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A Guide to the Renewable Energy Provisions of the Inflation Reduction Act of 2022

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On August 16, 2022, President Joseph Biden signed into law the Inflation Reduction Act of 2022 in what many have called the largest investment in climate change countermeasures in U.S. history.

The Inflation Reduction Act of 2022 is probably the most consequential climate change legislation ever enacted by the U.S. government—it certainly will be the most expensive—and accordingly, it will have a major impact on the renewable energy industry, mostly in the form of incentives and credits. Our team has reviewed the IRA's 700-plus pages and brought together in this convenient guide all of the provisions relevant to the renewable energy industry.

IRA Renewable Energy Provisions

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I. Clean Electricity and Reducing Carbon Emissions

Production Tax Credit (PTC) Extension/Modification (§13101)

Extends the beginning of construction deadline for wind, biomass, geothermal, solar, landfill gas, trash, qualified hydropower and marine and hydrokinetic technologies from before January 1, 2022 to before January 1, 2025. Projects that were placed in service prior to January 1, 2022 remain subject to the existing PTC phaseout.

Base credit for most technologies is set at 0.3 cents per kWh. Facilities that pay prevailing wages during the construction phase and the first 10 years of operation and meet apprenticeship requirements (the "Wage and Workforce Requirements") are eligible for a PTC that is five times the base credit. There is an opportunity to cure Wage and Workforce Requirement deficiencies.

Facilities with a maximum net output of less than one megawatt are also eligible for the five times base credit amount, as are facilities that began construction within 60 days after the Secretary of the Treasury publishes guidance on the Wage and Workforce Requirements.

An additional bonus credit is provided for projects that meet a domestic content requirement that requires a certification that certain steel, iron and manufactured products used in the facility were domestically produced. This bonus credit is 10% of the credit amount.

The credit amount is increased by 10% for facilities located in an energy community. An energy community is defined as being a brownfield site, an area which has or had significant employment related to oil, gas or coal activities, or a census tract or any adjoining tract in which a coal mine closed after December 31, 1999 or in which a coal-fired power plant was retired after December 31, 2009.

Facilities financed by tax-exempt bonds will receive a reduction in the amount of credit.

Extends the option to claim the ITC in lieu of the PTC.

Investment Tax Credit ("ITC") Extension / Modification (§13102)

Extends the beginning of construction deadline from before 2024 to before 2025.

Sets a base credit rate at 6% for solar, fuel cells, waste energy recovery, combined heat and power and small wind property and 2% for microturbine property. These amounts are increased five times to 30% and 10%, respectively, if the Wage and Workforce Requirements are met. There is an opportunity to cure Wage and Workforce Requirement deficiencies.

Extends credit for geothermal to construction beginning before 2035 (with phaseout beginning 2032).

Facilities with a maximum net output of less than one megawatt are also eligible for the five times base credit amount, as are facilities that began construction within 60 days after the Secretary of the Treasury publishes guidance on the Wage and Workforce Requirements.

List of qualifying property is expanded to include standalone storage, qualified biogas property, electrochromic glass and microgrid controllers. The credit is also available for interconnection property. Public utilities have a qualified ability to elect out of normalization requirements for investments in energy storage technologies.

An additional bonus credit is provided for projects that meet a domestic content requirement that requires a certification that certain steel, iron and manufactured products used in the facility were domestically produced. The bonus credit amount is 2 percentage points, or 10 percentage points for projects that meet Wage and Workforce Requirements.

Facilities financed by tax-exempt bonds will receive a reduction in the amount of credit.

An additional credit is available to projects in an energy community. The additional credit is 10 percentage points for projects meeting Wage and Workforce Requirements or 2 percentage points otherwise. An energy community is defined as being a brownfield site, an area which has or had significant employment related to oil, gas or coal activities, or a census tract or any adjoining tract in which a coal mine closed after December 31, 1999 or in which a coal fired power plant was retired after December 31, 2009.

Bonus Credit Related to Low Income Communities (§13103)

This section allocates 1.8 gigawatts for "environmental justice solar and wind capacity" credits in each of 2023 and 2024. Taxpayers receiving a capacity allocation may be entitled to tax credits in addition to otherwise allowed ITCs.

