar year in which the property is placed in service:

- An electric heat pump water heater;
- An electric heat pump;
- A central air conditioner;
- A natural gas, propane, or oil water heater; or
- A natural gas, propane, or oil furnace or hot water boiler.

Qualified energy property also includes a biomass stove or boiler which (i) uses the burning of biomass fuel to heat a dwelling unit located in the United States and used as a residence by the taxpayer, or to heat water for use in such a dwelling unit, and (ii) has a thermal efficiency rating of at least 75 percent (measured by the higher heating value of the fuel).

The provision also provides a second way for oil furnaces and hot water boilers to be qualified energy property. For property placed in service after 2022 and before 2027, an oil furnace or hot water boiler can qualify if it meets or exceeds 2021 Energy Star efficiency criteria, and is rated by the manufacturer for use with fuel blends at least 20 percent of the volume of which consists of an eligible fuel. For such property placed in service after 2022, it can qualify if it achieves an annual fuel utilization efficiency rate of not less than 90, and is rated by the manufacturer for use with fuel blends at least 50 percent of the volume of which consists of an eligible fuel. For this purpose, an eligible fuel means biodiesel and renewable diesel (within the meaning of section 40A) and second generation biofuel (within the meaning of section 40).

Finally, qualified energy property includes any improvement to, or replacement of, a panelboard, sub-panelboard, branch circuits, or feeders that is installed in a manner consistent with the National Electric Code, has a load capacity of at least 200 amps, and is installed in conjunction with (and is necessary for the installation and use of) any qualified energy efficiency improvements or any qualified energy property.

**Home energy audits**

The provision also adds a 30-percent credit, up to $150, for the amount paid or incurred by the taxpayer during the taxable year for home energy audits. For this purpose, as home

energy audit means an inspection and written report with respect to a dwelling unit located in the United States owned or used by the taxpayer as the taxpayer's principal residence that (1) identifies the most significant and cost-effective energy efficiency improvements with respect to such dwelling unit, including an estimate of the energy and cost savings with respect to each such improvement, and (2) is conducted and prepared by a home energy auditor that meets the certification or other requirements specified by the Secretary.

**Compliance Rules**

Finally, the provision adds several compliance-related rules, consisting of (1) rules giving Treasury authority to treat certain errors related to section 25C as mathematical or clerical errors, and (2) a product identification number requirement, requiring that various credit-eligible products (not including insulation) be assigned a unique identification number by that product's manufacturer.

## Effective Date

The modifications to section 25C generally apply to property placed in service after December 31, 2022. The extension of the section 25C credit applies to property placed in service after December 31, 2021. The product identification number requirement is effective for property placed in service after December 31, 2024.

## 10. Residential clean energy credit (sec. 13302 of the Act and sec. 25D of the Code)

## Present Law Prior to the Enactment of Public Law 117-169

### In general

An income tax credit is available to individuals for the purchase of qualified solar electric property and qualified solar water heating property that is used exclusively for purposes other than heating swimming pools and hot tubs.[46] In general, the credit rate is equal to 30 percent of qualifying expenditures.

A 30-percent credit is also available for the purchase of qualified geothermal heat pump property, qualified small wind energy property, qualified biomass fuel property, and qualified fuel cell power plants. The credit for any fuel cell may not exceed $500 for each 0.5 kilowatt of capacity.

The credit is nonrefundable, but unused tax credits may be carried forward to future tax years. The credit with respect to all qualifying property may be claimed against the alternative minimum tax.

The credit for non-solar property expires for property placed in service after December 31, 2023. The credit rate is reduced to 26 percent for property placed in service in

[46] Sec. 25D.

calendar years 2021 and 2022 and to 22 percent for property placed in service in calendar year 2023.

**Qualified property**

Qualified solar electric property is property that uses solar energy to generate electricity for use in a dwelling unit located in the United States and used as a residence by the taxpayer. Qualifying solar water heating property is property used to heat water for use in a dwelling unit located in the United States and used as a residence by the taxpayer if at least half of the energy used by such property for such purpose is derived from the sun.

A qualified fuel cell power plant is an integrated system comprised of a fuel cell stack assembly and associated balance of plant components that (1) converts a fuel into electricity using electrochemical means, (2) has an electricity-only generation efficiency of greater than 30 percent, and (3) has a nameplate capacity of at least 0.5 kilowatt of electricity using an electrochemical process. The qualified fuel cell power plant must be installed on or in connection with a dwelling unit located in the United States and used by the taxpayer as a principal residence.

Qualified small wind energy property is property that uses a wind turbine to generate electricity for use in connection with a dwelling unit located in the United States and used as a residence by the taxpayer.

Qualified geothermal heat pump property means any equipment which (1) uses the ground or ground water as a thermal energy source to heat the dwelling unit or as a thermal energy sink to cool such dwelling unit, (2) meets the requirements of the Energy Star program which are in effect at the time that the expenditure for such equipment is made, and (3) is installed on or in connection with a dwelling unit located in the United States and used as a residence by the taxpayer.

Qualified biomass fuel property is property which uses the burning of biomass fuel to heat a dwelling unit located in the United States and used as a residence by the taxpayer, or to heat water for use in such a dwelling unit, and which has a thermal efficiency rating of at least 75 percent. The term "biomass fuel" means any plant-derived fuel available on a renewable or recurring basis.

**Additional rules**

The depreciable basis of the property is reduced by the amount of the credit. Expenditures for labor costs allocable to onsite preparation, assembly, or original installation of property eligible for the credit, and for piping and wiring to interconnect such property to the dwelling unit, are eligible expenditures.

Special proration rules apply in the case of jointly owned property, condominiums, and tenant-stockholders in cooperative housing corporations. If less than 80 percent of the property is used for nonbusiness purposes, only that portion of expenditures that is used for nonbusiness purposes is taken into account.

## Changes Made by Public Law 117-169

The provision extends for 11 years, through December 31, 2034, the section 25D residential energy efficient property credit, which is renamed the "residential clean energy credit." The provision also modifies the rate phasedown rules. For property placed in service in calendar years 2021, the credit rate remains 26 percent, as under present law. For property placed in service after December 31, 2021 and before January 1, 2033, the credit rate is 30 percent. For property placed in service in calendar year 2033, the credit rate is reduced to 26 percent, and for property placed in service in calendar year 2034, the credit rate is reduced to 22 percent.

The provision removes from section 25D the credit for biomass fuel property expenditures and adds a credit for expenditures for battery storage technology having a capacity of at least three kilowatts that is installed in connection with a dwelling unit located in the United States and used as a residence by the taxpayer.

## Effective Date

The provision is generally effective for expenditures made after December 31, 2021. The removal from the credit of biomass fuel property expenditures and the addition of battery storage technology expenditures is effective for expenditures made after December 31, 2022.

### 11. Energy efficient commercial buildings deduction (sec. 13303 of the Act and sec. 179D of the Code)

## Present Law Prior to the Enactment of Public Law 117-169

### In general

Section 179D permits a taxpayer an immediate deduction equal to energy-efficient commercial building property expenditures ("EECBP") made by the taxpayer up to a statutory limit. Energy-efficient commercial building property is defined as depreciable or amortizable property (1) which is installed on or in any building located in the United States that meets the applicable building standard of the American Society of Heating, Refrigerating, and Air Conditioning Engineers and the Illuminating Engineering Society of North America ("ASHRAE/IESNA"), (2) which is installed as part of (i) the interior lighting systems, (ii) the heating, cooling, ventilation, and hot water systems, or (iii) the building envelope, and (3) which is certified as being installed as part of a plan designed to reduce the total annual energy and power costs with respect to the interior lighting systems, heating, cooling, ventilation, and hot water systems of the building by 50 percent or more in comparison to a reference building which meets the applicable building standard. The applicable building standard is the most recent ASHRAE/IESNA standard 90.1 that has been published and affirmed by the Secretary in consultation with Secretary of Energy, at least two years prior to the date that construction begins on the property for which the deduction will be claimed. Similarly, the provision requires that the Treasury regulations based on the provisions of the 2005 California Nonresidential Alternative Calculation Method Approval Manual be updated to conform with the most recent such manual as in effect and affirmed by the Secretary in consultation with the Secretary of

Energy, at least two years prior to the date that construction begins on the property for which the deduction will be claimed.

For each building, the deduction is limited to an amount equal to $1.80 per square foot[47] of the property for which such expenditures are made. The deduction is allowed in the year in which the property is placed in service.

Certain certification requirements must be met in order to qualify for the deduction. The Secretary, in consultation with the Secretary of Energy, will promulgate regulations that describe methods of calculating and verifying energy and power costs using qualified computer software based on the provisions of the most recent California Nonresidential Alternative Calculation Method Approval Manual in effect (as affirmed by the Secretary in consultation with the Secretary of Energy, at least two years prior to the date that construction begins on the property for which the deduction will be claimed).

The Secretary is granted authority to prescribe procedures for the inspection and testing for compliance of buildings that are comparable, given the difference between commercial and residential buildings, to the requirements in the Mortgage Industry National Accreditation Procedures for Home Energy Rating Systems.[48] Individuals qualified to determine compliance shall only be those recognized by one or more organizations certified by the Secretary for such purposes.[49]

For energy-efficient commercial building property expenditures made by a Federal, State, or local government or a political subdivision thereof, such as a public school, the deduction may be allocated to the person primarily responsible for designing the energy efficient commercial building property in lieu of the government or political subdivision thereof.

If a deduction is allowed under this section, the basis of the property is reduced by the amount of the deduction.

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[47] Adjusted for inflation using 2019 as the base year; $1.88 for 2022. Rev. Proc. 2021-45, Int. Rev. Bul. 2021-48, p. 770, November 29, 2021.

[48] See IRS Notice 2006-52, 2006-1 C.B. 1175, June 2, 2006; IRS Notice 2008-40, 2008-14 I.R.B. 725 March 11, 2008.

[49] The IRS has specified that only a "qualified individual" (as defined in section 5.05 of IRS Notice 2008-52) can certify that EECBP has met the requirements of the section 179D deduction. A qualified individual is an individual who (1) is not related (within the meaning of section 45(e)(4)) to the taxpayer claiming the deduction under section 179D; (2) is an engineer or contractor that is properly licensed as a professional engineer or contractor in the jurisdiction in which the building is located; and (3) has represented in writing to the taxpayer that the qualified individual has the requisite qualifications to provide the certification required or to perform the inspection and testing required by IRS Notice 2008-40.

**Partial allowance of deduction**

System-specific deductions

In the case of a building that does not meet the overall building requirement of 50-percent energy savings, a partial deduction is allowed with respect to each separate building system that comprises EECBP and which is certified by a qualified individual[50] as meeting or exceeding the applicable system-specific savings targets established by the Secretary. The applicable system-specific savings targets to be established by the Secretary are those that would result in a total annual energy savings with respect to the whole building of 50 percent, if each of the separate systems met the system specific target. The separate building systems are (1) the interior lighting systems, (2) the heating, cooling, ventilation and hot water systems, and (3) the building envelope. The maximum allowable deduction is $0.60 per square foot for each separate system.[51]

Interim rules for lighting systems

In general, in the case of system-specific partial deductions, no deduction is allowed until the Secretary establishes system-specific targets.[52] However, in the case of lighting system retrofits, until such time as the Secretary issues final regulations, the system-specific energy savings target for the lighting system is deemed to be met by a reduction in lighting power density of 40 percent (50 percent in the case of a warehouse) of the minimum requirements in Table 9.3.1.1 or Table 9.3.1.2 of ASHRAE/IESNA Standard 90.1-2007. Also, in the case of a lighting system that reduces lighting power density by 25 percent, a partial deduction of 30 cents per square foot is allowed. A pro-rated partial deduction is allowed in the case of a lighting system that reduces lighting power density between 25 percent and 40 percent. Certain lighting level and lighting control requirements must also be met in order to qualify for the partial lighting deductions under the interim rule.

## Changes Made by Public Law 117-169

**In general**

The provision modifies the section 179D energy efficient commercial buildings deduction. Under the provision, the maximum energy efficient commercial buildings deduction is changed to an amount equal $0.50 per square foot increased (but not above $1.00) by $0.02 for

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[50] *Ibid.*

[51] Adjusted for inflation; $0.63 for 2022. Rev. Proc. 2021-45, Int. Rev. Bul. 2021-48, p. 770, November 29, 2021.

[52] IRS Notice 2008-40, *supra*, set a target of a 10-percent reduction in total energy and power costs with respect to the building envelope, and 20 percent each with respect to interior lighting systems and the heating, cooling, ventilation and hot water systems. IRS Notice 2012-26 (2012-17 I.R.B. 847, April 23, 2012) established new targets of 10-percent reduction in total energy and power costs with respect to the building envelope, 25 percent with respect to interior lighting systems and 15 percent with respect to the heating, cooling, ventilation and hot water systems, effective beginning March 12, 2012. The targets from Notice 2008-40 may be used until December 31, 2013, but the targets of Notice 2012-26 apply thereafter.

each percentage point by which the total annual energy and power costs for the building are certified to be reduced by a percentage greater than 25 percent. This maximum amount represents the total 179D deduction that may be claimed for a building with respect to the current taxable year plus the three preceding taxable years. These amounts are adjusted for inflation after 2022.

The provision also eliminates the partial allowance deduction under section 179D.

**Enhanced deduction where certain wage and apprenticeship requirements are met**

If certain prevailing wage and apprenticeship requirements are met, the maximum energy efficient commercial buildings deduction is increased to an amount equal $2.50 per square foot increased (but not above $5.00) by $0.10 for each percentage point by which the total annual energy and power costs for the building are certified to be reduced by a percentage greater than 25 percent. In the case of any energy efficient commercial building property, energy efficient building retrofit property, or property installed pursuant to a qualified retrofit plan, such property qualifies for these increased credit amounts if the installation of such property begins prior to the date that is 60 days after the Secretary publishes guidance with respect to prevailing wages or apprenticeships. If the installation begins after such date, the prevailing wage and apprenticeship requirements must be satisfied to qualify for the increased credit amounts.

The prevailing wage and apprenticeship requirements follow a structure similar to that set forth in section 45(b)(7) and 45(b)(8), as modified by section 13101 of the Act. Generally, the prevailing wage rules require that the taxpayer ensure that any laborers and mechanics employed by the taxpayer or any contractor or subcontractor in the construction, alteration, or repair of a project are paid wages at a rate not less than the prevailing wage rates for construction, alteration, or repair of a similar character in the locality where the project is located as determined by the Secretary of Labor, in accordance with subchapter IV of chapter 31, of title 40, United States Code. The apprenticeship requirements require that, generally, not less than a certain percentage of total labor hours of the construction, alteration, or repair work (including work performed by any contractor of subcontractor) on a project must be performed by qualified apprentices.[53]

**Modification of efficiency standards**

The provision reduces the amount by which a building must increase its efficiency relative to a reference building in order to be eligible for the section 179D deduction from 50 percent to 25 percent.

The provision also modifies the standard used to calculate the energy efficiency of the reference building. Under the modified rule, the reference standard with respect to any property is the more recent of Standard 90.1-2007 or the most recent Reference Standard 90.1 published by the American Society of Heating, Refrigerating, and Air Conditioning Engineers and the Illuminating Engineering Society of North America ("ASHRAE/IESNA") for which the

[53] See the explanation of section 13101 of the Act for a more detailed description of these requirements, including procedural rules and penalties.

Department of Energy has issued a final determination and which has been affirmed by the Secretary, after consultation with the Secretary of Energy, not later than the date that is four years before such property is placed in service.

