

Technology-Neutral Clean Electricity Tax Credits Under the IRA and the OBBBA

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When the FY2022 reconciliation law, also known as the Inflation Reduction Act (IRA), was enacted, it brought about a shift in the energy tax credit landscape. Among other changes, the IRA scheduled the two largest renewable energy tax credits to begin phasing out after 2024, thereafter replacing them with *technology-neutral* credits. In energy tax policy, *technological neutrality* refers to the idea of giving the same tax treatment to all energy technologies that achieve a prescribed end goal. The IRA thus made all energy technologies that could generate electricity with zero lifecycle greenhouse gas emissions eligible for the Clean Electricity Investment Tax Credit (CEITC) and the Clean Electricity Production Tax Credit (CEPTC). As seen in **Table 1**, these credits were similar to the preexisting [Investment Tax Credit \(ITC\)](#) and [Production Tax Credit \(PTC\)](#), except that the latter credits applied only to specific renewable sources.

Table 1. Renewable Energy Credits vs. Technology-Neutral Clean Electricity Credits

Renewable Energy Credits	Technology-Neutral Clean Electricity Credits
<i>Production Tax Credit (PTC)</i> • Section 45 of the tax code • Tax credit of 1.5, 3.0, or 3.1 cents per kilowatt-hour of electricity, indexed for inflation • Applies to specifically enumerated renewable energy sources such as solar, wind, and biomass; does not include nuclear or future discoveries • Applies to facilities that began construction before the end of 2024 • Can receive the credit for 10 years • Bonus credits: 10% for energy communities; 10% for domestic content	<i>Clean Electricity Production Tax Credit (CEPTC)</i> • Section 45Y of the tax code • Tax credit of 3.0 cents per kilowatt-hour of electricity, indexed for inflation • Applies to all energy sources with zero or negative greenhouse gas emissions, including certain renewables, nuclear, and future discoveries • Applies to facilities placed in service in 2025 or later years • Can receive the credit for 10 years • Bonus credits: 10% for energy communities; 10% for domestic content

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Renewable Energy Credits	Technology-Neutral Clean Electricity Credits
<i>Investment Tax Credit (ITC)</i> • Section 48 of the tax code • Tax credit of 30% of capital investment costs • Applies to specifically enumerated renewable energy sources such as solar, wind, and biomass; does not include nuclear or future discoveries • Applies to facilities that began construction before the end of 2024^a • Can receive the credit for one year • Bonus credits: 10 percentage points for energy communities; 10 percentage points for domestic content; 10 or 20 percentage points for low-income communities	<i>Clean Electricity Investment Tax Credit (CEITC)</i> • Section 48E of the tax code • Tax credit of 30% of capital investment costs • Applies to all energy sources with zero or negative greenhouse gas emissions, including certain renewables, nuclear, and future discoveries • Applies to facilities placed in service in 2025 or later years • Can receive the credit for one year • Bonus credits: 10 percentage points for energy communities; 10 percentage points for domestic content; 10 or 20 percentage points for low-income communities

Sources: 26 U.S.C. §§45, 45Y, 48, and 48E; P.L. 117-169; and CRS Insight IN12701, *The Production Tax Credit: Calculation, 2026 Values, and Phaseout Timeline*, by Nicholas E. Buffie.

Notes: Tax credit values are for 2026 and assume compliance with prevailing wage and apprenticeship requirements.

a. Geothermal heat pumps are eligible for the ITC if they begin construction before 2035.

Policymakers and regulators expressed three arguments in favor of moving to technological neutrality:

1. By setting a goal (zero greenhouse gas emissions) for electricity producers yet remaining agnostic about how to achieve that goal, technology-neutral credits do not allow lawmakers to [pick winners and losers in the energy market](#) based on potentially undisclosed or arbitrary selection criteria.
2. Zero-emissions sources that are discovered in the future will be automatically eligible for the credits, thus creating [an incentive for technological innovation](#). This logic also applies to technological advances that eliminate emissions for existing energy sources.
3. For facilities using the same energy source, technology-neutral credits allow regulators to [distinguish between facilities without emissions and those with them](#). For example, coal-fired power plants that [capture and sequester 100% of their emissions](#) are eligible for the technology-neutral credits, but plants with nonzero emissions are ineligible.