There is a 10-percentage point bonus investment credit for projects located in a low-income community or on Indian land and a 20 percentage point bonus investment credit for projects that are part of a low-income residential building project or a qualified low-income economic benefit project.

Solar and wind facilities with a nameplate capacity of 5 megawatts or less qualify and qualifying property also includes energy storage property installed in connection with the solar property and interconnection property.

Extension and Modification of Credit for Carbon Oxide Sequestration (§13104)

Current Law: industrial carbon capture facilities or direct air capture facilities that begin construction by December 31, 2025 can qualify for Section 45Q credits for carbon oxide sequestration. This credit can be claimed the 12 years after a qualifying facility is placed in service. The credit for geologically sequestered carbon increases to $50 per ton by 2026 ($35 for carbon used in enhanced oil recovery).

The provision extends the start of construction deadline to December 31, 2032.

This provision modifies the amount of carbon oxide that must be captured to (i) 1,000 metric tons annually for direct air capture, (ii) 18,750 metric tons annually for electricity generating facilities (with the facility designed to capture not less than 75% of the baseline carbon oxide production or 60% in the event of an electricity generating facility not yet or only recently placed in service) and (iii) 12,500 metric tons annually for any other facility.

The provision sets the base credit amount at $17 per metric ton for geological sequestration and $12 per metric ton for carbon oxide that is reused. These amounts are increased five times to $85 and $60 per metric ton if the facility meets the Wage and Workforce Requirements for the first 12 years of operation.

The base credit rate for qualified direct air capture carbon oxide that is geologically sequestered is $36 per metric ton and $26 if the direct air captured carbon oxide is used in a qualified manner. These amounts increase five times to $180 and $130 if the project meets the Wage and Workforce Requirements.

Facilities financed by tax-exempt bonds will receive a reduction in the amount of credit.

Provides some flexibility on the period for which credit can be claimed in the event of a federally declared natural disaster affecting the project.

Zero Emission Nuclear Power Production Credit (§13105)

Creates a new credit for qualifying zero-emission nuclear power produced and sold after December 31, 2023.

Qualifying facilities are taxpayer owned facilities that are placed in service before the date of enactment, that use nuclear power to generate electricity and that did not receive an advanced nuclear production tax credit allocation under §45J.

The amount of the PTC is 0.3 cents pers kWh (subject to reduction as the price of electricity rises). Facilities satisfying the Wage and Workforce Requirements are eligible to increase the credit amount five times.

Credit terminates on December 31, 2032.

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II. Clean Fuels

Extension of Incentives for Biodiesel, Renewable Diesel and Alternative Fuels (§13201)

Extends the existing tax credits for alternative fuels, alternative fuel mixtures, biodiesel and renewable diesel though December 31, 2024.

Many of these credits expired at the end of 2021. This provision is retroactive through all of 2022. The IRS will create a process for retroactively claiming these credits.

Sustainable Aviation Fuel Credit (§13203)

Creates a new credit for the sale or mixture of sustainable aviation fuel beginning in 2023. The credit has a base amount of $1.25 with certain increases if the lifecycle greenhouse gas emissions reduction percentage for the fuel exceeds 50%, up to a maximum of $1.75 per gallon.

Sustainable aviation fuel is defined as fuel that (i) meets certain industry standards, (ii) is not derived from coprocessing an applicable material with a feedstock that is not biomass, (iii) is not derived from palm fatty acid distillates or petroleum and (iv) has been certified to achieve a certain level of greenhouse gas reduction as compared to petroleum-based jet fuel.

The credit requires registration with the Secretary of Treasury.

The credit can be used to offset excise tax liability or as a direct payment in the event of insufficient excise tax liability.

The credit expires after December 31, 2024.

Clean Hydrogen (§13204)

Creates a new credit for qualified clean hydrogen produced at a qualifying facility during the facility's first 10 years of operation.

The base rate of the credit is $0.60 per kilogram multiplied by the applicable percentage, which ranges from 100% to 20% depending on the lifecycle greenhouse gas emission rate related to the hydrogen.