**Allocation of deduction by certain tax-exempt entities**

The provision clarifies and expands the list of entities that may allocate their section 179D deductions to the person primarily responsible for designing the qualifying property. Under the expanded definition, the following entities may make such an allocation: the United States, any State or political subdivision thereof, any possession of the United States, or any agency or instrumentality of any of the foregoing, an Indian tribal government or Alaska Native Corporation, and any organization exempt.

**Alternative deduction for energy efficient building retrofit property**

Under the provision, at the election of the taxpayer, there is allowed as a deduction for the taxable year which includes the date of a building's qualifying final certification with respect to a qualified retrofit plan, an amount equal to the lessor of (1) the maximum amount described above (determined by substituting "energy use intensity" for "total annual energy and power costs") or (2) the aggregate adjusted basis of energy efficient retrofit building property placed in service by the taxpayer pursuant to such qualified retrofit plan.

A qualified retrofit plan is a written plan prepared by a qualified professional which specifies modifications to a building which, in the aggregate, are expected to reduce such building's energy use intensity by 25 percent or more in comparison to the baseline energy use intensity of such building. Such plan shall provide for a qualified professional to certify the energy intensity of the building both before and after the retrofit and certify the status of property installed pursuant to the qualified retrofit plan.

Energy efficient building retrofit property ("EEBRP") is depreciable (or amortizable) property installed on or in any qualified building, which is installed as part of the interior lighting systems, the heating, cooling, ventilation, and hot water systems, or the building envelope, and which is certified under the rules described above.

A qualified building must be located in the United States and have been originally placed in service not less than five years before the establishment of the qualified retrofit plan with respect to such building.

The qualifying final certification is, with respect to any qualified retrofit plan, the certification by a qualified professional after the retrofit has been completed certifying that the energy use intensity of the retrofitted building is not more than 75 percent of the baseline energy use intensity of such building.

The term "energy use intensity" means the annualized, measured site energy use intensity determined in accordance with such regulations and other guidance as the Secretary may provide and measured in British thermal units. The baseline energy use intensity means the energy use intensity certified by a qualified professional prior to the retrofit. The energy intensity

comparison may be adjusted to take into account weather under such rules as the Secretary may provide.

A qualified professional is an individual who is a licensed architect or licensed engineer and who meets such other requirements as the Secretary may provide.

**Application to real estate investment trust earnings and profits**

The provision modifies the calculation of earnings and profits[54] to provide that, in the case of a corporation that is a real estate investment trust, any amount that is deductible under section 179D is allowed an earnings and profits adjustment in the year in which the property giving rise to such deduction is placed in service (or, in the case of energy efficient building retrofit property, the year in which the qualifying final certification is made).

## Effective Date

The provision is generally effective for taxable years beginning after December 31, 2022. The rules regarding the alternative deduction for energy efficient building retrofit property are effective for property placed in service after December 31, 2022 (in taxable years ending after such date) if such property is placed in service pursuant to a qualified retrofit plan established after such date.

### 12. New energy efficient home credit (sec. 13304 of the Act and sec. 45L of the Code)

## Present Law Prior to the Enactment of Public Law 117-169

A credit is available to an eligible contractor for each qualified new energy-efficient home that is constructed by the eligible contractor and acquired by a person from such eligible contractor for use as a residence during the taxable year. To qualify as a new energy-efficient home, the home must be: (1) a dwelling located in the United States, (2) substantially completed after August 8, 2005, and (3) certified in accordance with guidance prescribed by the Secretary to have a projected level of annual heating and cooling energy consumption that meets the standards for either a 30-percent or 50-percent reduction in energy usage, compared to a comparable dwelling constructed in accordance with the standards of chapter 4 of the 2006 International Energy Conservation Code as in effect (including supplements) on January 1, 2006, and any applicable Federal minimum efficiency standards for equipment. With respect to homes that meet the 30-percent standard, one-third of such 30-percent savings must come from the building envelope, and with respect to homes that meet the 50-percent standard, one-fifth of such 50-percent savings must come from the building envelope.

Manufactured homes that conform to Federal manufactured home construction and safety standards are eligible for the credit provided all the criteria for the credit are met. The eligible contractor is the person who constructed the home, or in the case of a manufactured home, the producer of such home.

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[54] Sec. 312.

The credit is $2,000 in the case of a new home that meets the 50-percent standard. The credit is $1,000 for a new manufactured home that meets the 30-percent standard.

In lieu of meeting the standards of chapter 4 of the 2006 International Energy Conservation Code, manufactured homes certified by a method prescribed by the Administrator of the Environmental Protection Agency under the Energy Star Labeled Homes program are eligible for the $1,000 credit provided all other applicable criteria are met.

The basis of any property associated with the new energy efficient homes credit is reduced by the amount of any such credit allowed under section 45L.

The credit is part of the general business credit. The credit applies to homes that are purchased prior to January 1, 2022.

## Changes Made by Public Law 117-169

The provision extends and modifies the section 45L credit for new energy efficient homes. The provision extends the credit for 11 years, through December 31, 2032. As described below, the provision replaces the existing credit amounts with a $2,500 credit for new homes that meet certain energy efficiency standards, but which are not certified zero-energy ready, and with a $5,000 credit for new homes that are certified as zero-energy ready homes. For multifamily dwelling units that are part of a building eligible to participate in the Energy Star Multi-family New Construction Program the credit is $500 for new units that meet certain energy efficiency standards, but which are not certified as zero-energy ready, and $1,000 for dwelling units that are certified as zero-energy ready.

For single-family homes, to be eligible for the $2,500 credit, a dwelling unit must meet the following standards, as applicable: (1) in the case of a dwelling unit acquired before January 1, 2025, the Energy Star Single-Family New Homes National Program Requirements 3.1, and (2) in the case of dwelling unit acquired after December 31, 2024, the Energy Star Single-Family New Homes National Program Requirements 3.2. In addition, such dwelling unit must meet the most recent Energy Star Single-Family New Homes Program Requirements applicable to the location of such dwelling unit (as in effect on the latter of January 1, 2023, or January 1 of two calendar years prior to the date such dwelling unit is acquired). In the case of a manufactured home, a dwelling unit is eligible for the $2,500 credit if it meets the most recent Energy Star Manufactured Home National program requirements as in effect on the latter of January 1, 2023, or January 1 of two calendar years prior to the date such dwelling unit is acquired.

A multifamily dwelling unit is eligible for the $500 credit if such unit (1) meets the most recent Energy Star Multifamily New Construction National Program Requirements (as in effect on the latter of January 1, 2023, or January 1 of three calendar years prior to the date such dwelling unit was acquired), and (2) meets the most recent Energy Star Multifamily New Construction Regional Program Requirements applicable to the location of such dwelling unit (as in effect on the latter of January 1, 2023, or January 1 of two calendar years prior to the date such dwelling unit is acquired).

For the $5,000 credit ($1,000 in the case of multifamily housing), a dwelling unit must be certified as a zero-energy ready home under the zero-energy ready home program of the

Department of Energy as in effect on January 1, 2023 (or any successor program determined by the Secretary of the Treasury).

**Enhanced credit amount for multifamily housing where certain wage requirements are met**

If certain prevailing wage requirements are met, the credit for qualifying multifamily dwelling units is increased to $2,500 per unit for those that are not zero-energy ready and to $5,000 per unit for those that are zero-energy ready. In general, to satisfy the prevailing wage requirements, the taxpayer must ensure that any laborers and mechanics employed by the taxpayer or any contractor or subcontractor in the construction of such residence shall be paid wages at a rate not less than the prevailing wage rates for construction, alteration, or repair of a similar character in the locality as determined by the Secretary of Labor, in accordance with subchapter IV of chapter 31, of title 40, United States Code. Rules similar to the rules set forth in section 45(b)(7)(B) of the renewable electricity production credit apply regarding penalties for failing to satisfy the prevailing wage requirements.[55]

**Modification of basis adjustment rule**

The provision modifies the basis reduction rule to clarify that the basis reduction is not taken into account for purposes of determining the amount of the section 42 low-income housing credit. For other purposes, the basis reduction rule is retained.

**Effective Date**

In general, the provision is effective for dwelling units acquired after December 31, 2022. The extension of the credit applies to dwelling units acquired after December 31, 2021.

### 13. Clean vehicle credit (sec. 13401 of the Act and sec. 30D of the Code)

**Present Law Prior to the Enactment of Public Law 117-169**

**In general**

Present law allows a credit for each new qualified plug-in electric drive motor vehicle placed in service (the "EV credit"). A new qualified plug-in electric drive motor vehicle is a motor vehicle the original use of which commences with the taxpayer, is acquired for use or lease and not for resale, is made by a manufacturer,[56] has a gross vehicle weight rating of less than 14,000 pounds, that meets certain emissions standards,[57] and is propelled to a significant

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[55] See the explanation of section 13101 of the Act for a more detailed description of these procedural rules and penalties.

[56] Manufacturer is defined in regulations prescribed by the Administrator of the Environmental Protection Agency for purposes of the administration of title II of the Clean Air Act (42 U.S.C. 7521 *et seq.*). Sec. 30D(d)(3).

[57] Sec. 30D(f)(7).

extent by an electric motor drawing electricity from a battery (1) with at least four kilowatt-hours of capacity and (2) which is capable of being recharged from an external source of electricity.[58]

**EV credit amount**

The base amount of the plug-in electric drive motor vehicle credit is $2,500 and the credit is increased by $417 for each kilowatt-hour of battery capacity in excess of four kilowatt-hours. The maximum credit for a qualified vehicle is $7,500.[59]

**Manufacturer limitation and phaseout**

Once a total of 200,000 credit-eligible vehicles have been sold for use in the United States after December 31, 2009, the credit phases out over four calendar quarters. The phaseout period begins in the second calendar quarter following the quarter during which the vehicle cap has been reached. Taxpayers may claim one-half of the otherwise allowable credit during the first two calendar quarters of the phaseout period and twenty-five percent of the otherwise allowable credit during the next two quarters. After this, no credit is available.[60]

**Other rules**

In general, the credit is available to the vehicle owner, including the lessor of a vehicle subject to lease. If the qualified vehicle is used by certain tax-exempt organizations, governments, or foreign persons and is not subject to a lease, the seller of the vehicle may claim the credit so long as the seller clearly discloses to the user in a document the amount that is allowable as a credit.[61] A vehicle that is predominantly used outside the United States does not qualify for the credit.

The basis of any qualified vehicle is reduced by the amount of the credit.[62] The portion of the credit attributable to vehicles of a character subject to an allowance for depreciation is treated as part of the general business credit; the nonbusiness portion of the credit is allowable to the extent of the excess of the regular tax and the alternative minimum tax (reduced by certain other credits) for the taxable year.[63]

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[58] Sec. 30D(d)(1).

[59] Sec. 30D(b).

[60] Sec. 30D(e).

[61] Sec. 30D(f)(3).

[62] Sec. 30D(f)(1).

[63] Sec. 30D(c).

## Changes Made by Public Law 117-169

### In general

The provision modifies the section 30D credit to apply to new clean vehicles (the "CV credit").

A new clean vehicle is a motor vehicle the original use of which commences with the taxpayer, is acquired for use or lease and not for resale, is made by a qualified manufacturer,[64] has a gross vehicle weight rating of less than 14,000 pounds, that meets certain emissions standards,[65] and is propelled to a significant extent by an electric motor drawing electricity from a battery (1) with at least seven kilowatt-hours of capacity and (2) which is capable of being recharged from an external source of electricity.[66] The person who sells the vehicle must provide a report to the taxpayer and Secretary that includes the name and taxpayer identification number of the taxpayer, the vehicle identification number of the vehicle, the battery capacity of the vehicle, verification that original use of the vehicle commences with the taxpayer, and the maximum credit allowable to the taxpayer with respect to the vehicle.[67] A new clean vehicle must have final assembly occur within North America.[68] A taxpayer must include the vehicle identification number of the vehicle on a tax return to claim the credit.[69]

New qualified fuel cell motor vehicles[70] which have final assembly within North America and for which sellers provide a report, as described above, are new clean vehicles for purposes of the credit.[71]

Vehicles with any applicable critical minerals in the battery that are extracted, processed, or recycled by a foreign entity of concern that are placed in service after December 31, 2024 or vehicles with any components contained in the battery of the vehicle that are manufactured or assembled by a foreign entity of concern that are placed in service after December 31, 2023 do not qualify for the credit.[72]

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[64] A qualified manufacturer must be a manufacturer as defined in regulations prescribed by the Administrator of the Environmental Protection Agency for purposes of the administration of title II of the Clean Air Act (42 U.S.C. 7521 *et seq.*) and must provide periodic written reports to the Secretary which include vehicle identification numbers. Sec. 30D(d)(3).

[65] Sec. 30D(f)(7).

[66] Sec. 30D(d)(1).

[67] Sec. 30D(d)(1)(H).

[68] Sec. 30D(d)(1)(G).

[69] Sec. 30D(f)(9).

[70] As defined in section 30B(b)(3).

[71] Sec. 30D(d)(6).

[72] Sec. 30(d)(7).

**Manufacturer limitation**

The proposal eliminates the credit's limitation on the number of credit eligible vehicles each manufacturer can sell.[73]

**CV credit amount**

The base amount and additional battery capacity amount of the credit are replaced with two $3,750 amounts for satisfying certain criteria. One $3,750 amount is allowed if certain critical minerals requirements for the battery are met.[74] Another $3,750 amount is allowed if certain battery components requirements are met.[75] Therefore, under the provision, a new clean vehicle is eligible for a maximum credit of $7,500 if both critical minerals and battery components requirements are met.

Critical minerals requirement

To satisfy the critical minerals requirement, a new clean vehicle's battery (from which the electric motor draws electricity) must have a percentage of the value of applicable critical minerals[76] that were (1) extracted or processed in the United States or a country that has a free trade agreement with the United States or (2) recycled in North America equal to or greater than an applicable percentage.[77]

For this purpose the applicable percentage is 40 percent for a vehicle placed in service before January 1, 2024. The applicable percentage is 50 percent for a vehicle placed in service during calendar year 2024, 60 percent for 2025, 70 percent for 2026, and 80 percent after 2026.[78]

Battery components requirement

To satisfy the battery components requirement, a new clean vehicle's battery (from which the electric motor draws electricity) must have a percentage of the value of components that were manufactured or assembled in North America equal to or greater than an applicable percentage.[79]

For this purpose the applicable percentage is 50 percent for a vehicle placed in service before January 1, 2024. The applicable percentage is 60 percent for a vehicle placed in service

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[73] Sec. 13401(d) of the Act.

[74] Sec. 30D(b)(2).

[75] Sec. 30D(b)(3).

[76] Critical minerals as defined in sec. 45X(c)(6).

[77] Sec. 30D(e)(1)(A).

[78] Sec. 30D(e)(1)(B).

