

Inflation Reduction Act (IRA)

IRA Summary:

The IRA made major changes to the Investment Tax Credit (ITC/Sec. 48), Production Tax Credit, (PTC/Sec.45), Clean Vehicle Tax Credits, Fuel Tax Credits, Carbon Management, Residential Energy efficiency, Energy Innovation, Offshore Wind and Oil/Gas Systems, Community Investment and Energy Justice, and Clean Energy Financing.

Tax credit values throughout this summary assume that facilities or projects satisfy prevailing wage and apprenticeship requirements and thus receive bonus credits for a total credit value of 5 times the base amount.

For the Renewable Electricity Production Tax Credit, Energy Investment Tax Credit, and new Clean Electricity Investment Tax Credit (ITC) and Production Tax Credit (PTC), facilities with maximum net output less than 1 megawatts (MW) are exempt from the labor requirements and receive the bonus automatically.

Many of the tax credits included in the legislation allow direct payments to be made in lieu of a reduction in tax liability (“direct pay”) and/or an option to monetize the credits by transferring them to an entity with greater tax liability (“transferability”). Direct pay is limited to certain tax exempt and governmental entities for most of the eligible tax credits. This limitation does not apply to the first 5 years of the section 45V clean hydrogen credit, section 45Q carbon capture and sequestration credit, and section 45X advanced manufacturing credit.

Production Tax Credits:

- Sec. 45V New Clean Hydrogen Production Tax Credit
- Sec. 45X New Advanced Manufacturing Production Tax Credit
- Sec. 45U Nuclear Power Production:
- Sec. 45 Extension of Renewable Electricity Production Tax Credit
- Sec. 45Y New Clean Electricity Production Tax Credit

Investment Tax Credits:

- Sec. 48 Extension of Energy Investment Tax Credit
- Sec. 48C Advance Energy Project Credit
- Sec. 48E New Clean Electricity Investment Tax Credit:

Fuel Tax Credits:

- Sec. 30C Extension of Alternative Fuel Refueling Property Credit

Carbon Management:

- Sec. 45Q: Carbon Capture and Sequestration Tax Credit:

Federal Investment Programs:

- \$5.8 billion program under the Office of Clean Energy Demonstration (OCED)
- Department of Energy Loan Programs Office (LPO): LPO has over \$40 billion in available loan and loan guarantee authority under its three programs
- Greenhouse Gas Reduction Fund (GGRF):
- Domestic Manufacturing Conversion Grants:
- Transmission Upgrades

Production Tax Credits:

Sec. 45V New Clean Hydrogen Production Tax Credit: Creates a new 10-year incentive for clean hydrogen production with four tiers and a maximum of 4 kilograms of CO2 equivalent (CO2 e) per kilogram of hydrogen (H2).

- Projects must begin construction by 2033.
- Eligibility includes retrofit facilities.
- Cannot stack with the Carbon Capture and Sequestration Tax Credit (45Q).
- Includes Direct Pay and Transferability.
- Intensity calculated with GREET model

Carbon Intensity (kg CO2e/kg H2)	Max Hydrogen PTC Credit (\$/kg H2)
0-0.45	\$3.00
0.45-1.5	\$1.00
1.5-2.5	\$0.75
2.5-4	\$0.60

Sec. 45X New Advanced Manufacturing Production Tax Credit: Creates a tax credit for the production of clean energy technology components that are produced in the United States or by a U.S. possession.

- Eligible components include solar components, wind turbine and offshore wind components, inverters, many battery components, and the critical minerals needed to produce these components.
- Begins to phase out in 2029 and phases out completely in 2032.
- Includes Direct Pay and Transferability

Sec. 45U Nuclear Power Production:

- Provides a nuclear power production credit of 1.5 cents multiplied by kilowatt hours (kWh) of electricity produced minus 16% of the facility’s gross recipients in excess of 2.5 cents per kWh.
- Becomes available to facilities already in service in 2024 and ends after 2032.
- Includes Direct Pay and Transferability

Sec. 45 Extension of Renewable Electricity Production Tax Credit: Extends the existing production tax credit for applicable renewable energy sources. This tech-specific PTC ends in 2024 and is replaced by the new tech-neutral Clean Electricity PTC (45Y) which begins in 2025.

- Revives the PTC for solar facilities which ended in 2006 and extends to 2024.
- Extends the date of construction for geothermal, wind, closed- and open-loop biomass, landfill gas, municipal solid waste, hydropower, and marine and hydrokinetic facilities to 2024.
- Maintains a credit amount of 1.5 cents per kWh.
 - Applies a 10% bonus for meeting domestic manufacturing requirements for steel, iron, or manufactured components.
 - Applies a 10% bonus for facilities located in energy communities (defined as brownfield sites or fossil fuel communities).
 - Increases hydropower, municipal solid waste, and marine and hydrokinetic credit to full value (was previously halved).
 - Strikes the offshore wind credit phaseout for facilities placed into service before 2022.
 - Includes Direct Pay and Transferability.