The credit increases to five times the base credit if Wage and Workforce Requirements are met.

Facilities financed by tax-exempt bonds will receive a reduction in the amount of credit.

Beginning of construction required to occur before January 1, 2033. Facilities existing prior to January 1, 2023 will qualify based on the date that modifications to the facility required to produce clean hydrogen are placed into service.

Taxpayers can elect to claim the PTC for electricity produced from renewable resources if the electricity is used at a qualified clean hydrogen facility to produce qualified clean hydrogen. Taxpayers may elect the ITC instead of the PTC.

Taxpayers may not claim the credit for clean hydrogen produced at a facility that claims credits for carbon capture under Section 45Q.

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III. Clean Energy and Efficiency Incentives for Individuals

Nonbusiness Energy Property Credit Extension/Modification (§13301)

Extends the tax credit for qualified energy-efficiency improvements and expenditures for residential energy property through December 31, 2032.

Increases the credit rate to 30% with an annual limit of $1,200 per taxpayer and a limit of $600 per item.

The limit is increased to $2,000 for geothermal and air source heat pumps and biomass stoves.

Qualifying building envelope components no longer include roofs, but do include air sealing insulation. Improvements to or replacements of panelboards, sub-panelboards, branch circuits, or feeders used with qualifying property are eligible for the credit.

The credit is available for any residence. Previously, only a taxpayer's primary residence was eligible.

A 30% credit, up to $150, is allowed for home energy audits.

Renames the credit as the "energy efficient home improvement credit."

Residential Clean Energy Credit Extension/Modification (§13302)

Extends credit for the purchase of solar electric property, solar water heating property, fuel cells, geothermal heat pump property, small wind energy property, and qualified biomass fuel property.

Extends credit through December 31, 2034, with a 30% credit rate through 2032, reduced to 26% in 2033 and 22% in 2034.

Qualified battery storage technology is added to the list of eligible property.

Renames credit the "residential clean energy credit."

Energy Efficient Commercial Buildings Deduction Extension/Modification (§13303)

Updates efficiency requirements by requiring efficiency to increase by more than 25%

Deduction begins at $0.50 per square foot and is increased by $0.02 for each percentage point by which the improvements reduce energy and power costs, with a maximum amount of $1.00 per square foot.

For projects that meet Wage and Workforce Requirements, the base amount is $2.50, which is increased by $0.10 for each percentage point increase in energy efficiency, with a maximum amount of $5.00 per square foot.

The maximum deduction amount is the total deduction a building can claim less deductions claimed with respect to the building in the preceding three years.

Taxpayers making energy-efficiency retrofits that are part of a qualified retrofit plan on a building that is at least five years old are able to deduct their adjusted basis in the retrofit property (so long as that amount does not exceed a per-square foot value determined on the basis of energy usage intensity). To qualify, retrofit plans must be expected to reduce a building's energy use intensity by at least 25%.

Any tax-exempt entity is allowed to allocate the deduction to the designer of the building or retrofit plan.

New Energy Efficient Home Credit Extension/Modification (§13304)

Extends credit for eligible contractors for building and selling qualifying energy-efficient homes through December 31, 2032.

For homes acquired after 2021, a $2,500 credit is available for new homes that meet certain Energy Star efficiency standards, and a $5,000 credit is available for new homes that are certified as zero-energy ready homes.

Multifamily dwellings that meet certain Energy Star efficiency standards are eligible for a $500 credit per unit, with a $1,000 per unit credit available for eligible zero-energy ready multifamily dwellings. The credits for multifamily dwelling units are increased to $2,500 and $5,000, respectively, if Wage and Workforce Requirements are met with regard to the laborers and mechanics employed by contractors and subcontractors in the construction of the residence.

Taxpayers claiming the low-income housing tax credit do not have to reduce their basis for credits claimed under this section.

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IV. Clean Vehicles

Clean Vehicle Credit (§13401)

The modified credit for clean vehicles is $3,750 for any vehicle meeting the critical minerals requirement, and $3,750 for any vehicle meeting the battery components requirement.