[79] Sec. 30D(e)(2)(A). This requirement is intended to incentivize the manufacturing or assembly of high-value battery components, such as battery cells, in North America.

during calendar year 2024 or 2025, 70 percent for 2026, 80 percent for 2027, 90 percent for 2028, and 100 percent after 2028.[80]

Regulations and guidance

The Secretary is directed to issue regulations or other guidance to carry out the critical mineral and battery component requirements and must issue proposed guidance no later than December 31, 2022.[81]

Vehicle price and AGI limitations

The provision requires that the manufacturer's suggested retail price ("MSRP") of a new clean vehicle purchased by the taxpayer not exceed certain limitations. That is, the credit amount is $0 if the MSRP for the vehicle exceeds the applicable limitation. This limitation is $80,000 in the case of a van, sport utility vehicle, or pickup truck, and $55,000 in the case of any other vehicle. The Secretary is directed to release regulations or guidance to characterize vehicles into the appropriate category by applying rules similar to those employed by the Environmental Protection Agency ("EPA") and the Department of Energy to determine vehicle class and size.[82]

Additionally, no credit is allowed if the taxpayer's income exceeds $300,000 in the case of a joint return or surviving spouse, $225,000 in the case of a head of household, or $150,000 in the case of any other taxpayer.[83] For purposes of this limitation, the taxpayer's income is the lesser of modified AGI of the current taxable year or modified AGI of the preceding taxable year.[84]

**Transfer of credit**

A taxpayer who has purchased or leased a vehicle may elect to transfer the credit to an eligible entity, subject to regulations or guidance the Secretary deems necessary. The eligible entity is then treated as the taxpayer with respect to the credit.[85] The Secretary is directed to

[80] Sec. 30D(e)(2)(B).

[81] Sec. 30D(e)(3).

[82] Sec. 30D(f)(11).

[83] Sec. 30D(f)(10).

[84] Modified AGI is AGI increased by any amount excluded from gross income under section 911, 931, or 933. Sec. 30D(f)(10)(C).

[85] Sec. 30D(g)(1).

establish a program to provide advance payments of these credit amounts to eligible entities.[86] An election to transfer the credit must be made on or before the date of vehicle purchase.[87]

An eligible entity is a dealer[88] which meets the following requirements: First, the dealer must be registered with the Secretary. Second, prior to the election of transfer, the dealer must disclose information to the buyer on the MSRP price of the vehicle, value of the credit or other incentives available, and the amount provided by the dealer as a condition of an election to transfer. Third, the dealer must pay the taxpayer for the amount of the credit allowable. Finally, the dealer must ensure that the availability or use of any other available manufacturer or dealer incentive does not limit the ability of the taxpayer to make an election and that the election will not limit the value or use of any such incentive.[89] The Secretary may revoke the registration of dealers that fail to comply with these requirements.[90]

The payment made by dealers to buyers in connection with a credit transfer election is not includable in the gross income of the taxpayer and is not deductible to the dealer.[91]

The tax liability of a taxpayer that does not meet the AGI requirements for the credit, that elects to transfer a credit, and that receives a payment in connection with such credit transfer, is increased by the amount of such payment.[92]

**Transition rule**

Taxpayers who entered into written binding contracts to purchase new qualified plug-in electric drive motor vehicles[93] after December 31, 2021 and before the date of enactment of the Act (August 16, 2022), that place a vehicle in service on or after the date of enactment may treat such vehicle as being placed in service on the day before the date of enactment.[94] That is, such vehicles will qualify under rules of section 30D prior to the amendments made by this Act.

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[86] Sec. 30D(g)(7).

[87] Sec. 30D(g)(3).

[88] A dealer is a person licensed by a State, territory of the United States, Indian tribal government, or Alaska Native Corporation to engage in the sale of vehicles. Sec. 30D(g)(8).

[89] Sec 30D(g)(2).

[90] Sec. 30D(g)(4).

[91] Sec. 30D(g)(5).

[92] Sec. 30D(g)(10).

[93] A new qualified plug-in electric drive motor vehicle is defined in section 30D(d)(1) as in effect before the date of enactment of the Act (August 16, 2022).

[94] Sec. 13401(l) of the Act.

## Expiration

No credit is allowed for any vehicle placed in service after December 31, 2032.[95]

## Effective Date

The requirement that final assembly occurs in North America is effective for vehicles sold after the date of enactment (August 16, 2022).

The changes to the credit amount and related critical mineral and battery component requirements apply to vehicles placed in service after the date proposed guidance is issued (no later than December 31, 2022).

The changes relating to the transfer of credit to dealers are effective for vehicles placed in service after December 31, 2023.

All other changes apply to vehicles placed in service after December 31, 2022.

### 14. Credit for previously owned clean vehicles (sec. 13402 of the Act and new sec. 25E of the Code)

## Present Law Prior to the Enactment of Public Law 117-169

No credit exists specifically for previously owned electric vehicles. For a description of the credit for new qualified plug-in electric drive motor vehicles see the description of present law of section 13401 of the Act.

## Changes Made by Public Law 117-169

## In general

The provision creates a credit for previously owned clean vehicles (the previously owned CV credit) placed in service by a qualified buyer. A previously-owned clean vehicle is a motor vehicle with a model year at least two years earlier than the calendar year in which the taxpayer acquires the vehicle, the original use of which commences with a person other than the taxpayer, which has a gross vehicle weight rating of less than 14,000 pounds,[96] which is acquired by the taxpayer in a qualified sale, and that meets certain emissions standards.[97]

A qualified sale is a sale by a dealer[98] that is the first transfer since the date of enactment of this section to a qualified buyer other than the person with whom the original use of such

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[95] Sec. 30D(h).

[96] Sec. 25E(c)(1).

[97] Sec. 25E(e).

[98] A dealer is a person licensed by a State, territory of the United States, Indian tribal government, or Alaska Native Corporation to engage in the sale of vehicles. Sec. 30D(g)(8).

vehicle commenced.[99] A qualified sale does not include transfers to qualified buyers made after the vehicle has been used and owned by a person other than the person with whom the original use of such vehicle commenced, even if such use and ownership was not by a qualified buyer.[100]

Additionally, a previously owned clean vehicle must be an electric vehicle or a fuel-cell vehicle that satisfies certain criteria. Specifically, a previously-owned clean vehicle must also either (1) be propelled to a significant extent by an electric motor drawing electricity from a battery (a) with at least seven kilowatt-hours of capacity and (b) which is capable of being recharged from an external source of electricity, made by a qualified manufacturer, and have the person who sells the vehicle provide a report to the taxpayer and Secretary that includes the name and taxpayer identification number of the taxpayer, the vehicle identification number of the vehicle, the battery capacity of the vehicle, and the maximum credit allowable to the taxpayer with respect to the vehicle,[101] or (2) be propelled by power derived from one or more cells which convert chemical energy directly into electricity by combining oxygen with hydrogen fuel stored on board the vehicle and which has received certain emissions-standard certification.[102]

A taxpayer must include the vehicle identification number of the vehicle on a tax return to claim the credit.[103]

A qualified buyer is an individual who purchases a vehicle for use and not resale, who cannot be claimed as a dependent, and during the three-year period prior to such purchase, has not made any purchases for which a previously owned clean vehicle credit was claimed.

**Previously owned CV credit amount**

The amount of the credit is the lesser of (1) $4,000 or (2) 30 percent of the sale price of the vehicle.[104]

The provision requires that the sale price of a previously owned clean vehicle purchased by the taxpayer not exceed $25,000.[105] That is, the credit amount is $0 if the sale price for the vehicle exceeds this amount.

Additionally, no credit is allowed if the taxpayer's income exceeds $150,000 in the case of a joint return or surviving spouse, $112,500 in the case of a head of household, or $75,000 in

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[99] Sec. 25E(c)(2).

[100] A technical correction may be needed to reflect this intent.

[101] Sec. 25E(c)(1)(D)(i).

[102] Sec. 25E(c)(1)(D)(ii). Fuel cell vehicles must satisfy the requirements of section 30B(b)(3)(A) and (B).

[103] Sec. 25E(d).

[104] Sec. 25E(a).

[105] Sec. 25E(c)(2)(B).

the case of any other taxpayer.[106] For purposes of this limitation, the taxpayer's income is the lesser of modified AGI of the current taxable year or modified AGI of the preceding taxable year.[107]

**Other rules**

In general, the credit is available to the vehicle owner, including the lessor of a vehicle subject to lease. A vehicle must be used predominantly in the United States to qualify for the credit and the basis of any qualified vehicle is reduced by the amount of the credit.[108]

**Transfer of credit**

A taxpayer may elect to transfer the credit to an eligible entity under rules similar to those for the transfer of the clean vehicle credit.[109] These rules are explained in the description of section 13401 of the Act.

**Expiration**

No credit is allowed for any vehicle placed in service after December 31, 2032.[110]

## Effective Date

The provision applies to vehicles acquired after December 31, 2022.

The changes relating to the transfer of credit to dealers are effective for vehicles placed in service after December 31, 2023.

### 15. Qualified commercial clean vehicles (sec. 13403 of the Act and new sec. 45W of the Code)

## Present Law Prior to the Enactment of Public Law 117-169

No credit exists specifically for electric vehicles with a gross vehicle weight rating of 14,000 pounds or more. The present-law credit for new qualified plug-in electric drive motor vehicles (with a gross vehicle weight rating of less than 14,000 pounds) is described in the section describing section 13401 of the Act.

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[106] Sec. 25E(b).

[107] Modified AGI is AGI increased by any amount excluded from gross income under section 911, 931, or 933. Sec. 25E(b)(3).

[108] Secs. 25E(e) and 30D(f).

[109] Sec. 25E(f).

[110] Sec. 25E(g).

## Changes Made by Public Law 117-169

The provision creates a credit for qualified commercial clean vehicles originally[111] placed in service by a taxpayer. A qualified commercial clean vehicle is a vehicle made by a qualified manufacturer,[112] acquired for use or lease by the taxpayer and not for resale, that either (1) is manufactured primarily for use on public streets, roads, and highways,[113] or (2) is mobile machinery,[114] and of a character subject to the allowance of depreciation.[115] A qualified commercial clean vehicle must also meet certain emissions standards.[116]

Additionally, a qualified commercial clean vehicle must be an electric vehicle or a fuel-cell vehicle that satisfies certain criteria. Specifically, a qualified commercial clean vehicle must also either (1) be propelled to a significant extent by an electric motor drawing electricity from a battery (a) with at least 15 kilowatt-hours of capacity (or seven kilowatt-hours for a vehicle with a gross vehicle weight rating of less than 14,000 pounds) and (b) which is capable of being recharged from an external source of electricity[117] or (2) be propelled by power derived from one or more cells which convert chemical energy directly into electricity by combining oxygen with hydrogen fuel stored on board the vehicle and which has received certain emissions-standard certification.[118]

A taxpayer must include the vehicle identification number of the vehicle on a tax return to claim the credit.[119] Only one credit is allowed per vehicle, determined by such vehicle identification number.[120]

**Qualified commercial CV credit amount**

A qualified commercial clean vehicle qualifies for a credit equal to the lesser of (1) 15 percent of the basis of such vehicle (30 percent if the vehicle is not powered by a gasoline or

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[111] A technical correction may be necessary to reflect this intent.

[112] Qualified manufacturer has the same meaning as in section 30D. For more detail see the section describing section 13401 of the Act, the clean vehicle credit.

[113] Vehicles operated exclusively on a rail or rails are excluded.

[114] This is mobile machinery as defined in section 4053(8) and includes vehicles not designed to perform a function of transporting a load over public highways.

[115] Sec. 45W(c).

[116] Sec. 45W(d)(1).

[117] Sec. 45W(c)(3)(A).

[118] Sec. 45W(c)(3)(B). Fuel cell vehicles must satisfy the requirements of sections 30B(b)(3)(A) and (B).

[119] Sec. 45W(e).

[120] Secs. 45W(d)(1) and 30D(f)(8).

diesel internal combustion engine) or (2) the incremental cost of the vehicle.[121] The credit is limited to $40,000 ($7,500 for a vehicle with a gross vehicle weight rating of less than 14,000 pounds).[122]

The incremental cost of the vehicle is the amount by which the purchase price of the vehicle exceeds the purchase price of a comparable vehicle (one powered solely by gasoline or a diesel internal combustion engine which is comparable in size and use).[123]

**Other rules**

The basis of any qualified vehicle is reduced by the amount of the credit.[124] No credit is allowed for any vehicle for which a new clean vehicle credit is allowed.[125]

The requirement that a qualified clean commercial vehicle is of a character subject to the allowance of depreciation does not apply to vehicles that are not subject to a lease and which are placed in service by certain tax-exempt entities.[126]

A vehicle must be used predominantly in the United States to qualify for the credit.[127]

**Regulations and guidance**

The Secretary is directed to issue regulations or other guidance relating to determining the incremental cost of any qualified commercial clean vehicle in addition those necessary to carry out this provision.[128]

**Expiration**

No credit is allowed for any vehicle placed in service after December 31, 2032.[129]

## Effective Date

The provision applies to vehicles acquired after December 31, 2022.

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[121] Sec. 45W(b)(1).

[122] Sec. 45W(b)(4).

[123] Secs. 45W(b)(2) and (3).

[124] Secs. 45W(d)(1) and 30D(f)(1).

[125] Sec. 45W(d)(3).

[126] Sec. 45W(d)(2).

[127] Secs. 45W(d)(1) and 30D(f)(4).

[128] Sec. 45W(f).

[129] Sec. 45W(g).

**16. Alternative fuel refueling property credit (sec. 13404 of the Act and sec. 30C of the Code)**

## Present Law Prior to the Enactment of Public Law 117-169

### In general

Present law allows a credit of 30 percent of the cost of any qualified alternative fuel vehicle refueling property placed in service. Qualified alternative fuel refueling property is property (not including a building and its structural components) of a character subject to the allowance of depreciation (unless installed on property used as the principal residence of the taxpayer) the original use of which begins with the taxpayer. Additionally, qualified alternative fuel refueling property is property (1) for the storage or dispensing of a clean-burning fuel into the fuel tank of a motor vehicle propelled by such fuel but only if the storage or dispensing of fuel is at the point where such fuel is delivered into the fuel tank of the motor vehicle or (2) for the recharging of motor vehicles propelled by electricity, but only if the property is located at the point where the motor vehicles are recharged.[130]

For this purpose a clean-burning fuel is (1) any fuel which is at least 85 percent by volume of one or more of ethanol, natural gas, compressed natural gas, liquified natural gas, liquified petroleum gas, or hydrogen, (2) any mixture consisting of two or more of biodiesel, diesel fuel, or kerosene and with at least 20 percent volume of biodiesel determined without regard to any kerosene in such mixture, or (3) electricity.[131]

The credit amount per location is limited to $30,000 in the case of property of a character subject to an allowance for depreciation and $1,000 in any other case.[132]

### Other rules

The basis of any qualified alternative fuel refueling property is reduced by the amount of the credit.[133] The portion of the credit attributable to property of a character subject to an allowance for depreciation is treated as part of the general business credit; the nonbusiness portion of the credit is allowable to the extent of the excess of the regular tax and the alternative minimum tax (reduced by certain other credits) for the taxable year.[134]

For qualified property used by certain tax-exempt organizations, governments, or foreign persons and that is not subject to a lease, the seller of the property may claim the credit so long as the seller clearly discloses to the user in a document the amount that is allowable as a

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[130] Secs. 30(c)(1) and 179A(d), as in effect immediately before repeal.

[131] Sec. 30C(c)(2).

[132] Sec. 30C(b).

[133] Sec. 30C(e)(1).

[134] Sec. 30C(d).

credit.[135] Property that is predominantly used outside the United States does not qualify for the credit.[136]

## Termination

The credit does not apply to property placed in service after December 31, 2021.

## Changes Made by Public Law 117-169

## In general

The provision modifies and extends, through 2032, the credit for qualified alternative fuel refueling property. First, the present-law version of the credit is extended to include property placed in service after December 31, 2021. For property placed in service after December 31, 2022, all the following changes described below apply.

For depreciable property, the credit is extended at a reduced rate equal to 20 percent of the rate currently available under present law. Thus, for depreciable property placed in service in calendar years 2022 through 2031, the credit rate is six percent. The credit rate remains unchanged at 30 percent for nondepreciable property. The provision also modifies the credit limitation for certain fuel refueling property.