The CEITC and CEPTC statutes, as enacted by the IRA, include [language](#) stating that facilities “for which the greenhouse gas emissions rate ... is not greater than zero” qualify for the credits. While this language is far simpler than the lengthy legal requirements for the [ITC](#) and the [PTC](#), it implicitly outsources the more complicated implementation aspects to federal regulators.

In 2024 and 2025, the Internal Revenue Service (IRS) issued regulations clarifying how different energy sources are to be treated under the technology-neutral framework. It determined that electricity facilities using certain technologies—solar, wind, nuclear, hydropower, geothermal, and marine and hydrokinetic—always have zero greenhouse gas emissions and are categorically eligible for the credits. The IRS also stated that waste energy recovery properties utilizing the sources listed above are eligible. For facilities using other energy sources, facility owners may request an assessment from the Department of Energy to determine if the facility meets the zero-emissions requirement. The IRS stated that for purposes of measuring greenhouse gas emissions, it would include all emissions associated with producing electricity during the facility’s first 10 years of operation, and it would exclude emissions from backup generators, facility construction, and facility maintenance. Greenhouse gases other than carbon dioxide (CO₂) are given CO₂-equivalence scores based on their global warming potential (relative to CO₂) over 100 years.

Table 2 shows which energy technologies are eligible for the renewable energy credits and which are eligible for the technology-neutral credits. Most energy sources that are eligible for one set of credits are also eligible for the other, though there are exceptions: Nuclear energy is categorically eligible for the CEITC and CEPTC, whereas biomass and municipal solid waste facilities are eligible only for the ITC and PTC. **Table 2** also shows that whereas the technology-neutral tax credits exclusively subsidize electricity generation and storage, the renewable energy credits (the ITC in particular) also subsidize heating systems, electricity transmission and distribution, hydrogen production, and biogas production.

The FY2025 reconciliation law, also known as the One Big Beautiful Bill Act (OBBBA), departed from the technology-neutral framework in two ways. First, it allowed fuel cell properties to qualify for the CEITC regardless of the properties' greenhouse gas emissions. Second, the OBBBA shortened the credit eligibility timelines for wind and solar energy more than for other technologies. Specifically, to receive the CEITC or CEPTC, wind and solar facilities must either (1) have begun construction before July 5, 2026, or (2) be placed in service (i.e., begin producing electricity) before January 1, 2028. For other energy technologies, facilities must begin construction before 2034 to qualify for full credits or begin construction in 2034 or 2035 to qualify for partial credits. The OBBBA's changes to the IRA's original technology-neutral framework can be seen by comparing the last two columns in **Table 2**.

Table 2. Eligible Energy Technologies, by Tax Credit Regime

	IRA Renewable Energy Tax Credits	IRA Clean Electricity Tax Credits	OBBBA Clean Electricity Tax Credits
Renewable Energy			
Solar	✓	✓	Qualifying wind and solar facilities must either (1) have begun construction before July 5, 2026, or (2) begin producing electricity before January 1, 2028.
Wind	✓	✓	
Hydropower	✓	✓	✓
Biomass	✓	Ineligible	Ineligible
Geothermal Electricity	✓	✓	✓
Geothermal Heat Pumps	✓ ^a	Ineligible	Ineligible
Marine and Hydrokinetic	✓	✓	✓
Waste Energy Recovery ^b	ITC only	✓	✓
Municipal Solid Waste ^c	✓	Ineligible	Ineligible
Biogas Property	ITC only	Ineligible	Ineligible
Nuclear Energy	Ineligible	✓	✓
Undiscovered Zero-Emissions Sources	Ineligible	✓	✓
Energy Storage^d	ITC only	CEITC only	CEITC only
Hydrogen and Fuel Cell Property			
Hydrogen Production	ITC only ^{e,f}	Ineligible	Ineligible
Fuel Cell Property	ITC only ^g	Ineligible	CEITC only ^h