Sec. 45Y New Clean Electricity Production Tax Credit: This newly established, tech-neutral PTC replaces the above Renewable Electricity Production Tax Credit once it phases out at the end of 2024. 45Y is an emissions-based incentive that is neutral and flexible between clean electricity technologies. Taxpayers choose between a PTC (45Y) and an ITC (48E).

- Creates a PTC credit of 1.5 cents per kWh of electricity produced and sold or stored at facilities placed into service after 2024 with zero or negative GHG emissions.
 - Applies a 10% bonus for projects located in energy communities (defined as brownfield sites or fossil fuel communities).
 - Applies a 10% bonus for meeting domestic manufacturing requirements for steel, iron, or manufactured components.
 - Applies a 10% bonus for projects located in low-income communities or on Tribal land; 20% bonus for projects located in low-income residential buildings or part of low-income economic benefit projects.
- Facilities may use carbon capture, utilization, and storage (CCUS) to reach qualifying emissions levels.
- Credits are set to phase out the later of 2032 or when emission targets are achieved (i.e., the electric power sector emits 75% less carbon than 2022 levels). Facilities will be able to claim a credit at 100% value in the first year, then 75%, then 50%, and then 0%.
- Includes Direct Pay and Transferability.

Investment Tax Credits:

Sec. 48 Extension of Energy Investment Tax Credit. Extends the existing energy investment tax credit for applicable energy projects. This tech-specific ITC ends in 2024 for most technologies and is replaced by the new tech-neutral Clean Electricity ITC (48E), which begins in 2025.

- Extends date of construction in most cases to 2024 and maintains a 10% or 30% credit.
 - Maintains 30% credit for solar energy property, geothermal property, fiber-optic solar property, fuel cell property, microturbine property, small wind property, offshore wind property, combined heat and power property, and waste energy recovery property constructed before January 1, 2025.
 - Creates 30% credit for energy storage technology,^{3,4} biogas property, microgrid controllers, dynamic glass, and linear generators constructed before January 1, 2025.
 - Extends 10% credit for microturbine projects constructed before January 1, 2025.
 - 30% credit for geothermal heat pump projects constructed before January 1, 2033. Credit reduces to 26% in 2033 and 22% in 2034.
- Applies a 10% bonus for meeting domestic manufacturing requirements for steel, iron, or manufactured components.
- Applies a 10% bonus for projects located in energy communities (defined as brownfield sites or fossil fuel communities).
- Includes Direct Pay and Transferability

Sec. 48E New Clean Electricity Investment Tax Credit: This newly established, tech-neutral ITC (48E) replaces the above Energy ITC once it phases out at the end of 2024. 48E is an emissions-based incentive that is neutral and flexible between clean electricity technologies. Taxpayers choose between a PTC (45Y) and an ITC (48E).

- Creates an ITC credit of 30% of the investment in the year the facility is placed in service.
 - Applies a 10% bonus for projects located in energy communities (defined as brownfield sites or fossil fuel communities).
 - Applies a 10% bonus for meeting domestic manufacturing requirements for steel, iron, or manufactured components.
 - Applies a 10% bonus for projects located in low-income communities or on Tribal land; 20% bonus for projects located in low-income residential buildings or part of low-income economic benefit projects.
- Clean electricity projects smaller than 5 MW can include the costs of interconnection under the ITC.

- The Treasury Department is directed to publish emission rates for similar technologies each year for taxpayers to use for purposes of determining their eligibility.
- Credits are set to phase out the later of 2032 or when emission targets are achieved (i.e., the electric power sector emits 75% less carbon than 2022 levels). Facilities will be able to claim a credit at 100% value in the first year, then 75%, then 50%, and then 0%.
- Includes Direct Pay and Transferability.

Sec. 48C Advance Energy Project Credit: Extends the 30% investment tax credit to clean energy projects to strengthen domestic energy manufacturing and support the production and recycling of clean energy products. It also expands credit to include projects at manufacturing facilities that want to reduce their GHG emissions by at least 20%.

- Tax credit is funded at \$10 billion for eligible projects.
- Can be applied to low-carbon industrial heat, carbon capture, transport, utilization and storage systems, and equipment for recycling, waste reduction, and energy efficiency.
- Includes Direct Pay and Transferability.

Fuel Tax Credits:

Sec.30C: Extension of Alternative Fuel Refueling Property Credit:

- Extends tax credit for alternative fuel refueling property credit to property placed into service before 2033.
- Increases the tax credit to 30% of the cost of alternative fuel refueling property up to \$100,000.
- Includes Direct Pay and Transferability

Carbon Management:

Sec. 45Q: Carbon Capture and Sequestration Tax Credit: Enhances the tax credit for carbon capture and direct air capture (DAC).

