



SOLAR ENERGY TAX CREDITS AND INCENTIVES: HOW YOU CAN BENEFIT

Introduction

On August 16, 2022, President Biden signed the Inflation Reduction Act of 2022 (IRA), a landmark legislation that allocates \$369 billion for climate and energy initiatives. This funding aims to promote renewable energy, the adoption of electric vehicle technology and enhance energy efficiency in buildings and communities.

This white paper provides a comprehensive overview of the IRA's key solar energy provisions, focusing on the Investment Tax Credit (ITC) and Production Tax Credit (PTC). Our aim is to help clients, particularly those interested in building-integrated photovoltaics (BIPV), understand how these credits work and how to leverage them effectively.

What are the ITC & PTC?

The Inflation Reduction Act introduces two significant tax credits to support solar energy projects: the Investment Tax Credit (ITC) and the Production Tax Credit (PTC).

- The ITC allows a percentage of the cost of a solar system installed during the tax year to be deducted from federal income tax liabilities. This helps lessen the tax burden for solar system installations. (EcoWatch)
- The PTC provides a tax credit based on the electricity produced per kilowatt-hour (kWh) for the first 10 years of system operation. This credit reduces federal taxable income and is adjusted annually for inflation. (Energy.gov)

Generally, project owners cannot claim the PTC and the ITC for the same property. However, if the Internal Revenue Service (IRS) issues additional advice, a project owner may be able to claim separate credits for collocated technologies such as solar and energy storage.

Installed solar systems that begin construction before 2033 and become operational in 2022 or later are eligible for a 30% ITC or a 2.75 cents/kWh PTC, provided they meet the Treasury Department's labor standards and are smaller than 1 megawatt (MW).

The table below summarizes the ITC and PTC values over time.

Table 1: Summary of ITC and PTC value over time

		Start of Construction					
		2023-2033	After 2034	After 2035	After 2036		
ITC	Full Rate	Base Credit	30.0%	22.5%	15.0%	0.0%	
		Domestic Content Bonus	10.0%	7.5%	5.0%	0.0%	
		Energy Community Bonus	10.0%	7.5%	5.0%	0.0%	
		Base Credit	6.0%	4.5%	3.0%	0.0%	
		Domestic Content Bonus	2.0%	1.5%	1.0%	0.0%	
	Base Rate	Energy Community Bonus	2.0%	1.5%	1.0%	0.0%	
		Low Income Bonus	<5MW projects in Low income communities	10.00%	10.00%	10.00%	10.00%
	PTC	Full Rate	Qualified low income economic	20.00%	20.00%	20.00%	20.00%
			Base Credit	2.75¢	2.0¢	1.3¢	0.0¢
			Domestic Content Bonus	0.3¢	0.2¢	0.1¢	0.0¢
Energy Community Bonus			0.3¢	0.2¢	0.1¢	0.0¢	
Base Credit			0.55¢	0.4¢	0.3¢	0.0¢	
Base Rate		Domestic Content Bonus	0.1¢	0.0¢	0.0¢	0.0¢	
		Energy Community Bonus	0.1¢	0.0¢	0.1¢	0.0¢	

What projects are eligible for the ITC or PTC?

For a solar system to qualify for the ITC or PTC, it must:

1. Be situated in the United States or American territory.
2. Be utilized only as a new product or limited previously used property.
3. Not be leased to a tax-exempt organization, such as schools, even though these organizations can get the ITC as a direct payment.

Which is better for your project: ITC or PTC?

The PTC can offer a more alluring cash flow since the tax credits are collected over time, while the ITC is an upfront tax benefit independent of the system's performance. The project's cost, the quantity of sunlight it receives and whether it qualifies for any additional tax credits will determine whether to use the PTC or the ITC.

Which costs qualify for the ITC?

The ITC is based on the cost of establishing the solar system while the PTC is based on the power generated by the system. Understanding what costs can be included is crucial to determine how much tax credit the system qualifies for.

The appropriate tax credit percentage is multiplied by the amount spent on the qualified property, or the "tax basis," to determine the ITC.