	IRA Renewable Energy Tax Credits	IRA Clean Electricity Tax Credits	OBBBA Clean Electricity Tax Credits
Fossil Fuels	Microturbine property was eligible for a partial ITC. ⁱ Other fossil fuel properties are not eligible for credits.	Fossil fuel facilities with zero or negative greenhouse gas emissions are eligible. Other facilities are ineligible.	Fossil fuel facilities with zero or negative greenhouse gas emissions are eligible. Other facilities are ineligible.
Combined Heat and Power (CHP) Systems	ITC only	Ineligible	Ineligible
Transmission and Distribution			
Microgrid Controllers	ITC only	Ineligible	Ineligible
Interconnection Property	ITC only ^j	Ineligible	Ineligible

Source: 26 U.S.C. §§45, 45Y, 48, and 48E; P.L. 117-169; P.L. 119-21; and Department of the Treasury and Internal Revenue Service, “Section 45Y Clean Electricity Production Credit and Section 48E Clean Electricity Investment Credit,” 90 *Federal Register* 4006-4127, January 15, 2025.

Notes: IRA = the FY2022 reconciliation law. OBBBA = the FY2025 reconciliation law. “IRA Renewable Energy Tax Credits” refers to already-existing tax credits reformed by the IRA, including the Investment Tax Credit (ITC) and Production Tax Credit (PTC). “Clean Electricity Tax Credits” refers to tax credits established under the IRA, including the Clean Electricity Investment Tax Credit (CEITC) and the Clean Electricity Production Tax Credit (CEPTC).

- a. Property is eligible if construction begins before January 1, 2035 (rather than January 1, 2025, as for other property).
- b. To qualify for the ITC, eligible waste energy recovery property cannot have “a capacity in excess of 50 megawatts,” per 26 U.S.C. §48(c)(5)(B). To qualify for the CEITC (under both the IRA and OBBBA tax credit regimes), qualifying waste energy recovery property must derive its energy from a categorical zero-emissions energy source.
- c. Includes landfill gas facilities and trash facilities.
- d. Includes hydrogen storage, thermal energy storage, batteries, and any other property that receives, stores, and delivers energy for conversion to electricity.
- e. Clean hydrogen production facilities, which use electricity to produce hydrogen, are eligible for the ITC if they have lifecycle greenhouse gas emissions rates of four kilograms of carbon dioxide equivalent or less per kilogram of hydrogen produced. Qualifying facilities must be placed in service after 2022, must meet the beginning-of-construction deadline specified in 26 U.S.C. §45V(c)(3), and cannot be used to claim a credit under 26 U.S.C. §45V or §45Q.
- f. Although hydrogen production per se is not eligible for the PTC, electricity produced and used in clean hydrogen facilities may count toward the PTC. See 26 U.S.C. §45(e)(13) for more details.
- g. The ITC for fuel cell property has a maximum value of \$3,000 per kilowatt-hour of capacity.
- h. The OBBBA allowed fuel cell property, as defined in the ITC, to qualify for the CEITC. Qualifying fuel cell property is eligible for a 30% credit if construction begins on the property after 2025. The credit’s value is not affected by prevailing wage and apprenticeship (PWA) requirements or bonus credits. Unlike other energy sources, fuel cell property may have positive greenhouse gas emissions while qualifying for the credit.
- i. The ITC for microturbine property was 2% for taxpayers not meeting PWA requirements and 10% for taxpayers meeting PWA requirements; it was further capped at \$200 for each kilowatt of capacity. The OBBBA repealed all ITC benefits for microturbine property.
- j. Qualifying interconnection property must be owned by a utility and be installed in connection with energy properties listed as qualifying technologies under 26 U.S.C. §48(a)(3) that have maximum net output of five megawatts or less.

Even before the enactment of the OBBBA, other credits departed from the technology-neutral framework. For example, the [Advanced Manufacturing Production Credit \(AMPC\)](#), enacted in the IRA, subsidized the production of components used in wind and solar facilities but not the production of components used in other renewable facilities or nuclear facilities. The OBBBA disallowed the AMPC for wind energy components produced and sold after 2027 (an earlier phaseout than under prior law). However, whereas the IRA generally shifted energy tax credits closer to technological neutrality, the OBBBA mostly moved away from that framework. It did this both by statutorily excluding specified technologies (wind and solar) and by statutorily adding one technology (fuel cell properties) to the clean electricity tax credits.

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