- Extends the deadline for construction to January 1, 2033 and increases the credit amount:
 - From \$50 to \$85 per ton for CCUS for industrial facilities and power plants for saline geologic formations.
 - From \$35 to \$60 per ton for utilization of captured CO₂ and its precursor carbon monoxide to produce low and zero-carbon fuels, chemicals, building materials and other products, or for enhanced oil recovery (EOR).
 - From \$50 to \$180 per ton for DAC stored in saline geologic formations and from \$35 to \$130 per ton for utilization or EOR.
- Decreases minimum plant size eligibility threshold:
 - From 100,000 to 1,000 tons per year for DAC.
 - From 500,000 to 18,750 metric tons per taxable year for Electric Generating Facility paired with design capacity requirement below.
 - From 25,000 to 12,500 metric tons per taxable year for any other facility.
 - Design Capacity Requirement: Point-source carbon capture projects on electric generating units will be required to design capture equipment to capture at least 75% of unit (not facility) CO₂ production, subject to a review if facility emissions increase in future years.
 - Direct Pay Compromise: Projects will receive direct pay for the first 5 years after the carbon capture equipment is placed in service (no direct pay option for the final 7 years of the credit). Nonprofit organizations and co-ops can receive direct pay for all 12 years of the credit.

Methane Emissions Reduction Program. Appropriates \$850 million for providing financial and technical assistance to owners and operators of petroleum and natural gas systems for methane emissions monitoring and methane and other emissions reductions.

Investment in Low-Carbon Materials and Buildings:

Supports low-carbon materials procurement for federal projects, along with multiple efforts to standardize environmental impact disclosure, labeling and verification of low-carbon concrete and construction materials—an essential component of federal procurement.

- \$250 million for the Environmental Protection Agency (EPA) to support the development of standardized, high-quality, transparent environmental product declaration of greenhouse gas emission associated with construction materials.
- \$100 million for EPA to identify and label low-carbon construction materials used for federal buildings and federal transportation projects in consultation with Federal Highway Administration (FHA) and the General Services Administration (GSA).
- Procurement of low-carbon materials in federal projects:
 - New authority granted to the Federal Emergency Management Agency (FEMA) to cover costs associated with low-carbon materials or to encourage low-carbon and net-zero energy projects when administering disaster relief.
 - \$2 billion for FHA to reimburse or provide a 2% incentive in federal transportation projects for the use of low-carbon construction materials that cost the same or incrementally more than traditional construction materials.
 - \$2.15 billion to the Federal Buildings Fund for GSA to acquire and install low-carbon building materials and products.

Energy Innovation:

Advanced Industrial Facilities Deployment Program: Creates a new \$5.8 billion program under the Office of Clean Energy Demonstration (OCED) to invest in projects aimed at reducing emissions from energy intensive industries.

- Includes iron, steel, concrete, glass, pulp, paper, ceramics, and chemical production.
- Funding of \$5.8 billion in grants, rebates, direct loan, or cooperative agreements.
- Requires 50% non-federal cost share.
- Includes retrofit facilities.
- Prioritizes projects with greatest GHG reduction benefit & greatest benefit to largest number of people at facility location.

Clean Energy Financing:

Department of Energy Loan Programs Office (LPO): LPO has over \$40 billion in available loan and loan guarantee authority under its three programs: \$21.9 billion for Title 17, \$15.1 billion for Advance Vehicles Technology Manufacturing (AVTM), and \$2 billion for Tribal Energy Loan Guarantee Program (TELGP). IRA increases loan authority for these programs, appropriates additional funds for credit subsidies, and provides new authorities for LPO to focus on the reutilization of energy infrastructure.

Greenhouse Gas Reduction Fund (GGRF): Provides EPA \$27 billion funding for grants to state, local, regional, and Tribal programs that provide financial support to low and zero carbon technologies and can act as seed capital for regional, local, state, or Tribal green banks that provide financial support for low or zero emission projects.

Domestic Manufacturing Conversion Grants: \$2 billion through 2031 for grants to retool existing auto manufacturing facilities to promote domestic production of clean vehicles, including hybrids, plug-in hybrids, EVs, and hydrogen fuel cell vehicles.

Transmission Upgrades:

Transmission Facility Financing. Appropriates \$2 billion for loans to eligible entities (i.e., non-federal entities) to construct new, or make upgrades to existing, eligible transmission facilities designated by DOE to be in the national interest.

Grants to Facilitate the Siting of Interstate Electricity Transmission Lines. Appropriates \$760 million for grants to a siting authority to facilitate the siting of high-voltage interstate transmission lines or off-shore transmission lines. DOE shall require a siting authority to agree to reach a final decision on the application relating to the siting or permitting of the transmission project not later than 2 years after the date on which the grant is provided. Projects must be at least 275kv or 200kv for offshore projects.