Among the qualifying properties are:

- Balance of system equipment, solar PV panels, inverters and sales, and use taxes on the equipment.
- Communication service providers' equipment used to produce electricity or provide heat or cooling to a building.
- Installation fees as well as certain prorated indirect expenses.
- Circuit breakers, surge arrestors and step-up transformers.
- Devices for storing energy with a capacity rating of five-kilowatt hours or more.
- The interconnection property costs incurred by the project owner to facilitate the distribution and transmission of the electricity produced or stored by the system may be included in the tax basis for projects with a capacity of no more than 5 MW.

Building-integrated photovoltaic (BIPV)

If a structure's purpose is to generate energy and all other functions are incidental, buildings with solar photovoltaic (PV) systems may qualify for the ITC. While structural components usually do not qualify for the ITC, there is an exception for components specifically engineered as part of the solar equipment. Consequently, PV integrated into buildings, such as solar windows, shingles or facades, are eligible for the ITC. (EcoWatch)

What are the labor requirements?

To be eligible for the full ITC or PTC, projects that began construction before January 31, 2023, must comply with Treasury Department labor requirements. This includes paying local prevailing

wages for construction, alteration and repair for the first 10 years of PTC projects and the first five years of ITC projects.

Additionally, an apprentice must complete a specific portion of the total construction labor hours for a project. Starting at 10% for projects beginning construction in 2022, the proportion rises to 12.5% for projects beginning in 2023, and 15% for projects beginning after 2023. (Energy.gov)

What are the bonus credits?

There are extra credits available beyond the credits a project is eligible for with the ITC and PTC:

Domestic Content Bonus

A "required percentage" of the total costs of manufactured products (including components) must be mined, produced or manufactured in the United States to be eligible for the domestic content bonus. Additionally, all structural steel or iron products must be made in the country. The cost of domestically made components and products is divided by the total cost of all produced goods to get the percentage. (Energy.gov)

For categorization purposes, taxpayers can refer to the IRS's non-exhaustive list of manufactured goods, solar PV steel products and manufactured product components found in the guidelines. These consist of:

- Products made of steel and iron including concrete pads, pile or ground screws, steel photovoltaic module racking, and steel or iron rebar used in foundations.
- Produced goods including the inverter, PV tracker, and PV module.
- Photovoltaic cells, mounting frame or back rail, glass, encapsulant, back sheet, junction box, edge seals, adhesives, bus ribbons, and bypass diodes are the parts of a PV module, if applicable.

Low-Income Bonus

The low-income bonus has an annual program maximum of 1.8 GigaWatts (GW) and is exclusively accessible to projects that use the ITC. Projects that are under 5 MW can benefit from this advantage by either:

1. An extra 10% ITC for being on Native American property or situated in a low-income neighborhood as specified by the New Markets Tax Credit. (Energy.gov)
2. A further 20% ITC for falling within the categories of "qualified low-income economic benefit project" or "qualified low-income residential building project" [23] (Category 3). The financial advantages of the solar plant must be distributed equally among the inhabitants for the credit to be granted. (Energy.gov)

The IRS will assign projects to the 1.8 GW program maximum, carrying over any unused yearly allotment for three years.

ITC & PTC Phase-out

The ITC, PTC and related bonuses expire unless extended by the U.S. Congress. This applies to projects that start construction in 2032 or the year the Treasury Secretary determines that the annual greenhouse gas emissions from the U.S. electricity production have decreased by at least 75% from calendar year 2022 (whichever comes first).

- Apart from the 1.8 GW low-income program, the credits and incentives for projects starting construction in 2032 stay at 100% of their full value in 2033, or the first year following the start of the phase-out.
- Projects that start construction in 2034—the year after the phase-out starts—are eligible to receive 75% of their total value.
- Projects that start construction in 2035 are eligible for 50% of their total value.
- The PTC and ITC are unavailable to projects that start construction after the third year of the phase-out.

Systems larger than 1 MW, including the domestic content and energy community benefits, are subject to an 80% reduction in construction costs if they start construction 60 days or more after Treasury's labor advisory and do not fulfill the labor criteria.

Tax Exempt Organizations

Non-profit organizations and local governments, among others, are exempt from paying federal taxes and can benefit from the tax credits by either direct payment or credit transfer.

