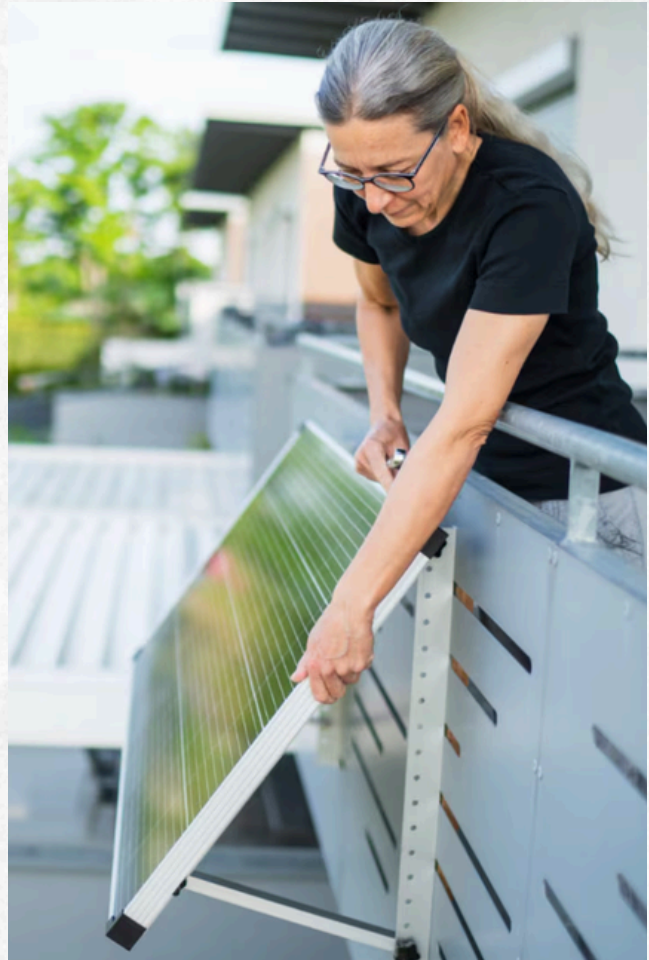


# Sunlit Sockets

PLUG-IN SOLAR SURGES IN THE US



## READ INSIDE:

- **Tech breakdown**
- **Barriers for the US**
- **US vs Europe**
- **Growing momentum**
- **The American future**



2026 is shaping up to be pivotal for solar retrofits in the US. Particularly for plug-in solar. Following Utah's legislation back in May last year, at least 25 states now consider legalizing this appliance across the country.

Solar energy is among the least expensive forms of electricity there is. But it's been difficult for many people to invest in it considering the upfront cost. And for rooftop solar most houses lack suitable roofs.

Plug-in solar systems bridge this gap, making clean energy accessible to everyone.

# TECH BREAKDOWN

Not unlike it sounds, plug-in solar or balcony solar systems connect directly to a standard home outlet. They are plugged in like a regular appliance, but instead of drawing power from the outlet, they send power into it for use in other parts of the home. Your appliances will use solar first, so you save more by drawing less from the grid.

## How it works:

1. The solar panels capture sunlight, generating DC electricity.
2. A microinverter converts DC to AC.
3. AC flows into other parts of your home through the power outlet.
4. Appliances use solar first, reducing grid usage.

## Three key wins:



### LOW ENERGY BILLS:

These systems can cut electricity costs by hundreds of dollars a year by allowing homeowners to produce their own electricity. A study estimates potentially \$13 billion annual US consumer savings by cutting grid reliance.



### CUTTING THE RED TAPE:

These are small, portable solar systems and don't require much electrical work. So it can be installed with little to no technical expertise. This can avoid the need for permits and vastly reduce soft costs.



### CLEAN ENERGY:

They make renewable energy accessible to all, significantly reducing reliance on the grid and lowering carbon emissions.

It's the perfect ask for **tenants**, **solar enthusiasts**, or just anyone looking to be **clean and independent** with their energy.



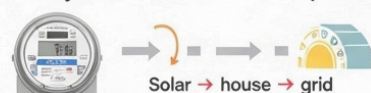
# BARRIERS FOR THE US

On paper there's no reason this shouldn't already be big in the US. Yet outdated regulations have created some gaps preventing plug-in solar systems from jumping over to the good side. Or they've slowed down the process at least.