## Modified limitation and location requirements

The provision modifies the limitation on the credit so that it no longer applies per location, instead it applies per item. The new per item limitation is $100,000 for depreciable property and $1,000 in any other case.

Additionally, qualified alternative fuel vehicle refueling property must not be located in an urban area or must be located in a low-income community.[137] An urban area is a census tract which has been designated as an urban area by the Secretary of Commerce, according to the most recent decennial census.[138] A low-income community is a census tract with either (1) a poverty rate of at least 20 percent or (2) median family income which does not exceed 80 percent of the greater of metropolitan area median family income or statewide median family income (for a nonmetropolitan census tract, generally does not exceed 80 percent of statewide median family income).[139]

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[135] Sec. 30C(e)(2).

[136] Sec. 30C(e)(3).

[137] Sec. 30C(c)(3).

[138] Sec. 30C(c)(3)(B)(ii).

[139] Sec. 30C(c)(3)(B)(i). Low-income community has the same meaning as in section 45D(e).

**Modification of qualified alternative fuel vehicle refueling property definition**

The provision modifies the definition of qualified alternative fuel vehicle refueling property to include property that can charge the battery of a motor vehicle propelled by electricity and allows discharging electricity from such battery to an electric load external to the motor vehicle.[140] In addition, qualified alternative fuel vehicle refueling property is modified to include depreciable property designed to charge two- and three-wheeled motor vehicles manufactured for primary use on public streets, roads, or highways that are propelled by electricity.[141]

**Enhanced credit rate where certain prevailing wage and apprenticeship requirements are met**

The credit rate is increased to 30 percent for any depreciable qualified alternative fuel refueling property that is part of a qualified alternative fuel vehicle refueling project.[142] A qualified alternative fuel vehicle refueling project is a project (1) that meets certain prevailing wage and apprenticeship requirements or (2) for which the construction begins prior to the date that is 60 days after the Secretary publishes guidance on such requirements.[143] The Secretary is directed to issue regulations or other guidance deemed necessary to administer these requirements.[144]

The prevailing wage requirements are that the taxpayer must ensure that any laborers and mechanics employed by the taxpayer or any contractors or subcontractors in the construction of any qualified alternative fuel vehicle refueling property which is part of a project are paid wages at a rate not less than the prevailing wage rates for construction, alteration, or repair of a similar character in the locality where the project is located as determined by the Secretary of Labor, in accordance with subchapter IV of chapter 31, of title 40, United States Code.[145] Additionally, correction and penalty procedures for failure to satisfy wage requirements, similar to the rules in section 45(b)(7)(B), apply.[146]

The apprenticeship requirements are that generally not less than a certain percentage of total labor hours of the construction, alteration, or repair work (including work performed by any

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[140] Sec. 30C(c)(2).

[141] Sec. 30C(f).

[142] Sec. 30C(g)(1)(A). A project consists of one or more properties.

[143] Sec. 30C(g)(1)(C).

[144] Sec. 30C(g)(4).

[145] Sec. 30C(g)(2)(A).

[146] Sec. 30C(g)(2)(B). For more detail, see the description of section 13101 of the Act explaining such correction and penalties related to failure to satisfy wage requirements.

contractor of subcontractor) on a project must be performed by qualified apprentices, similar to the rules of section 45(b)(8).[147]

**Alternative fuel refueling property credit termination**

No credit is allowed for any property placed in service after December 31, 2032.

**Effective Date**

Generally, the provision is effective for property placed in service after December 31, 2022.

The change to the termination date of the credit applies to property placed in service after December 31, 2021.

### 17. Extension of the advanced energy project credit (sec. 13501 of the Act and sec. 48C of the Code)

**Present Law Prior to the Enactment of Public Law 117-169**

**In general**

Present law provides a 30-percent credit for investment in qualified property used in a qualifying advanced energy project. Credits are allocated by the Secretary and are capped at $2.3 billion. All credits have been fully allocated.

**Qualifying advanced energy projects**

A qualifying advanced energy project is a project that re-equips, expands, or establishes a manufacturing facility for the production of: (1) property designed to be used to produce energy from the sun, wind, or geothermal deposits, or other renewable resources; (2) fuel cells, microturbines, or an energy storage system for use with electric or hybrid-electric motor vehicles; (3) electric grids to support the transmission of intermittent sources of renewable energy, including storage of such energy; (4) property designed to capture and sequester carbon dioxide emissions; (5) property designed to refine or blend renewable fuels (but not fossil fuels[148]) or to produce energy conservation technologies (including energy-conserving lighting technologies and smart grid technologies); (6) new qualified plug-in electric drive motor vehicles or components which are designed specifically for use with such vehicles, including electric motors, generators, and power control units; or (7) other advanced energy property designed to reduce greenhouse gas emissions as may be determined by the Secretary.[149]

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[147] Sec. 30C(g)(3). For more detail, see the description of section 13101 of the Act explaining apprenticeship requirements.

[148] Sec. 48C(c)(1)(B).

[149] Sec. 48C(c)(1)(A).

Qualified property must be depreciable (or amortizable) property used in a qualifying advanced energy project. Only tangible personal property and other tangible property (not including a building or its structural components) are credit eligible. The basis of qualified property must be reduced by the amount of credit received.[150]

**Certification**

Credits are available only for projects certified by the Secretary, in consultation with the Secretary of Energy. The Secretary has established a certification program for this purpose and has allocated $2.3 billion in credits. No credit is allowed for any qualified investment that is allowed a credit under sections 48, 48A, or 48B.[151]

In selecting projects, the Secretary may consider only those projects where there is a reasonable expectation of commercial viability. In addition, the Secretary must consider other selection criteria, including which projects (1) will provide the greatest domestic job creation, (2) will provide the greatest net impact in avoiding or reducing air pollutants or anthropogenic emissions of greenhouse gases, (3) have the greatest potential for technological innovation and commercial deployment, (4) have the lowest levelized cost of generated or stored energy, or of measured reduction in energy consumption or greenhouse gas emission, and (5) have the shortest project time from certification to completion.[152]

Each project application must be submitted during the two-year period beginning on the date the certification program was established. An applicant for certification has one year from the date the Secretary accepts the application to provide the Secretary with evidence that the requirements for certification have been met. Upon certification, the applicant has three years from the date of issuance of the certification to place the project in service.[153] The Secretary has redistributed credits that were not used in earlier application rounds and all credits have been fully allocated.

**Changes Made by Public Law 117-169**

**In general**

The provision modifies the 30-percent credit for investment in qualified property used in a qualifying advanced energy project and provides an additional $10 billion to be allocated as credits.

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[150] Sec. 50(c).

[151] Sec. 48C(e).

[152] Sec. 48C(d)(3).

[153] Sec. 48C(d)(2).

## Qualifying advanced energy projects

The definition of a qualifying advanced energy project is modified by the provision. Under the provision, a qualifying advanced energy project is a project, certified by the Secretary, that re-equips, expands, or establishes an industrial or manufacturing facility for the production or recycling of: (1) property designed to be used to produce energy from the sun, water, geothermal deposits, or other renewable resources; (2) fuel cells, microturbines, or energy storage systems and components; (3) electric grid modernization equipment or components; (4) property designed to remove, use, or sequester carbon oxide emissions; (5) equipment designed to refine, electrolyze, or blend any fuel, chemical, or product which is (a) renewable or (b) low-carbon and low-emission; (6) property designed to produce energy conservation technologies (including for residential, commercial, and industrial applications); (7) electric or fuel cell vehicles, (a) technologies, components, or materials for such vehicles, and (b) associated charging or refueling infrastructure; (8) hybrid vehicles with a gross vehicle weight rating of not less than 14,000 pounds as well as technologies, components, or materials for such vehicles; or (9) other advanced energy property designed to reduce greenhouse gas emissions as may be determined by the Secretary.[154]

Additionally, a qualifying advanced energy project includes a project, certified by the Secretary, that re-equips an industrial or manufacturing facility with equipment designed to reduce greenhouse gas emissions by at least 20 percent by installing: (1) low- or zero-carbon process heat systems; (2) carbon capture, transport, utilization and storage systems; (3) energy efficiency and reduction in waste from industrial processes; or (4) any other industrial technology designed to reduce greenhouse gas emissions as determined by the Secretary.[155]

Finally, a qualifying advanced energy project also includes a project, certified by the Secretary, that re-equips, expands, or establishes an industrial facility for the processing, refining, or recycling of critical materials.[156]

A qualifying advanced energy project does not include any portion of a project that produces property used in refining or blending of transportation fuel (other than renewable fuel).[157]

## Certification

Credits are available only for projects certified by the Secretary. The Secretary must establish a certification program no later than 180 days after August 14, 2022, the date of enactment of this provision.[158] The provision provides an additional allocation of $10 billion in

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[154] Sec. 48C(c)(1)(A)(i).

[155] Sec. 48C(c)(1)(A)(ii).

[156] Sec. 48C(c)(1)(A)(iii). Critical materials have the same meaning as in 30 U.S.C. sec. 1606(a).

[157] Sec. 48C(c)(1)(B).

[158] Sec. 48C(e)(1).

credits, of which not more than $6 billion may be allocated to projects that are not in a census tract that is (1) an energy community (as described in section 45(b)(11)(B)(iii)) and (2) prior to August, 16, 2022, the date of enactment of this provision, had no projects that received a certification or allocation of credits under section 48C(d).[159] The selection criteria for projects is not modified by the provision. No credit is allowed for any qualified investment that was allowed a credit under sections 45Q, 45V, 48, 48A, 48B, or 48E.[160]

Each project application must be submitted according to the timeline established by the Secretary. An applicant for certification has two years from the date the Secretary accepts the application to provide the Secretary with evidence that the requirements for certification have been met. Upon certification, the applicant has two years from the date of issuance of the certification to place the project in service. An applicant's certification is invalid if the project is not placed in service in the required time period or if the Secretary determines the project has been placed in a location materially different than the location specified in the application for such project. For each certification, the Secretary must publicly disclose the credit amount allocated to and the identity of each applicant.[161]

**Credit rate and wage and apprenticeship requirements**

The base credit rate is reduced to 6 percent for investment in qualified property used in a qualifying advanced energy project.[162] The credit rate is increased to 30 percent if certain prevailing wage and apprenticeship requirements are met.[163]

The prevailing wage requirements are that the taxpayer must ensure that any laborers and mechanics employed by the taxpayer or any contractors or subcontractors in the reequipping, expansion, or establishment of a manufacturing facility are paid wages at a rate not less than the prevailing wage rates for construction, alteration, or repair of a similar character in the locality where the project is located as determined by the Secretary of Labor, in accordance with subchapter IV of chapter 31, of title 40, United States Code.[164] Additionally, correction and penalty procedures for failure to satisfy wage requirements, similar to the rules in section 45(b)(7)(B), apply.[165]

The apprenticeship requirements are that generally not less than a certain percentage of total labor hours of the construction, alteration, or repair work (including work performed by any

[159] Sec. 48C(e)(2).

[160] Sec. 48C(f).

[161] Sec. 48(e)(7).

[162] Sec. 48(c)(4)(A).

[163] Sec. 48(c)(4)(B).

[164] Sec. 48C(e)(5)(A).

[165] Sec. 48C(e)(5)(B). For more detail, see the description of section 13101 of the Act which explains such correction and penalties related to failure to satisfy wage requirements.

contractor of subcontractor) on a project must be performed by qualified apprentices, similar to the rules of section 45(b)(8).[166]

## Effective Date

The provision is effective on January 1, 2023.

### 18. Advanced manufacturing production credit (sec. 13502 of the Act and new sec. 45X of the Code)

## Present Law Prior to the Enactment of Public Law 117-169

An allocated 30-percent credit for investment in qualified property used in a qualifying advanced energy project is allowed under section 48C. Qualifying advanced energy projects include projects that re-equip, expand, or establish a manufacturing facility for the production of, among other items, property designed to produce energy from the sun, wind, or other renewable resources and components designed specifically for use in new qualified plug-in electric drive motor vehicles.[167] The credits have been fully allocated under present law.

Additionally, a 25-percent investment credit for qualified investments in an advanced manufacturing facility is allowed under section 48D. An advanced manufacturing facility is a facility the primary purpose of which is the manufacturing of semiconductors or semiconductor manufacturing equipment.

Finally, a production credit for electricity produced from certain renewable resources is allowed under section 45. This credit provides various cents per kilowatt-hour amounts for electricity produced from wind, biomass, geothermal, municipal solid waste, and qualified hydropower for a period of 10 years after a facility has been placed in service.[168]

No production credit is specifically designed under present law to encourage the production of eligible components in the United States.

## Changes Made by Public Law 117-169

### In general

The provision provides credits for eligible components that are produced by the taxpayer and sold to an unrelated person during the taxable year.[169] Eligible components include any

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[166] Sec. 48C(e)(6). For more detail, see the description of section 13101 of the Act which explains such apprenticeship requirements.

[167] For more detail, see the description of section 13501 of the Act which provides a summary of current section 48C.

[168] For more detail, see the description of section 13101 of the Act which provides a summary of current section 45.

[169] Sec. 45X(a)(1).

solar energy component (solar modules, photovoltaic cells, photovoltaic wafers, solar grade polysilicon, torque tubes or structural fasteners, and polymeric backsheets), any wind energy component (blades, nacelles, towers, offshore wind foundations, and related offshore wind vessels), certain inverters (central, commercial, distributed wind, microinverter, residential, and utility), any qualifying battery component (electrode active materials, battery cells, and battery modules), and any applicable critical mineral.[170] The production and sale of eligible components must be in the trade of business of the taxpayer.[171]

An eligible component that is integrated, incorporated, or assembled into another eligible component which is then sold to an unrelated person is treated having been sold to an unrelated person for purposes of this credit.[172]

A taxpayer can sell components to a related person and still qualify for the credit if the related person sells such components to an unrelated person or the taxpayer makes an election and meets certain requirements the Secretary deems necessary to prevent duplication, fraud, or any improper or excessive amount of credit.[173] Likewise, a vertically integrated manufacturer that produces eligible components and integrates, incorporates, or assembles them as part of a product that is sold to an unrelated person may qualify for the credit.

**Credit amounts**

Table 3 shows the credit amount for certain eligible components.

**Table 3.–Credit amount for certain eligible components**[174]

| Eligible Component | Credit Amount |
|---|---|
| Thin film photovoltaic cell or crystalline photovoltaic cell | 4 cents times the capacity of the cell (per direct current watt basis) |
| Photovoltaic wafer | $12 per square meter |
| Solar grade polysilicon | $3 per kilogram |
| Polymeric backsheet | 40 cents per square meter |

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[170] Sec. 45X(c)(1)(A). Any property produced by a facility that has received a credit under section 48C after the date of enactment (August 16, 2022) is not an eligible component. Sec. 45X(c)(1)(B). Any property produced by a facility that is co-located with a facility that has received a credit under section 48C may be an eligible component if such facilities are separable.

[171] Sec. 45X(a)(2).

[172] Sec. 45X(d)(4).

[173] Sec. 45X(a)(3).