The maximum credit per vehicle is $7,500.

Clean vehicles include plug-in electric vehicles with a battery capacity of at least 7 kilowatt hours and fuel cell vehicles. Qualifying vehicles include those that had final assembly occur in North America. Sellers are required to provide taxpayer and vehicle information to the Treasury for tax credit eligible vehicles. Only vehicles made by qualified manufacturers, who have written agreements with and provide periodic reports to the Treasury qualify. For vehicles placed in service after 2023, qualifying vehicles do not include any vehicle with battery components that were manufactured or assembled by a foreign entity of concern.

For vehicles placed in service after 2024, qualifying vehicles do not include any vehicle in which applicable critical materials are from a foreign entity of concern.

The $3,750 critical minerals portion of the credit is available for vehicles with a battery containing 40% critical minerals. This percentage is increased 10% per year, until reaching 80% in 2026. The minerals must be extracted or processed in a country with which the US has a free trade agreement or recycled in North America.

The $3,750 battery components portion is available to vehicles with batteries 50% manufactured or assembled in North America. The percentage increases by 10% every year before reaching 100% in 2028.

The credit is not available to taxpayers with AGI exceeding $300,000 for married taxpayers, $225,000 for head of household filers and $150,000 for all other filers.

The credit is only available for vehicles with an MSRP of $55,000 or more (or $80,000 or more for vans, SUVs and pickup trucks).

The credit is valid for vehicles acquired through December 31, 2032.

Credit for Previously-Owned Clean Vehicles (§13402)

A credit of up to $4,000 (limited to 30% of the vehicle purchase price) is available to purchasers of previously owned qualified clean vehicles.

The credit is not available for married filing jointly taxpayers with AGI exceeding $150,000, head of household filers with AGI exceeding $112,500 and all other filers with AGI exceeding $75,000.

The credit is available for vehicles with a sale price of $25,000 or less and a model year two years earlier than the calendar year of the sale.

The credit is only available for the first resale of a vehicle.

Taxpayers can only claim this credit once every three years.

The credit is valid for vehicles acquired through December 31, 2032.

Credit for Qualified Commercial Clean Vehicles (§13403)

The credit is the lesser of:
15% of the vehicle's basis (or 30% if not powered by gasoline or diesel engine), or
The incremental cost of the vehicle relative to a comparable vehicle.

The credit cannot exceed $40,000, or $7,500 for vehicles weighing less than 14,000 pounds.

Eligible vehicles also must have a battery capacity of 15 kilowatt hours or more (7 kilowatt hours for vehicles weighing less than 14,000 pounds) and such battery must be charged by an external electricity source.

Only vehicles made by qualified manufacturers, who have written agreements with and provide periodic reports to the Treasury qualify.

The credit is available for vehicles acquired through December 31, 2032.

Modification/Extension of Alternative Fuel Refueling Property Credit (§13404)

The credit is available for 6%, (with a limit of $100,000) of business alternative fuel refueling property.
The credit is increased to 30% if Wage and Workforce Requirements are met.

The definition of qualifying property is modified to include bidirectional charging equipment. The credit may also be claimed for electric charging stations for two- and three-wheeled vehicles that are intended for use on public roads.

Charging or refueling property is only available for the credit in low-income or rural areas, beginning in 2023.

The credit is available through December 31, 2032.

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V. Investment in Clean Energy Manufacturing and Energy Security

Extension of the Advanced Energy Project Credit (§13501)

An additional $10 billion is allocated for tax credits for projects that reequip, expand, or establish certain energy manufacturing facilities.

Advanced energy projects include projects that reequip, expand, or establish a manufacturing or industrial facility for:
the production or recycling of renewable energy property;
energy storage systems and components;
grid modernization equipment and components;
property designed to remove, use, or sequester carbon oxide emissions, equipment designed to refine, electrolyze, or blend any fuel, chemical, or product which is renewable or low-carbon and low-emission;
property designed to produce energy conservation technologies;
electric or fuel-cell vehicles, including technologies, components, or materials for such vehicles and the associated charging infrastructure;
hybrid vehicles weighing less than 14,000 pounds, including technologies, components, or materials for such vehicles;

Projects which reequip an industrial manufacturing facility with equipment designed to reduce greenhouse gas emissions by at least 20% or which reequip, expand, or establish an industrial facility for the processing, refining or recycling of critical materials are also included.