Direct Pay

The IRS will reimburse tax credits for projects put into service after 2022 to tax-exempt organizations (i.e., non-profits), states, counties, municipalities, instrumentalities (such as school districts), the Tennessee Valley Authority, Native American tribal governments, any Alaskan Native Corporation, and any rural electric cooperative. Certain ownership structures, such as tenancy-in-common, are permitted but partnerships—even if all partners are eligible—are not.

Organizations seeking direct pay, also known as elective pay, must pre-register with the IRS and obtain a registration number before their tax return deadline. Registration is necessary yearly for each property that qualifies; however, pre-registration does not guarantee qualification.

(EcoWatch)

The basis for the tax credit may include grants free from taxes or loans that are forgiven if they were utilized for financing. However, the entire amount of the direct pay credit cannot be greater than the tax-exempt funds that were given especially for this project plus the project's cost.

Transfer of Credit

The tax credits for a particular year may be sold in whole or in part to an unrelated qualified taxpayer by taxpayers who are not eligible for direct payment. Taxpayers are not permitted to transfer a tax credit simply for the bonus credit amount. In the same tax year, credits from a single property may be sold to several buyers.

To transfer tax credits, an organization must pre-register and get a registration number from the IRS before the tax return deadline. Registration is necessary yearly for each property that

qualifies, or for every PTC year; however, pre-registration does not guarantee qualification. The vendor and the buyer of the tax credits must include the registration number on their tax returns. The same registration is utilized if there are several buyers of credits from a single property.

Payments for the credit must be paid in cash and, for federal reasons, they are not regarded as gross income. A transfer election statement detailing the specifics of the transfer must be jointly completed by the buyer and seller and submitted with the seller's and buyer's tax returns.

Unused tax credits

For projects that become operational in 2023 or later, unused tax credits associated with the project can be carried back three years and carried forward 22 years. This means that if a project does not generate enough tax liability to use all of its credits in the current tax year, the project owner can apply those unused credits to past tax liabilities (up to three years prior) or future tax liabilities (up to 22 years into the future).

For projects that became operational before 2023, unused tax credits can be carried back one year and forward 20 years. This allows project owners to offset past tax liabilities from the previous year or future tax liabilities for up to 20 years.

If any unused tax credits remain after the carryforward period (20 or 22 years, depending on when the project became operational), those credits will expire and can no longer be used to offset tax liabilities. This ensures that the benefits of the tax credits can be fully utilized over an extended period, maximizing the financial incentive for investing in solar energy projects.

How to claim the ITC & PTC?

A taxpayer must fill out IRS Form 3468 and attach it to their tax return to claim the ITC. Find the form and the form's instructions here: [About Form 3468, Investment Credit | Internal Revenue Service \(irs.gov\)](#)

A taxpayer must fill out IRS Form 8962 and attach it to their tax return to claim the PTC. Find the form and the form's instructions here: [Instructions for Form 8962 \(2022\) | Internal Revenue Service \(irs.gov\)](#)

Conclusion

The Inflation Reduction Act introduces financial incentives to promote renewable energy adoption, particularly through the ITC and PTC. These tax credits provide significant benefits for solar energy projects, allowing project owners to reduce federal income tax liabilities either through upfront cost deductions (ITC) or based on energy production (PTC).

Understanding the eligibility criteria and specific conditions for claiming these credits is crucial for maximizing their potential. This white paper highlights the importance of labor requirements, bonus credits for domestic content and low-income areas, and the ability to carry unused tax credits forward or backward, ensuring long-term financial benefits.

By leveraging the ITC and PTC effectively, clients—especially those interested in building-integrated photovoltaics (BIPV)—can significantly reduce the cost of solar energy projects. This comprehensive guide serves as a valuable resource for navigating the

complexities of solar energy tax incentives, enabling stakeholders to make informed decisions and optimize their investments in renewable energy.

For further assistance in claiming these credits, taxpayers should refer to the IRS and their respective forms, ensuring they meet all required conditions and deadlines to benefit from these incentives.

References:

[Federal Solar Tax Credit \(What It Is & How to Claim It for 2024\) \(ecowatch.com\)](#)

[Solar Investment Tax Credit: What Changed? | Department of Energy\(Energy.gov\)](#)