[174] Sec. 45X(b)(1).

| Eligible Component | Credit Amount |
| --- | --- |
| Solar module | 7 cents times the capacity of the module (per direct current watt basis) |
| Torque tube | 87 cents per kilogram |
| Structural fastener | $2.28 per kilogram |
| Central inverter | .25 cents times the capacity of the inverter (per alternating current watt basis) |
| Utility inverter | 1.5 cents times the capacity of the inverter (per alternating current watt basis) |
| Commercial inverter | 2 cents times the capacity of the inverter (per alternating current watt basis) |
| Residential inverter | 6.5 cents times the capacity of the inverter (per alternating current watt basis) |
| Microinverter or distributed wind inverter | 11 cents times the capacity of the inverter (per alternating current watt basis) |

The credit for a related offshore wind vessel is 10 percent of the sales price of the vessel.[175] Table 4 presents the rates for other wind energy components. For this purpose, total rated capacity relates to the completed wind turbine for which the component is designed.[176]

[175] Sec. 45X(b)(1)(F)(i).

[176] Sec. 45X(b)(1)(F)(ii)(II).

**Table 4.–Credit Amount for Certain Wind Energy Components**[177]

| Wind Energy Component | Credit Amount |
|---|---|
| Blade | 2 cents times the total rated capacity (per watt basis) |
| Nacelle | 5 cents times the total rated capacity (per watt basis) |
| Tower | 3 cents times the total rated capacity (per watt basis) |
| Offshore wind foundation using a fixed platform | 2 cents times the total rated capacity (per watt basis) |
| Offshore wind foundation using a floating platform | 4 cents times the total rated capacity (per watt basis) |

The credit for electrode active minerals and applicable critical minerals is 10 percent of the costs incurred by the taxpayer with respect to production of the minerals.[178]

The credit for a battery cell is $35 times the capacity of the cell (kilowatt-hour basis). The credit for a battery module is $10 ($45 if the battery module does not use battery cells) times the capacity of the battery module (kilowatt-hour basis).[179] For both battery cells and modules, the capacity taken into account for the credit cannot exceed a ratio of such capacity to maximum discharge of 100 to 1.[180]

**Applicable critical minerals**

Generally, applicable critical minerals are certain minerals converted to other forms or purified to a certain minimum purity by mass.[181] These minerals are listed in table 5.

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[177] Sec. 45X(b)(1)(F)(ii) and (b)(2)(A).

[178] Sec. 45X(b)(1)(J) and (M).

[179] Sec. 45X(b)(1)(K) and (L).

[180] Sec. 45X(b)(4).

[181] Sec. 45X(c)(6).

**Table 5.–Certain Minerals**[182]

| | | | | |
|---|---|---|---|---|
| Aluminum | Antimony | Barite | Beryllium | Cerium |
| Cesium | Chromium | Cobalt | Dysprosium | Europium |
| Fluorspar | Gadolinium | Germanium | Graphite | Indium |
| Lithium | Manganese | Neodymium | Nickel | Niobium |
| Tellurium | Tin | Tungsten | Vanadium | Yttrium |
| Arsenic | Bismuth | Erbium | Gallium | Hafnium |
| Holmium | Iridium | Lanthanum | Lutetium | Magnesium |
| Palladium | Platinum | Praseodymium | Rhodium | Rubidium |
| Ruthenium | Samarium | Scandium | Tantalum | Terbium |
| Thulium | Titanium | Ytterbium | Zinc | Zirconium |

**Credit phaseout**

The credit begins to phase out in 2030.[183] Specifically, for eligible components sold during calendar years 2030, 2031, and 2032, the otherwise allowable amount of credit is reduced by 25 percent, 50 percent, and 75 percent, respectively. This phasedown does not apply to applicable critical minerals.[184]

The credit is fully phased out for all eligible components after 2032; that is, no credit is allowed for any eligible component after December 31, 2032.[185]

**Special rules**

The credit only applies to sales where the eligible components are produced within the United States or U.S. territories.[186] This requirement is not intended to apply to subcomponents or materials used to produce eligible components.

[182] *Ibid.*

[183] Sec. 45X(b)(3).

[184] Sec. 45X(b)(3)(C).

[185] A technical correction may be necessary to reflect this intent.

[186] Sec. 45X(d)(2).

Rules for common control and estates and trusts similar to those of section 52(b) and (d) apply.[187]

## Effective Date

The provision is effective for components produced and sold after December 31, 2022.

### 19. Reinstatement of Superfund (sec. 13601 of the Act and sec. 4611 of the Code)

## Present Law Prior to the Enactment of Public Law 117-169

The Superfund program addresses cleanup activity of hazardous substances at contaminated sites. Before January 1, 1996, an excise tax on domestic crude oil and imported petroleum products (the "Hazardous Substance Superfund financing rate") was imposed at the rate of 9.7 cents per barrel.[188] The Hazardous Substance Superfund financing rate ceased to apply after December 31, 1995.

## Changes Made by Public Law 117-169

The Hazardous Substance Superfund financing rate is reinstated at 16.4 cents per barrel. The tax is annually indexed for inflation beginning with calendar year 2024.

## Effective Date

The provision is effective January 1, 2023.

### 20. Permanent extension of tax rate to fund Black Lung Disability Trust Fund (sec. 13901 of the Act and sec. 4121 of the Code)

## Present Law Prior to the Enactment of Public Law 117-169

Before January 1, 2022, coal extracted from mines was taxed at either $1.10 per ton if from an underground mine or $0.55 per ton if from a surface mine. The total amount of tax was not to exceed 4.4 percent of the price at which such ton of coal was sold by the producer.

After December 31, 2021, the "temporary increase termination date," the tax rates declined to rates of $0.50 for underground mines and $0.25 for surface mines. After the temporary increase termination date, the total amount of tax is not to exceed two percent of the price at which such ton of coal is sold by the producer.

## Changes Made by Public Law 117-169

The provision eliminates the "temporary increase termination date" and makes permanent the higher rates of $1.10 per ton (for underground mines) and $0.55 per ton (for a surface mine).

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[187] Sec. 45X(d)(1) and (3).

[188] Sec. 4611(c)(2)(A).

The total amount of tax is not to exceed 4.4 percent of the price at which such ton of coal was sold by the producer.

## Effective Date

The provision applies to sales in calendar quarters beginning after the date which is one day after the date of enactment.

## B. Energy Tax Provisions Changed by Public Law 117-169 That Have a Delayed Effective Date

### 1. Zero-emission nuclear power production credit (sec. 13105 of the Act and new sec. 45U of the Code)

#### Present Law Prior to the Enactment of Public Law 117-169

Taxpayers producing electricity at a qualifying advanced nuclear power facility may claim a credit equal to 1.8 cents per kilowatt-hour of electricity produced for the eight-year period starting when the facility is placed in service.[189] The aggregate amount of credit that a taxpayer may claim in any year during the eight-year period is subject to limitation based on allocated capacity and an annual limitation as described below.

An advanced nuclear facility is any nuclear facility that uses nuclear power to produce electricity, the reactor design for which was approved after 1993 by the Nuclear Regulatory Commission. For this purpose, an advanced nuclear facility does not include any facility for which a substantially similar design for a facility of comparable capacity was approved before 1994.

A qualifying advanced nuclear facility is an advanced nuclear facility for which the taxpayer has received an allocation of megawatt capacity from the Secretary and is placed in service before January 1, 2021. The taxpayer may only claim credit for production of electricity equal to the ratio of the allocated capacity that the taxpayer receives from the Secretary to the rated nameplate capacity of the taxpayer's facility. For example, if the taxpayer receives an allocation of 750 megawatts of capacity from the Secretary and the taxpayer's facility has a rated nameplate capacity of 1,000 megawatts, then the taxpayer may claim three-quarters of the otherwise allowable credit, or 1.35 cents per kilowatt-hour, for each kilowatt-hour of electricity produced at the facility (subject to the annual limitation described below).

The credit is restricted to 6,000 megawatts of national capacity. To the extent any amount of the 6,000 megawatts of authorized capacity remains unutilized after December 31, 2020, the Secretary is required to allocate such capacity first to facilities placed in service before 2021, to the extent such facilities did not receive an allocation equal to their full nameplate capacity, and then to facilities placed in service after such date in the order in which such facilities are placed in service. The placed-in-service sunset date of January 1, 2021, does not apply with respect to allocations of such unutilized national megawatt capacity.

A taxpayer operating a qualified facility may claim no more than $125 million in tax credits per 1,000 megawatts of allocated capacity in any one year of the eight-year credit period. If the taxpayer operates a 1,350 megawatt rated nameplate capacity system and has received an allocation from the Secretary for 1,350 megawatts of capacity eligible for the credit, the

[189] Sec. 45J. The 1.8-cents credit amount is reduced, but not below zero, if the annual average contract price per kilowatt-hour of electricity generated from advanced nuclear power facilities in the preceding year exceeds eight cents per kilowatt-hour. The eight-cent price comparison level is indexed for inflation after 1992 (14.4 cents for 2022).

taxpayer's annual limitation on credits that may be claimed is equal to 1.35 times $125 million, or $168.75 million. If the taxpayer operates a facility with a nameplate rated capacity of 1,350 megawatts, but has received an allocation from the Secretary for 750 megawatts of credit eligible capacity, then the two limitations apply such that the taxpayer may claim a credit effectively equal to one cent per kilowatt-hour of electricity produced (calculated as described above) subject to an annual credit limitation of $93.75 million in credits (three-quarters of $125 million).

Qualified public entities may to elect to forgo credits to which they otherwise would be entitled in favor of an eligible project partner. Qualified public entities are defined as (1) a Federal, State, or local government of any political subdivision, agency, or instrumentality thereof; (2) a mutual or cooperative electric company; or (3) a not-for-profit electric utility that has or had received a loan or loan guarantee under the Rural Electrification Act of 1936.[190] An eligible project partner generally includes any person who designed or constructed the nuclear power plant, participates in the provision of nuclear steam or nuclear fuel to the power plant, or has an ownership interest in the facility. In the case of a facility owned by a partnership, where the credit is determined at the partnership level, any electing qualified public entity is treated as the taxpayer with respect to such entity's distributive share of such credits, and any other partner is an eligible project partner.

The credit is part of the general business credit.

## Changes Made by Public Law 117-169

### In general

The provision creates a new credit for the production of nuclear power produced in the United States by the taxpayer at a qualified nuclear power facility and sold by the taxpayer to an unrelated person. A qualified nuclear power facility is any nuclear facility which (1) is owned by the taxpayer (including successor owner-taxpayers) and uses nuclear energy to produce electricity, (2) is not an advanced nuclear power facility under section 45J, and (3) is placed in service before the date of enactment of the provision.

The credit rate is 0.3 cents per kilowatt-hour of nuclear power production. The total credit for the taxable year is reduced (but not below zero) by a "reduction amount" equal to 16 percent of the excess of the gross receipts from any electricity produced by such facility (including any electricity services or products provided in conjunction with the electricity produced by such facility) and sold to an unrelated person during the taxable year, over the number of kilowatts sold to unrelated persons times 2.5 cents. In calculating the reduction amount, gross receipts generally include payments with respect to a qualified nuclear power facility as a result of any Federal, State or local government program for, in whole or in part, the zero-emission, zero-carbon, or air quality attributes of any portion of the electricity produced by such facility. However, such payments are excluded from gross receipts for purposes of the reduction amount calculation if the full amount of the credit is used to reduce such payments.

[190] 7 U.S.C. sec. 901 *et seq.*

The 0.3 cent and 2.5 cent amounts are adjusted for inflation using calendar year 2023 as the base year.

The credit is part of the general business credit. The provision expires for taxable years beginning after December 31, 2032.

**Increased credit amount for qualified nuclear power facilities**

The total amount of the credit is multiplied by five for qualified nuclear power facilities that meet certain prevailing wage requirements.

The prevailing wage requirements generally follow the structure established in section 13101 of the Act, which modifies the renewable electricity production credit. Generally, the prevailing wage rules require that the taxpayer ensure that any laborers and mechanics employed by the taxpayer or any contractor or subcontractor in the alteration or repair of a facility are paid wages at a rate not less than the prevailing wage rates for alteration or repair of a similar character in the locality where the project is located as determined by the Secretary of Labor, in accordance with subchapter IV of chapter 31, of title 40, United States Code.[191]

## Effective Date

The provision applies to electricity produced and sold after December 31, 2023, in taxable year beginning after such date.

### 2. Clean electricity production credit (sec. 13701 of the Act and new sec. 45Y of the Code)

## Present Law Prior to the Enactment of Public Law 117-169

See the explanation of section 13101 of the Act (which extends and modifies the section 45 renewable electricity production credit) for a description of present law.

## Changes Made by Public Law 117-169

**In general**

The provision creates a new credit for electricity produced by the taxpayer at a qualified facility and sold to an unrelated person during the taxable year. The credit is also available where such electricity is consumed or stored by the taxpayer during the taxable year and there is no third-party sale, but only if the qualified facility is equipped with a metering device owned and operated by an unrelated person. The credit is available for electricity produced during the 10-year period beginning when the qualified facility is originally placed in service.

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[191] See the explanation of section 13101 for a more detailed description of these requirements, including procedural rules and penalties. Because qualified nuclear power facilities must be placed in service prior to the date of enactment of the provision, the prevailing wage rules for such facilities relate only to alteration or repair, not construction.

Consumption, sales, or storage are only taken into account with respect to electricity produced within the United States or a possession of the United States.

The base credit rate is 0.3 cents per kilowatt-hour. This amount is increased to 1.5 cents per kilowatt-hour for facilities with a maximum output of less than one megawatt of electricity (as measured in alternating current) and for facilities that meet certain prevailing wage and apprenticeship requirements (or for which construction began more than 60 days before the Secretary publishes guidance with respect to such prevailing wage and apprenticeship requirements). These amounts are adjusted for inflation in a manner similar to the inflation adjustment under section 45(b)(2),[192] with the credit adjusted using 1992 as the base year and increased in increments of one-twentieth of a cent for the base credit and one-tenth of a cent for the enhanced credit. The inflation adjustments must be published annually be the Secretary no later than April 1 of each calendar year.

A qualified facility is an electricity generation facility owned by the taxpayer that is placed in service after December 31, 2024, and for which the greenhouse gas emissions rate is not greater than zero. With respect to a facility placed in service before January 1, 2025, a qualified facility includes new units and additions to capacity placed in service after December 31, 2024. A qualified facility does not include any facility for which a credit is allowed under sections 45, 45J, 45Q, 45U, 48, 48A, or 48E for the taxable year or any prior taxable year.

The greenhouse gas emissions rate means the amount of greenhouse gases emitted into the atmosphere by a facility in the production of electricity, expressed as grams of carbon dioxide equivalents per kilowatt-hour ("$CO_2e$ per KWh"; see definitions below for how this is measured). In the case of a facility which produces electricity through combustion or gasification, the greenhouse gas emissions rate for such facility shall be equal to the net rate of greenhouse gases emitted into the atmosphere by such facility (taking into account lifecycle greenhouse gas emissions, as described in section 211(o)(1)(H) of the Clean Air Act) in the production of electricity, expressed as grams of $CO_2e$ per KWh.

The provision directs the Secretary to publish annually greenhouse gas emissions rates for types or categories of facilities, for use by taxpayers to determine whether a facility qualifies. In the case of any facility for which an emissions rate has not been established by the Secretary, a taxpayer which owns such a facility may file a petition with the Secretary for a determination of the emissions rate with respect to such facility.

The amount of greenhouse gases emitted into the atmosphere by a facility in the production of electricity does not include any qualified carbon dioxide that is captured by the taxpayer and sequestered in secure geological storage under rules similar to the rules applicable under section 45Q(f) or utilized by the taxpayer in a manner described in section 45Q(f)(5).[193]

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[192] As amended by section 13101 of the Act.

[193] Thus, in addition to zero emission facilities that generate electricity from solar, wind, geothermal, and nuclear energy, facilities that generate electricity using a combustion technology could also theoretically qualify if sufficient carbon oxides are captured and sequestered or utilized.