The base rate for the credit is 6%, with a 30% rate for projects meeting Wage and Workforce Requirements.

Advanced Manufacturing Production Credit (§13502)

A new tax credit is created for domestic production and sale of qualifying solar and wind components.

Credits include:

4 cents per direct current watt of capacity for a thin film photovoltaic cell or crystalline photovoltaic cell;
$12 per square meter for photovoltaic wafers;
$3 per kilogram for solar grade polysilicon;
40 cents per square meter for polymeric backsheet;
7 cents per direct current watt of capacity for solar modules;
10% of the sales price of an offshore wind vessel;
For wind components that are not an offshore wind vessel, an applicable amount times the total rated capacity of the completed wind turbine;
$0.87 per kg for torque tubes and longitudinal purlin;
$2.28 per kg for structural fasteners;
1.5 cents to 11 cents per watt for inverters, based on the inverter's capacity, with different types of inverters eligible for specified credit amounts;
10% of the production cost of electrode active materials;
$35 per kilowatt hour of capacity for battery cells; and
10% for the production of critical minerals
The applicable amounts are two cents for blades; five cents for nacelles; three cents for towers; and two cents for fixed platform offshore wind foundations.

The credit would phase out beginning December 31, 2029, being reduced by 25% per year.

The phase out does not apply to the production of critical minerals.

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VI. Superfund

Reinstatement of Hazardous Substance Superfund (§13601)

The Superfund excise tax on domestic crude oil and imported petroleum products of 16.4 cents per barrel is permanently reinstated, with adjustments for inflation to be made annually.

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VII. Incentives for Clean Electricity and Clean Transportation

Clean Energy Production Credit (§13701)

Creates a new clean energy production credit (PTC) for sale of domestically produced electricity with a greenhouse gas emission rate of not greater than zero.

Electricity needs to be produced at a qualifying facility placed in service after December 31, 2024 and the credit is available for the facility's first 10 years of operation. The electricity produced must be sold to an unrelated party or consumed or stored by the taxpayer.

Base credit amount is 0.3 cents per kWh, with five times increase to 1.5 cents per kWh for facilities that meet the Wage and Workforce Requirements. Facilities with a maximum net output of less than 1 megawatt or that begin construction within 60 days after the Treasury publishes guidelines on the Wage and Workforce Requirements are eligible for the full 1.5 cent rate.

The credit is increased by 10% for electricity produced in energy communities (as defined in §13101).

Facilities financed by tax-exempt bonds will receive a reduction in the amount of credit.

An additional bonus credit is provided for projects that meet a domestic content requirement that requires a certification that certain steel, iron and manufactured products used in the facility were domestically produced. This bonus credit is 10% of the credit amount. Direct pay for this credit is only available if the domestic content requirement is met.

Taxpayers are not able to claim the clean energy production credit if the facility or electricity produced from the facility claimed certain other energy-related investment or production tax credits.

Taxpayers have to choose between the clean energy production credit and the clean energy investment credit (see §13702 below).

The credit phases out at the later of emission reduction target levels being achieved or after 2032. Emission reduction target levels are reached when greenhouse gas emissions from the electric power sector are equal to or less than 25% of the 2022 electric power sector emissions. Once phaseout begins, the full credit amount will be available to facilities that begin construction in the first following year, 75% in the second following year, 50% in the third following year and zero after that.

Clean Energy Investment Credit (§13702)

Creates a new clean energy investment tax credit (ITC) for investment in qualifying zero-emission electricity generation facilities or energy storage technology. Costs of interconnection property are eligible for zero-emission projects smaller than 5 megawatts.

Available for facilities and property placed in service after December 31, 2024.

Base rate is 6%, with a five-times increase to 30% for facilitates that meet Wage and Workforce Requirements. Facilities with a maximum net output of less than 1 megawatt or that begin construction within 60 days after Treasury publishes guidelines on the Wage and Workforce Requirements are eligible for the full 30%.