The credit is part of the general business credit.

**Phaseout of credit**

The credit begins to phase out in the "applicable year," which is defined as the later of 2032 or the calendar year in which the Secretary determines that the annual greenhouse gas emissions from the production of electricity in the United States are equal to or less than 25 percent of the annual greenhouse gas emissions from the production of electricity in the United States for calendar year 2022. The credit is reduced by 25 percent for a facility the construction of which begins during the second calendar year following the applicable year, by 50 percent for a facility the construction of which begins during the third calendar year following the applicable year, and by 100 percent for a facility the construction of which begins during any subsequent calendar year.

**Wage and apprenticeship requirements**

The prevailing wage and apprenticeship requirements follow a structure similar to that set forth in section 45(b)(7) and 45(b)(8), as modified by section 13101 of the Act. Generally, the prevailing wage rules require that the taxpayer ensure that any laborers and mechanics employed by the taxpayer or any contractor or subcontractor in the construction, alteration, or repair of a project are paid wages at a rate not less than the prevailing wage rates for construction, alteration, or repair of a similar character in the locality where the project is located as determined by the Secretary of Labor, in accordance with subchapter IV of chapter 31, of title 40, United States Code. The apprenticeship requirements require that, generally, not less than a certain percentage of total labor hours of the construction, alteration, or repair work (including work performed by any contractor of subcontractor) on a project must be performed by qualified apprentices.[194]

**Definitions and guidance**

Under the provision, $CO_2$e per KWh means, with respect to any greenhouse gas, the equivalent carbon dioxide (as determined based on global warming potential) per kilowatt hour of electricity produced. The term greenhouse gas has the same meaning given such term under section 211(o)(1)(G) of the Clean Air Act, as in effect on the date of the provision's enactment. Qualified carbon dioxide means carbon dioxide captured from an industrial source which (1) would otherwise be released into the atmosphere as industrial emission of greenhouse gas, (2) is measured at the source of capture and verified at the point of disposal or utilization, and (3) is captured and disposed or utilized within the United States or a possession of the United States.

The Secretary is required to issue guidance regarding implementation of the provision no later than January 1, 2025, including guidance on the calculation of greenhouse gas emission rates for qualified facilities and the determination of clean electricity production credits.

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[194] See the explanation of section 13101 of the Act for a more detailed description of these requirements, including procedural rules and penalties.

**Combined heat and power system property**

For purposes of determining the clean electricity production credit, the kilowatt hours of electricity produced by a taxpayer at a qualified facility include any production in the form of useful thermal energy by any combined heat and power system property within such facility, and the amount of greenhouse gases emitted into the atmosphere by such facility in the production of such useful thermal energy is included for purposes of determining the greenhouse gas emissions rate for such facility. For this purpose the term combined heat and power system property has the same meaning given such term for purposes of the section 48 energy credit, without regard to the sunset date, capacity limitations, or special biomass rule. The amount of kilowatt-hours of electricity produced in the form of useful thermal energy equals the total useful thermal energy produced by the combined heat and power system property within the qualified facility divided by the heat rate for such facility. For this purpose, the heat rate means the amount of energy used by the qualified facility to generate one kilowatt-hour of electricity, expressed as British thermal units per net kilowatt-hour generated.

**Energy communities bonus**

In the case of any qualified facility which is located in an energy community (as defined in section 45(b)(11)(B), as amended by the Act),[195] the credit amount is increased by 10 percent.

**Credit reduced for tax-exempt bonds**

The credit is reduced for tax-exempt bonds under rules similar to the rules of section 45(b)(3), as amended by the Act.[196]

**Domestic content bonus**

The provision increases the credit by 10 percent (calculated without regard to the energy communities bonus) if certain domestic content requirements are met. The domestic content requirements are generally the same as those set forth in section 45(b)(9), as amended by the Act,[197] except that the percentage of content that must be domestically produced with respect to manufactured products is different. For the clean electricity production credit, except with respect to offshore wind facilities, the percentage is 40 percent for a facility the construction of which begins before January 1, 2025, 45 percent for a facility the construction of which begins in calendar year 2025, 50 percent for a facility the construction of which begins in calendar year 2026, and 55 percent for a facility the construction of which begins after December 31, 2026. For offshore wind facilities, the percentage is 20 percent for a facility the construction of which begins before January 1, 2025, 27.5 percent for a facility the construction of which begins in calendar year 2025, 35 percent for a facility the construction of which begins in calendar year

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[195] See description of section 13101 of the Act.

[196] *Ibid.*

[197] *Ibid.*

2026, and 45 percent for a facility the construction of which begins in calendar year 2027, and 55 percent for a facility the construction of which begins after December 31, 2027.

**Reduction of elective payment if domestic content rules are not satisfied**

As provided for in section 13801 of the Act (described below), certain taxpayers may elect to have the credit paid directly to the extent there is insufficient tax liability to absorb the credit. The current provision contains a special rule reducing the amount of this direct payment if the domestic content requirements described above for the bonus credit are not satisfied. This rule is similar to that provided in section 45(b)(10), as modified by 13101 of the Act, except that the payment is reduced by 10 percent if construction of the facility begins in calendar year 2024, by 15 percent if construction the facility begins in calendar year 2025, and by 100 percent if the construction of the facility begins after December 31, 2025.

As with rule set forth in section 45(b)(10), an exception applies if the Secretary determines that the inclusion of steel, iron, or manufactured products which are produced in the United States increases the overall costs of construction of qualified facilities by more than 25 percent, or if the relevant steel, iron, or manufactured products are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality.

**Special rules**

In the case of a qualified facility in which more than one person has an ownership interest, except to the extent provided in regulations prescribed by the Secretary, production from the facility shall be allocated among such persons in proportion to their respective ownership interests in the gross sales from such facility.

Persons shall be treated as related to each other if such persons would be treated as a single employer under the regulations prescribed under section 52(b). In the case of a corporation which is a member of an affiliated group of corporations filing a consolidated return, such corporation shall be treated as selling electricity to an unrelated person if such electricity is sold to such a person by another member of such group.

With respect to trusts and estates, under rules prescribed by the Secretary, rules similar to the rules of section 52(d) apply, which for any taxable year apportion the amount of a credit between an estate or trust and its beneficiaries on the basis of the income of the estate or trust allocable to each.

In the case of agricultural cooperatives, rules similar to the rules of section 45(e)(11) apply, which provide rules for allocating credits to patrons of such cooperatives.

## Effective Date

The provision applies to facilities placed in service after December 31, 2024.

### 3. Clean electricity investment credit (sec. 13702 of the Act and new sec. 48E of the Code)

**Present Law Prior to the Enactment of Public Law 117-169**

See the explanation of section 13102 of the Act (which modifies the energy credit) for a description of present law.

**Changes Made by Public Law 117-169**

**In general**

The provision creates a clean electricity investment credit equal to the applicable percentage of qualified investment for any taxable year with respect to any qualified facility and any energy storage technology. The base rate is 6 percent. This base rate is increased to 30 percent (the "alternative rate") for facilities with a maximum output of less than one megawatt of electricity (as measured in alternating current) and for facilities that meet certain prevailing wage and apprenticeship requirements (or for which construction began more than 60 days before the Secretary publishes guidance with respect to such prevailing wage and apprenticeship requirements).

The credit is part of the general business credit.

**Qualified investment with respect to a qualified facility**

For purposes of determining the amount of the credit, a qualified investment with respect to any qualified facility for the taxable year is the sum of the basis of any qualified property placed in service by the taxpayer during such taxable year which is part of a qualified facility, plus the amount of any expenditures that are paid or incurred by the taxpayer for qualified interconnection property. The qualified interconnection property must be properly chargeable to a capital account of the taxpayer and placed in service during the taxpayer's taxable year in connection with a qualified facility that has a maximum net output of no more than five megawatts (as measured in alternating current).

Qualified property is tangible personal property or other tangible property (not including a building or its structural components), but only if such property is used as an integral part of a qualified facility. In addition, such property must consist of depreciable or amortizable property that is either built by the taxpayer or the original use of which begins with the taxpayer.

A qualified facility is an electricity generation facility owned by the taxpayer that is placed in service after December 31, 2024, and for which the greenhouse gas emissions rate is not greater than zero. With respect to a facility placed in service before January 1, 2025, a qualified facility includes new units and additions to capacity placed in service after December 31, 2024. The greenhouse gas emissions rate is determined using rules similar to the rules set

forth in section 45Y(b)(2) and the terms “greenhouse gas,” “greenhouse gas emissions rate,” and “$CO_2$e per KWh” have the same meaning given such terms under section 45Y.[198]

A qualified facility does not include any facility for which a credit is allowed under sections 45, 45J, 45Q, 45U, 45Y, 48, or 48A for the taxable year or any prior taxable year. The qualified investment with respect to any qualified facility for any taxable year does not include that portion of the basis of any property which is attributable to qualified rehabilitation expenditures (as defined in section 47(c)(2)).

Qualified interconnection property has the meaning given such term in section 48(a)(8)(B), as modified by section 13102 of the Act.

**Qualified investment with respect to energy storage technology**

The qualified investment with respect to energy storage technology for any taxable year is the basis of any energy storage technology placed in service by the taxpayer during such taxable year. The term “energy storage technology” has the meaning given such term in section 48(c)(6) (except that subparagraph (D) of such section shall not apply), as modified by section 13102 of the Act.

**Wage and apprenticeship requirements**

The prevailing wage and apprenticeship requirements follow the structure established in sections 48(a)(10) and 45(b)(8), respectively, as modified by sections 13101 and 13102 of the Act. Generally, the prevailing wage rules require that the taxpayer ensure that any laborers and mechanics employed by the taxpayer or any contractor or subcontractor in the construction, alteration, or repair of a project are paid wages at a rate not less than the prevailing wage rates for construction, alteration, or repair of a similar character in the locality where the project is located as determined by the Secretary of Labor, in accordance with subchapter IV of chapter 31, of title 40, United States Code. The apprenticeship requirements require that, generally, not less than a certain percentage of total labor hours of the construction, alteration, or repair work (including work performed by any contractor of subcontractor) on a project must be performed by qualified apprentices, similar to the rules of section 45(b)(8).[199]

**Certain progress expenditure rules made applicable**

Rules similar to the rules of subsections (c)(4) and (d) of section 46 (as in effect on the day before the date of the enactment of the Revenue Reconciliation Act of 1990) apply.

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[198] See description of section 13701 of the Act.

[199] See the explanations of sections 13101 and 13102 of the Act for more detailed descriptions of these requirements, including procedural rules and penalties.

**Credit reduced for tax-exempt bonds**

The credit is reduced for tax-exempt bonds under rules similar to the rules of section 45(b)(3), as amended by the Act.[200]

**Phaseout of credit**

The credit phases out under rules similar to the rules set forth in section 45Y(d)(3), as set forth in section 13701 of the Act.

**Recapture of the credit**

If the Secretary determines that the greenhouse gas emissions rate for a qualified facility is greater than 10 grams of $CO_2e$ per KWh, any property for which a credit was allowed under this section with respect to such facility ceases to be investment credit property in the taxable year in which the determination is made and such credit is subject to recapture under the rules of section 50.

**Energy communities bonus**

If energy property is placed in service in an "energy community," the provision increases the base rate by two percentage points and the alternative rate by ten percentage points. The definition of energy community is that same that set forth in section 45(b)(11)(B), as modified by section 13101 of the Act.

**Domestic content bonus**

An additional credit amount is available for property that meets certain domestic content requirements similar to those used in section 48 but applying the adjusted percentage set forth in section 45Y(g)(11)(C).[201]

**Reduction of elective payment if domestic content rules are not satisfied**

In the case of a taxpayer making an election under section 6417 with respect to a credit under this section, rules similar to the rules of section 45Y(g)(12) apply.

**Special rules for certain facilities placed in service in connection with low-income communities**

The provision creates a bonus credit amount for certain qualified facilities placed in service in connection with low-income communities. The bonus credit amount is an allocated credit and follows rules similar to the rules set forth in section 48(e), as modified by section 13103 of the Act. Under the clean electricity investment credit, the annual capacity limitation is 1.8 gigawatts of direct current capacity for each calendar year beginning on January 1, 2025, and

[200] *Ibid.*

[201] A technical correction may be necessary to reflect this intent.

ending on December 31 of the applicable year (as defined by section 45Y(d)(3)),[202] and zero thereafter. Certain carryover rules apply with respect to unused limitation amounts.

## Effective Date

The provision applies to property placed in service after December 31, 2024.

### 4. Cost recovery for qualified facilities, qualified property, and energy storage technology

## Present Law Prior to the Enactment of Public Law 117-169

**In general**

A taxpayer generally must capitalize the cost of property used in a trade or business or held for the production of income and recover such cost over time through annual deductions for depreciation or amortization.[203] The period for depreciation or amortization generally begins when the asset is placed in service by the taxpayer.[204] Tangible property generally is depreciated under the modified accelerated cost recovery system ("MACRS"), which determines depreciation for different types of property based on an assigned applicable depreciation method, recovery period, and placed in service convention.[205] For some assets, the recovery period for the asset is provided in section 168.[206] In other cases, the recovery period of an asset is generally set forth in Revenue Procedure 87-56.[207]

The MACRS recovery periods applicable to most tangible personal property range from three to 20 years. The depreciation methods generally applicable to tangible personal property are the 200-percent and 150-percent declining balance methods,[208] switching to the straight line

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[202] See description of section 13701 of the Act.

[203] See secs. 263(a) and 167. In general, only the tax owner of property (*i.e.*, the taxpayer with the benefits and burdens of ownership) is entitled to claim tax benefits such as cost recovery deductions with respect to the property. In addition, where property is not used exclusively in a taxpayer's business, the amount eligible for a deduction must be reduced by the amount related to personal use. See, *e.g.*, sec. 280A.

[204] See Treas. Reg. secs. 1.167(a)-10(b), -3, -14, and 1.197-2(f). See also Treas. Reg. sec. 1.167(a)-11(e)(1)(i).

[205] Sec. 168.

[206] See sec. 168(e) and (g).

[207] 1987-2 C.B. 674 (as clarified and modified by Rev. Proc. 88-22, 1988-1 C.B. 785). Exercising authority granted by Congress, the Secretary issued Rev. Proc. 87-56, laying out the framework of recovery periods for enumerated classes of assets. The Secretary clarified and modified the list of asset classes in Rev. Proc. 88-22, 1988-1 C.B. 785. In November 1988, Congress revoked the Secretary's authority to modify the class lives of depreciable property. Rev. Proc. 87-56, as modified, remains in effect except to the extent that the Congress has, since 1988, statutorily modified the recovery period for certain depreciable assets, effectively superseding any administrative guidance with regard to such property.

[208] Under the declining balance method the depreciation rate is determined by dividing the appropriate percentage (here 150 or 200) by the appropriate recovery period. This leads to accelerated depreciation when the

method for the first taxable year where using the straight line method with respect to the adjusted basis as of the beginning of that year yields a larger depreciation allowance. The recovery periods for most real property are 39 years for nonresidential real property, 27.5 years for residential rental property, and 15 years for qualified improvement property. The straight line depreciation method is required for the aforementioned real property.