The ITC is increased by one-third for property placed in service in an energy community (as defined in §13101). And, there is a 10 percentage point bonus for meeting the domestic content requirements (as defined in §13102). Direct pay of this credit is only available if the domestic content requirement is met.

Facilities financed by tax-exempt bonds will receive a reduction in the amount of credit.

Taxpayers are not able to claim the clean energy production credit if the facility or electricity produced from the facility claimed certain other tax credits. Taxpayers have to choose between the clean energy production credit and the clean energy investment credit (see §13701 above).

Creates an annual allocation of 1.8 gigawatts for “environmental justice solar and wind capacity” which can result in additional credits for projects in low-income communities, on Indian land, part of a low-income residential building project or part of a qualified low-income economic benefit project.

Such project must have a nameplate capacity of 5 megawatts of less. If a facility receives an allocation, it must be placed in service within four years.

Subject to same phase out schedule as the clean energy production credit (§13701).

Cost Recovery for Qualified Facilities, Qualified Property and Energy Storage Technology (§13703)

Allows facilities (or property) qualifying for the clean energy PTC or ITC to be treated as 5-year MACRS property. This applies to facilities and property placed in service after December 31, 2024.

Clean Fuel Production Credit (§13704)

Creates a tax credit for domestic clean fuel production beginning in 2025. The credit per gallon of transportation fuel equals the product of an "applicable amount" times the relevant emission factor. The applicable amount for nonaviation fuel ranges from \$0.2 to\$1.00 and from \$0.32 to \$1.75 for aviation fuel.

Qualifying fuel will be produced and sold by the taxpayer at a qualified facility (not including facilities that receive credits for clean hydrogen, carbon oxide sequestration or the investment credit for energy produced in clean hydrogen facilities). Qualified producers must be registered with the IRS.

Not available for transportation fuel sold after December 31, 2027.

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VIII. Credit Monetization and Appropriations

Direct Pay and Transferability of Certain Credits (§13801)

Allows certain organizations such as tax-exempt organizations, state, local and tribal governments to treat certain tax credit amounts as payments of tax that can be refundable. Such organizations can receive direct payments relating to the §30C credit for alternative fuel refueling property, §45 renewable energy product credit, §45Q carbon oxide sequestration credit, §45U zero-emission nuclear power production credit and §45V clean hydrogen production credit. Certain tax-exempt organizations can also receive direct payments relating to the §45W credit for qualified commercial vehicles, the §45X advanced manufacturing production credit, the §45Y clean energy production credit, the §45Z clean fuel production credit, the §48 energy investment credit, the §48C qualifying advanced energy project credit and the §48D clean energy investment credit.

Taxpayers other than tax-exempt organizations, state, local and tribal governments can elect direct pay for the clean hydrogen, carbon oxide sequestration and advanced manufacturing production credit. Direct pay can be elected for the first five years starting with the year a facility is placed in service. This election cannot be made after December 31, 2032.

Additionally, taxpayers who are not tax-exempt entities are allowed a one-time transfer of tax credits for cash. Payments received in exchange for the transfer of credits are excluded from income and any amount paid to obtain a credit is not deductible.

Transferred credits have a carryback period extended from 1 to 3 years and a carryforward period from 20 to 22 years.

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IX. Other Provisions

Permanent Extension of Tax Rate to Fund Black Lung Disability Trust Fund (§13901)

Permanently extends rates of $1.10 per ton of coal from underground mines and $0.55 per ton of coal from surface mines, limited to 4.4% of a sales price.

Increase in Research Credit Against Payroll Tax for Small Businesses (§13902)

Provides for an additional credit of up to $250,000 against Medical Hospital Insurance tax for tax years beginning after December 31, 2022.

The credit cannot exceed the tax imposed for any calendar quarter, with unused amounts of the credit carried forward.

Reinstatement of Limitation Rules for Deduction for State and Local, etc., Taxes; Extension of Limitation on Excess Business Losses of Noncorporate Taxpayers (§13903)

Reinstates current SALT and NOL limitations

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