**Five-year cost recovery for certain energy property**

A five-year MACRS recovery period is generally provided for certain energy investment credit property,[209] qualified biomass property,[210] and ocean thermal energy property.[211]

Energy investment credit property eligible for the five-year recovery period includes (i) equipment using solar or wind energy to generate electricity (*e.g.*, solar panels), to heat or cool (or provide hot water for use in) a structure, or to provide solar (or wind) process heat (except for property used to generate energy to heat a swimming pool); (ii) equipment using solar energy to illuminate the inside of a structure using fiber-optic distributed sunlight or electrochromic glass using electricity to change its light transmittance properties in order to heat or cool a structure;[212] (iii) equipment used to produce, distribute, or use energy derived from a geothermal deposit; (iv) qualified fuel cell or microturbine property;[213] (v) combined heat and power system property;[214] (vi) qualified small wind energy property;[215] (vii) equipment using the ground or ground water as

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declining balance percentage is greater than 100. The table below illustrates depreciation for an asset with a cost of $1,000 and a seven-year recovery period under the 200-percent declining balance method, the 150-percent declining balance method, and the straight line method.

| Recovery method | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Total |
|---|---|---|---|---|---|---|---|---|
| 200-percent declining balance | 285.71 | 204.08 | 145.77 | 104.12 | 86.77 | 86.77 | 86.77 | 1,000.00 |
| 150-percent declining balance | 214.29 | 168.37 | 132.29 | 121.26 | 121.26 | 121.26 | 121.26 | 1,000.00 |
| Straight-line | 142.86 | 142.86 | 142.86 | 142.86 | 142.86 | 142.86 | 142.86 | 1,000.00 |

*Details may not add to totals due to rounding.

[209] Secs. 168(e)(3)(B)(vi)(I) and 48(a)(3)(A).

[210] Secs. 168(e)(3)(B)(vi)(II) and 48(l)(15) (as in effect on the day before the date of the enactment of the Revenue Reconciliation Act of 1990).

[211] Secs. 168(e)(3)(B)(vi)(III) and 48(l)(3)(A)(ix) (as in effect on the day before the date of the enactment of the Revenue Reconciliation Act of 1990).

[212] But only with respect to property the construction of which begins before January 1, 2025. Sec. 48(a)(3)(A)(ii) (described above).

[213] But only with respect to property the construction of which begins before January 1, 2025. Sec. 48(a)(3)(A)(iv), (c)(1)(E), and (c)(2)(D) (described above).

[214] But only with respect to property the construction of which begins before January 1, 2025. Sec. 48(a)(3)(A)(v) and (c)(3)(A)(iv) (described above).

[215] But only with respect to property the construction of which begins before January 1, 2025. Sec. 48(a)(3)(A)(vi) and (c)(4)(C) (described above).

a thermal energy source (or sink) to heat (or cool) a structure;[216] (viii) waste energy recovery property;[217] (ix) energy storage technology;[218] (x) qualified biogas property;[219] and (xi) microgrid controllers.[220] The five-year recovery period also generally applies to public utility property that otherwise qualifies as energy investment credit property, notwithstanding any other provision of law.[221]

Qualified biomass property eligible for the five-year recovery period includes property with a power production capacity of not greater than 80 megawatts that also qualifies as certain biomass property, including (i) a boiler, the primary fuel for which will be an alternate substance; (ii) a burner (including necessary on-site equipment to bring the alternate substance to the burner) for a combustor other than a boiler if the primary fuel for such burner will be an alternate substance; (iii) equipment for converting an alternate substance into a qualified fuel; (iv) certain pollution control equipment; or (v) equipment used for the unloading, transfer, storage, reclaiming from storage, and preparation (including, but not limited to, washing, crushing, drying, and weighing) at the point of use of an alternative substance for use in equipment described in (i), (ii), or (iii).[222] The five-year recovery period also generally applies to public utility property that otherwise qualifies as qualified biomass property, notwithstanding any other provision of law.[223]

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[216] But only with respect to property the construction of which begins before January 1, 2035. Sec. 48(a)(3)(A)(vii) (described above).

[217] But only with respect to property the construction of which begins before January 1, 2025. Sec. 48(a)(3)(A)(viii) and (c)(5)(D) (described above).

[218] But only with respect to property the construction of which begins before January 1, 2025. Sec. 48(a)(3)(A)(ix) and (c)(6)(D) (described above).

[219] But only with respect to property the construction of which begins before January 1, 2025. Sec. 48(a)(3)(A)(x) and (c)(7)(C) (described above).

[220] But only with respect to property the construction of which begins before January 1, 2025. Sec. 48(a)(3)(A)(xi) and (c)(8)(C) (described above).

[221] Sec. 168(e)(3)(B) flush language.

[222] Secs. 168(e)(3)(B)(vi)(II) and 48(l)(15) (as in effect on the day before the date of enactment of the Revenue Reconciliation Act of 1990). For this purpose, the term "alternative substance" means any substance other than (i) oil and natural gas, (ii) any product of oil and natural gas, (iii) any inorganic substance, and (iv) coal (including lignite) or any product of such coal. Sec. 48(l)(15)(B) (as in effect on the day before the date of enactment of the Revenue Reconciliation Act of 1990). The term "qualified fuel" means (i) any synthetic solid fuel, and (ii) alcohol for fuel purposes if the primary source of energy for the facility producing the alcohol is not oil or natural gas or a product of oil or natural gas. Sec. 48(l)(15)(C) (as in effect on the day before the date of enactment of the Revenue Reconciliation Act of 1990).

[223] Sec. 168(e)(3)(B) flush language.

Ocean thermal energy property eligible for the five-year recovery period includes equipment that converts ocean thermal energy into usable energy at one of two locations designated by the Secretary of the Treasury after consultation with the Secretary of Energy.[224]

**Changes Made by Public Law 117-169**

Public Law 117-169 adds a new clause (viii) in section 168(e)(3)(B), which provides a five-year MACRS recovery period for any qualified facility,[225] any qualified property[226] which is a qualified investment,[227] and any energy storage technology,[228] as those terms are defined purposes of the clean electricity production and clean electricity investment credits described above.

**Effective Date**

The provision applies to facilities and property placed in service after December 31, 2024.

**5. Clean fuel production credit (sec. 13704 of the Act and new sec. 45Z of the Code)**

**Present Law Prior to the Enactment of Public Law 117-169**

Present law contains an assortment of income tax credit, excise tax credit and payment provisions for various biofuels and other alternative fuels when sold or used as a fuel. These include incentives for biodiesel, renewable diesel, several different alternative fuels, as well as second generation biofuel.[229]

**Changes Made by Public Law 117-169**

**Clean fuel production credit**

For transportation fuel, the provision creates a new general business credit, the "Clean Fuel Production Credit." "Transportation fuel" is a fuel suitable for use as a fuel in a highway vehicle or aircraft, has a lifecycle greenhouse gas emissions rate which is not greater than 50

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[224] Secs. 168(e)(3)(B)(vi)(III) and 48(l)(3)(A)(ix) (as in effect on the day before the date of the enactment of the Revenue Reconciliation Act of 1990).

[225] See sec. 45Y(b)(1)(A).

[226] See sec. 48E(b)(2).

[227] See sec. 48E(b)(1).

[228] See sec. 48E(c)(2).

[229] See secs. 40(b)(6), 40A, 6426 and 6427(e).

kilograms of $CO_2e$ per mmBTU, and is not derived from coprocessing an applicable material (or material derived from an applicable material) with a feedstock which is not biomass.[230]

The credit is the product of (1) the applicable amount per gallon (or gallon equivalent) of transportation fuel produced and sold by the taxpayer under specified circumstances and (2) the emissions factor for such fuel. To qualify for the credit, the transportation fuel must be produced at a qualified facility and sold by the taxpayer to an unrelated person (1) for use by such person in the production of a fuel mixture, (2) for use by such person in a trade or business, or (3) who sells such fuel at retail into the fuel tank of another person.

The "applicable amount" is either a "base amount" or an "alternative amount" depending on whether certain requirements are met. The base amount is 20 cents per gallon for transportation fuel produced at a qualified facility that does not satisfy certain prevailing wage and apprenticeship requirements. For transportation fuel produced at a qualified facility that does satisfy those requirements, the alternative amount is $1.00 per gallon. For transportation fuel that is sustainable aviation fuel, the base amount is 35 cents, and the alternative amount is $1.75. "Sustainable aviation fuel" means liquid fuel, the portion of which is not kerosene, which is sold for use in an aircraft, and which meets the requirements of either ASTM International Standard D7566, or the Fischer Tropsch provisions of ASTM International Standard D1655, Annex A1; and is not derived from palm fatty acid distillates or petroleum.

Fuel must be produced at a qualified facility

A "qualified facility" is a facility used for the production of transportation fuels and does not include any facility for which one of the following credits is allowed under section 38 for the taxable year: section 45V (the credit for production of clean hydrogen), section 46 to the extent that such credit is attributable to the energy credit determined under section 48 with respect to any specified clean hydrogen production facility for which an election has been made under section 48(a)(15), or section 45Q (the credit for carbon oxide sequestration).

Emissions factor calculation and establishment by the Secretary

The emissions factor of a transportation fuel is an amount equal to the quotient of (1) 50 kilograms of $CO_2e$ per mmBTU minus the emissions rate for such fuel, divided by (2) 50 kilograms of $CO_2e$ per mmBTU.[231]

The Secretary is required to publish a table that sets forth the emission rate for similar types and categories of transportation fuels based on the amount of lifecycle greenhouse gas emissions (as described in section 211(o)(1)(H) of the Clean Air Act (42 U.S.C. 7545(o)(1)(H)) as in effect on the date of enactment of this section) for such fuels, expressed as kilograms of $CO_2e$ per mmBTU, which a taxpayer shall use for the purposes of this provision.

[230] "Applicable material" means monoglycerides, diglycerides, and triglycerides, free fatty acids, and fatty acid esters. The term "biomass" has the same meaning given such term in section 45K(c)(3).

[231] An emissions rate for a fuel could be a negative number, which would result in a fraction greater than one.

In the case of transportation fuel that is not sustainable aviation fuel, the lifecycle greenhouse gas emissions of such fuel shall be based on the most recent determinations under the Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation model ("GREET") developed by Argonne National Laboratory, or a successor model (as determined by the Secretary).

In the case of transportation fuel that is sustainable aviation fuel, the lifecycle greenhouse gas emissions of such fuel shall be determined in accordance with (1) the most recent Carbon Offsetting and Reduction Scheme for International Aviation that has been adopted by the International Civil Aviation Organization ("ICAO") with the agreement of the United States, or (2) any similar methodology which satisfies the criteria under section 211(o)(1)(H) of the Clean Air Act (42 U.S.C. 7545(o)(1)(H)) as in effect on the date of enactment of this provision.

The Secretary may round the emissions rates for purposes of the table to the nearest five kilograms of $CO_2e$ per mmBTU. However, in the case of an emissions rate that is between 2.5 kilograms of $CO_2e$ per mmBTU and -2.5 kilograms $CO_2e$ per mmBTU, the Secretary may round such rate to zero.

Petition for provisional emissions rate

In the case of any transportation fuel for which an emissions rate has not been established by the Secretary, a taxpayer producing such fuel may file a petition with the Secretary for determination of the emissions rate with respect to such fuel.

Inflation adjustment

In the case of calendar years beginning after 2024, the 20-cent amount, $1.00 amount, 35 cent amount and $1.75 amount are adjusted by multiplying such amount by the inflation adjustment factor for the calendar year in which the sale or use of the transportation fuel occurs. If any amount as increased is not a multiple of one cent, such amount is to be rounded to the nearest one cent. The inflation adjustment factor is the inflation adjustment factor determined and published by the Secretary under the new clean electricity production credit (section 45Y), determined by substituting "calendar year 2022" for "calendar year 1992."

Guidance and special rules

Not later than January 1, 2025, the Secretary is required to issue guidance with regard to the implementation of the provision, including the calculation of emissions factors for transportation fuel, the required table of emissions rates, and the determination of clean fuel production credits under the provision.

To be entitled to the clean fuel production credit, the taxpayer must be registered with the IRS as a producer of clean fuel at the time of production. Such fuel must be produced in the United States. In addition, in the case of any transportation that is sustainable aviation fuel, the taxpayer must provide certification (in such form and such manner as the Secretary prescribes) from an unrelated party demonstrating compliance with (1) any general requirements, supply chain traceability requirements, and information transmission requirements established under the Carbon Offsetting and Reduction Scheme for International Aviation or similar methodology

which satisfies the criteria under section 211(o)(1)(H) of the Clean Air Act as in effect on the date of enactment of this provision.

In the case of a facility in which more than one person has an ownership interest, except to the extent provided in Treasury regulations, production from such facility shall be allocated among such persons in proportion to their respective ownership interests in the gross sales from such facility.

Persons shall be treated as related to each other if such persons would be treated as a single employer under the regulations prescribed under section 52(b). In the case of a corporation which is a member of an affiliated group of corporations filing a consolidated return, such corporation shall be treated as selling fuel to an unrelated person if such fuel is sold to such a person by another member of such group.

In the case of estates and trusts, under regulations prescribed by the Secretary, rules similar to the rules of section 52(d) shall apply. In the case of agricultural cooperatives, an election may be made to apportion the credit determined among the patrons of the cooperative on the basis of business done by the patrons during the taxable year.

**Prevailing wage and apprenticeship requirements for purposes of the alternative amount**

To obtain the alternative amount, the transportation fuel must be produced at a qualified facility that satisfies the prevailing wage and apprenticeship requirements. Rules similar to the rules of section 45(b)(7) (prevailing wage requirements) apply.

A special rule applies for facilities placed in service before January 1, 2025. For those facilities, section 45(b)(7)(A)(i) (related to the construction of such facility) does not apply. In addition, section 45(b)(7)(A)(ii) is to be applied to alteration and repairs of a qualified facility with respect to a taxable year beginning after December 31, 2024, for which a clean fuel production credit is allowed.[232]

Rules similar to section 45(b)(8) (relating to apprenticeship requirements) apply for the purpose of the clean fuel production credit.

**Termination**

The provision does not apply to transportation fuel sold after December 31, 2027.

## Effective Date

The provision is effective for transportation fuel produced after December 31, 2024.

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[232] A technical correction may be required to apply this special rule to the apprenticeship requirements.

## C. Credit Monetization Changes Made by Public Law 117-169

### 1. Description of tax equity strategies available prior to the enactment of Public Law 117-169

**In general**

Prior to the enactment of Public Law 117-169, none of the Code's energy-related income tax incentives contained a direct payment feature or were otherwise refundable.[233] Several energy tax credits contained limited transferability features, but most could not be transferred to other taxpayers. However, some tax planning strategies existed and continue to exist to help taxpayers monetize these incentives. These strategies include taking advantage of credit carryback and carryforward rules and using partnership structures to allocate credits and deductions to taxpayer-partners with excess tax liability.

**Grants in lieu of credits under the American Recovery and Reinvestment Act of 2009**

The American Recovery and Reinvestment Act of 2009 ("ARRA") permitted taxpayers to elect to receive grants in lieu of certain tax credits for specific energy property placed in service in 2009, 2010, or 2011, or the construction of which began during 2009, 2010, or 2011 and placed in service before the termination of the grant program.[234] This program is commonly referred to as the 1603 grant program, after the section number in ARRA that created it. Specified energy property consisted of property that was part of an electricity production facility otherwise eligible for the section 45 renewable electricity production credit or qualifying property otherwise eligible for the section 48 energy credit.[235]

The 1603 grant program terminated for property placed in service after 2012 for wind facility property, after 2013 for other renewable power facility property eligible for credit under section 45, and after 2016 for any other specified energy property described in section 48. All grant applications had to have been received before October 1, 2012.[236]

Under the program, no renewable electricity production credit or energy credit could be claimed with respect to property for which a grant had been paid. In addition, no 1603 grants could be awarded to any Federal, State, or local government (or any political subdivision, agency, or instrumentality thereof) or any section 501(c) tax-exempt entity. Rules similar to the

[233] Certain fuel excise tax credits allowed under section 6426 could be taken as a payment under section 6427(e) or under section 34(a)(3).

[234] Sec. 1603 of Pub. L. No. 111-5, as amended by sec. 707 of Pub. L. No. 111-312, The Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010.

[235] *Ibid.*

[236] *Ibid.*

rules set forth in Code section 50, including basis reduction and recapture rules, applied to the grant program. [237]

At the end of 2013, the Treasury Inspector General for Tax Administration ("TIGTA") released a report reviewing the 1603 grant program.[238] The report concluded that the "IRS needs a process to identify taxpayers that receive Section 1603 grants as well as ITC [investment tax credit] benefits from the same property." [239] The report further concluded that a taxpayer that had claimed a grant but not a tax credit on an original return could claim a credit on an amended return and potentially avoid detection by the IRS. In such cases, the report concluded that the "IRS has no indicator to identify that the taxpayer had received a Section 1603 grant for that or similar property and that the amended return may need additional review to ensure an ITC [investment tax credit] was not incorrectly claimed."[240]

**Present and prior law credit carryback and carryforward rules**

Although not generally described as a tax equity strategy, the credit carryback and carryforward rules provide taxpayers having insufficient current year tax liability with a means of utilizing their credits by offsetting tax liability from other tax years. Under present and prior law, taxpayers with insufficient current-year tax liability may generally carryback excess general business credits one year and carry them forward up to 20 years.[241] As described in the below, Public Law 117-169 modified section 39 to permit taxpayers to carryback certain energy credits three years (instead of one year).[242] Under present and prior law, individual credits cannot be carried back, although some, such as the credit for residential energy efficient property,[243] may be carried forward.

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[237] *Ibid.*

[238] Inspector General for Tax Administration, Department of the Treasury, *Review of Section 1603 Grants In Lieu of Energy Investment Tax Credit* (TIGTA 2014-IE-R006), December 17, 2013.

[239] *Ibid.*, p. 4.

[240] *Ibid.*

[241] Sec. 39.

[242] Sec. 39(a)(4), effective for taxable years beginning after December 31, 2022. The three-year carryback period applies to applicable credits as defined in section 6417(b) (i.e., the credit for alternative fuel vehicle refueling property, the renewable electricity production credit, the carbon oxide sequestration credit, the zero-emission nuclear power production credit, the credit for production of clean hydrogen, the credit for qualified commercial vehicles (only in the case of certain tax-exempt entities), the credit for advanced manufacturing production, the clean electricity production credit, the clean fuel production credit, the energy credit, the qualifying advanced energy project credit, and the clean electricity investment credit).

[243] Sec. 25D.

**Present and prior law credit transfer rules**

Prior to the enactment of Public Law 117-169, a very limited number of credits contained transferability features. Several of these rules remain in effect under present law. In addition, in the case of certain corporate ownership changes, section 383 imposes limitations on the use of unused general business credits.[244]

The advanced nuclear power credit allows certain public entities to elect to transfer credits to certain eligible project partners.[245] For purposes of this rule, public entities are generally government entities, mutual or cooperative electric companies, and not-for-profit electric utilities that have received a loan or loan guarantee under the Rural Electrification Act of 1936.[246] An eligible project partner is generally a person with an ownership interest in the nuclear facility or one who participated in the design, construction, operation, fueling or financing of such facility.[247]

In the case of credits for carbon oxide sequestration, depending on when the carbon capture equipment was placed in service, credits are attributable to taxpayers that either capture the carbon oxide or own the equipment that captures such carbon oxide.[248] However, credit-eligible taxpayers may elect to transfer their credits to the person that disposes, uses, or utilizes such qualified carbon oxide.[249]

Finally, under prior law, in the case of electric vehicles placed in service by a tax-exempt entity or foreign person, the taxpayer that sold the vehicle to such entity or person can claim the credit, if such seller makes certain disclosures to the entity or person. This provision was repealed by Public Law 117-169.[250]

**Structured finance tax equity strategies**

Prior to the enactment of the Public Law 117-169, many taxpayers used partnership structures to shift energy-related tax credits to taxpayers with sufficient current-year tax liability to use them. These structures accomplish this shifting by taking advantage of the partnership allocation rules that are generally available under partnership tax law and which remain in effect under present law.

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[244] See sec. 383(a) and Treas. Reg. sec. 1.383-1.

[245] Sec. 45J(e).

[246] Sec. 45J(e)(2).

[247] *Ibid.*

[248] Sec. 45Q(f)(3).

[249] *Ibid.*

[250] Sec. 13401(g)(2) of the Act.

The most common type of structure is referred to as a flip partnership. In a basic flip partnership there are two partners, the project developer (who develops the project) and the tax equity investor (who has sufficient income tax liability to use the tax credits). For example, with a project claiming the renewable electricity production tax credit, the partnership may be structured to allocate or pass through 99 percent of income, loss, and tax credits to the tax equity investor during the 10-year credit period (or a shorter period conditioned upon the tax equity investor having achieved an agreed after-tax internal rate of return).[251] At the end of that period, these allocations "flip" with the tax equity investor's share of the allocations dropping to five percent. The partnership agreement will generally provide the project developer with the option to buy the tax equity investor's remaining interest after this flip has occurred. The IRS has published guidance providing safe harbor rules for partnership flip transactions relating to renewable electricity production credits.[252] Projects eligible for investment credits also use these structures. Although investment credit projects cannot technically rely on the IRS safe harbors,[253] they typically follow the rules set forth in the IRS guidance.

### 2. Elective payment for energy property and electricity produced from certain renewable resources, etc. (sec. 13801 of the Act and new sec. 6417 of the Code)

#### In general

In the case of an applicable entity making an election (at such time and in such manner as the Secretary may provide) with respect to any applicable credit determined with respect to such entity, such entity is treated as making a payment against the tax imposed by subtitle A of the Code (for the taxable year with respect to which such credit was determined) equal to the entire amount of such credit (a "direct payment").[254]

The applicable credits are: (1) the business credit portion of the alternative fuel vehicle refueling property credit,[255] (2) the renewable electricity production credit (to the extent attributable to qualified facilities originally placed in service after December 31, 2022),[256] (3) the carbon oxide sequestration credit (to the extent attributable to carbon capture equipment which is originally placed in service after December 31, 2022),[257] (4) the zero-emission nuclear power production credit,[258] (5) the clean hydrogen production credit (to the extent attributable to qualified clean hydrogen production facilities that are originally placed in service after December

[251] Treas. Reg. secs. 1.46-3(f) and 1.704-1(b)(4)(ii).

[252] See Revenue Procedure 2007-65, later revised in Announcement 2009-69.

[253] See Chief Counsel Advice 201524024, June 12, 2015.

[254] Because the payment is treated as a payment against tax, it is not income for income tax purposes.

[255] Sec. 30C.

[256] Sec. 45.

[257] Sec. 45Q.

[258] Sec. 45U.

31, 2012),[259] (6) in the case of a tax-exempt entity described in clause (i), (ii), or (iv) of section 168(h)(2)(A), the credit for qualified commercial vehicles determined under section 45W by reason of subsection (d)(2) thereof, (7) the credit for advanced manufacturing production,[260] (8) the clean electricity production credit,[261] (9) the clean fuel production credit,[262] (10) the energy credit,[263] (11) the qualifying advanced energy project credit,[264] and (12) the clean electricity investment credit.[265]

In general, an applicable entity is (1) any tax-exempt organization, (2) any State or political subdivision thereof, (3) the Tennessee Valley Authority, (4) any Indian tribal government, (5) any Alaska Native Corporation, or (6) any corporation operating on a cooperative basis which is engaged in furnishing electric energy to persons in rural areas.[266] With certain limitations, entities not included in this list ("nonlist entities") may make an election and be treated as an applicable entity with respect to the section 45V qualified clean hydrogen production credit, the section 45Q carbon oxide sequestration credit, and the section 45X advanced manufacturing production credit. No election by a taxpayer that is a nonlist entity may be made with respect to any taxable year beginning after December 31, 2032.

An election with respect to sections 45V, 45Q, and 45X by a taxpayer that is a nonlist entity generally remains in effect for the election year and for each of the four succeeding taxable years ending before January 1, 2033. A taxpayer may prospectively revoke this election one time during that period but may not subsequently re-elect.

**Special rules**

In the case of an applicable credit determined with respect to any facility or property held directly by a partnership or S corporation, the election is made at the partnership level or by the S corporation, in such manner as the Secretary may provide. In the event of such an election, any amount received by a partnership or S corporation as an elective payment is treated as tax-exempt income for purposes of sections 705 and 1366, and a partner's distributive share of such tax-exempt income is based on such partner's distributive share of the otherwise applicable credit for each taxable year.

Limitations in section 50(b)(3) and (4)(A)(i), relating to property used by tax-exempt and government entities, do not apply with respect to any applicable credit for which an election for a

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[259] Sec. 45V.

[260] Sec. 45X.

[261] Sec. 45Y.

[262] Sec. 45Z.

[263] Sec. 48.

[264] Sec. 48C.

[265] Sec. 48E.

[266] Sec. 6417(d)(1)(A).

direct payment has been made. In addition, any such property is treated as used in a trade or business of the applicable entity.

An election by a taxpayer must generally be made by the due date (including extensions of time) for the tax return for the taxable year for which the election is made, but in no event earlier than 180 days after the date of enactment of the provision. In the case of any government or political subdivision for which no return is required, the Secretary shall determine the appropriate date.

For the section 45 renewable electricity production credit, the section 45Q credit for carbon oxide sequestration, the section 45V credit for clean hydrogen production, and the section 45Y clean electricity production credit, any election for a direct payment is applied separately with respect to each qualified facility.

As a condition of, and prior to, any amount being treated as a payment which is made by an applicable entity under the provision, the Secretary may require such information or registration as the Secretary deems necessary for purposes of preventing duplication, fraud, improper payments, or excessive payments under this section.

Excessive payments are subject to recapture and penalty, in the absence of reasonable cause. An excessive payment is, generally, the excess of the amount of the direct payment over the amount of the credit which would otherwise be allowable for the taxable year. In the case of an excessive payment, the tax is increased in the year in which the Secretary makes a determination that an excessive payment exists.

In general, if a nonlist entity makes an election for a direct payment no election may be made to transfer the credits under the rules described below.

If an election is made for a direct payment, the underlying applicable credit for which an election is made is reduced to zero and, for any other Code purposes, is deemed allowed to such entity for the taxable year. In other words, the credit determined with respect to the applicable entity is treated as a credit for all purposes, but after it is applied against income tax liability, it is reduced to zero to prevent any double benefit (such as claiming the credit twice).

The direct payment rules do not apply to any possession of the United States with a mirror code tax system unless the possession elects to have them apply.

Rules similar to the rules of section 50 apply, without regard to certain limitations applicable to government and tax-exempt entities.

Beginning in fiscal year 2023 and each fiscal year thereafter, the portion of any payment for which a direct payment election has been made, or any amount treated as such a payment and that is direct spending is increased by 6.0445 percent. This is intended to offset any reduction due to Federal budget sequestration.

The provision applies to taxable years beginning after December 31, 2022.

### 3. Election to transfer certain energy tax credits (sec. 13801 of the Act and new sec. 6418 of the Code)

**In general**

The provision permits an eligible taxpayer to elect to transfer all or a portion of an eligible credit determined with respect to such taxpayer for any taxable year to an unrelated taxpayer (the "transferee taxpayer"). Payments to the taxpayer by the transferee taxpayer must be made in cash. Such payments are not includible in the gross income of the taxpayer nor are they deductible by the transferee taxpayer. The transferee taxpayer has no basis in any transferred credit, and the fact that the credit amount may exceed the transfer payment does not give rise to any income to the transferee. Such payments are similarly ignored when determining the existence or character of income for other tax purposes. Taxpayers may only transfer credits to which they are entitled, after the application of any limitations (such as the limitation on projects financed by tax-exempt bonds).

The list of eligible credits is the same as the list of applicable credits under the direct payment rules described above, except for the credit for qualified commercial vehicles determined under section 45W by reason of subsection (d)(2) thereof. An eligible credit does not include any business credit carryforward or business credit carryback. In the case of an eligible credit under sections 45, 45Q, 45V, and 45Y, an election may be made separately with respect to each facility for which such credit is determined and for each taxable year during the 10-year period beginning on the date such facility was originally placed in service (or in the case of a credit under section 45Q, the 12-year period beginning on the date the carbon capture equipment was originally placed in service at such facility).

An eligible taxpayer is any taxpayer other than a tax-exempt organization, a State or political subdivision thereof, the Tennessee Valley Authority, an Indian tribal government, an Alaska Native Corporation, or a corporation operating on a cooperative basis which is engaged in furnishing electric energy to persons in rural areas.[267]

In the case of any facility or property held directly by a partnership or S corporation, a credit transfer election must be made at the partnership or S corporation level. If a partnership or S corporation makes an election to transfer credits under the provision, any amount received as consideration for a transfer described is treated as tax-exempt income for purposes of sections 705 and 1366, and a partner's distributive share of such tax-exempt income is based on such partner's distributive share of the otherwise eligible credit for each taxable year.

Transferred credits must be taken into account in the first taxable year of the transferee taxpayer ending with, or after, the taxable year of the eligible taxpayer with respect to which the credit was determined.

An election to transfer any portion of an eligible credit must be made not later than the due date (including extensions of time) for the tax return for the taxable year for which the credit is determined, but in no event earlier than 180 days after the date of the enactment of the

[267] Sec. 6418(f)(2); see also sec. 6417(d)(1)(A).

provision. Any such election, once made, is irrevocable and no additional election may be made by a transferee taxpayer with respect to any credits received under the provision.

**Special rules**

As a condition of, and prior to, any transfer of any portion of an eligible credit, the Secretary may require such information (including, in such form or manner as is determined appropriate by the Secretary, such information returns) or registration as the Secretary deems necessary for purposes of preventing duplication, fraud, improper payments, or excessive payments under this section.

Absent reasonable cause, in the event of an excessive credit transfer, the transferee taxpayer is liable for tax in the amount of the excessive credit transfer plus 20-percent penalty. For this purpose, an excessive credit transfer is, generally, the excess of the amount of the credit claimed by the transferee taxpayer over the amount of the credit which would otherwise be allowable for the taxable year without the application of section 6418 (in other words, the amount of the credit properly determine with respect to such facility or property for such taxable year in the hands of the eligible taxpayer).

In the case of transferred credits associated with investment credit property, the basis of such property must be reduced under the rules of section 50. In addition, if, during any taxable year, the underlying property that gave rise to a transferred credit is disposed of or otherwise ceases to be investment credit property with respect to the eligible taxpayer before the close of the section 50 recapture period, such eligible taxpayer must notify the transferee taxpayer of the recapture event and the transferee taxpayer must notify the eligible taxpayer of the recapture amount. The transferee, filling in as the taxpayer once the transfer is complete, is responsible for any amounts subject to recapture.

No transfer election may be made with respect to progress expenditures.

Section 50(d) is modified to allow real estate investment trusts to benefit from credit transfers.

The provision applies to taxable years beginning after December 31, 2022.

### 4. Three-year carryback for applicable credits (sec. 13801 of the Act and sec. 39 of the Code)

The provision modifies section 39 to permit taxpayer to carry applicable credits (as defined in section 6417(b), described above) back three years, instead of just one year under prior law.

The provision applies to taxable years beginning after December 31, 2022.