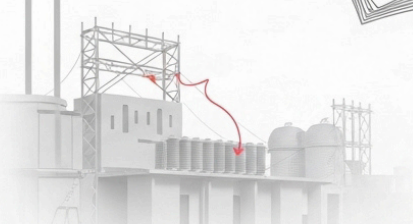
## Barreirs to Plug-In Solar Adoption Adoption in the United States

Policy gaps. Code. Certification uncertainty

### Policy & Interconnection Gaps



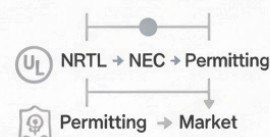
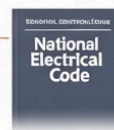
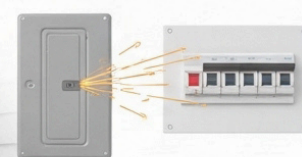
Interconnection  
Process



### Certification & Testing Bottlenecks



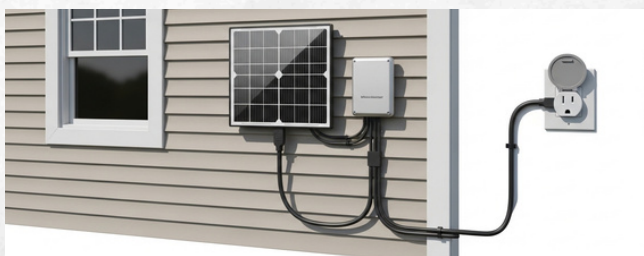
### NEC Interpretation Issues



## Policy & interconnection gaps:

Most rules around net metering (NM), billing, and grid interconnection are designed for traditional systems. And these usually apply when solar systems export power *into the grid* and go through the interconnection process.

"Plug-in" has been new and confusing to the US policy makers in this regard.



## NEC interpretation issues:

The National Electrical Code (NEC) doesn't explicitly address plug-in solar and lacks the "language" for it. This has led to potential safety concerns (arc faults or overloads) and caused some unfortunate local permitting decisions to follow.

Additionally, plug-in appliances in the US are covered by Nationally Recognized Testing Laboratories (NRTLs) like UL. And UL along with permitting agencies tend to follow the NEC, which doesn't cover plug-in solar yet. So everything under it has been on breaks.





# US VS EUROPE: THE PLUG-IN RACE

In terms of plug-in solar, the US is where Europe was about a decade ago. Today it's legal in all EU Member States except in Sweden and Hungary. It has exploded in popularity across Europe, particularly in Germany where registered users are well above a million.

The difference here has mainly come from regulatory freedom vs friction. In Europe, these systems are treated like household appliances while in the US it's like a "civil engineering project".

## Appliance vs Project:

In many EU countries, you can buy a kit at a hardware store for €200–€500 and plug it into an outlet yourself. The same setup in the US has often required utility approvals and permits, with "soft-costs" to follow. This adds about \$4,000 before you'd even put up the panel.

## Safety standards & voltage:

Europe operates on a 230V standard, allowing systems to safely feed up to 800W into a circuit. But the US holds a 120V standard that the NEC manages by expensive hard-wiring. So "backfeeding" through a standard plug is a gray area in most states.

## Retail electricity prices:

Europe operates on a 230V standard, allowing systems to safely feed up to 800W into a circuit. But the US holds a 120V standard that the NEC manages by expensive hard-wiring. So "backfeeding" through a standard plug is a gray area in most states.

## Tenant rights:

Germany and other EU nations have laws in place to allow tenants to install these systems without landlord "vetoes". This isn't really a thing in the US. While plug-in solar may be appealing to the tenant, Homeowner Associations (HOAs) or strict rental agreements often ban any visible solar system.

Many states in the US have adopted "solar access laws" that override HOA restrictions that may provide some protection to plug-in solar.





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# THE PLUG-IN REVOLUTION IN THE US

## THE AMERICAN LANDSCAPE FOR PLUG-IN SOLAR IS CERTAINLY SHIFTING.

It begins with Utah's explicit policy covering plug-in solar. The HB340 (2025) created a new class of customer generation called a "Portable solar generation device":

**Connection:** Standard 120V AC outlet

**Safety standard:** The most recent NEC

**Certification:** UL or an equivalent NRTL

### Two key parts of the HB340

Utah's legislation exempts plug-in solar systems from net metering. So while power can be exported to the grid, the owner doesn't receive any compensation for it. This neatly sidesteps the utility review processes required for grid-tied systems that are designed to participate in net metering programs.

The law restricts utilities from demanding extra fees or equipment for these plug-in systems. This also means if the system causes any damage back home, the utility isn't liable.

### More states follow suite

As of February 2026, at least **25** states in the US have public legislation under consideration to allow plug-in solar. And the list grows strong. Americans seem to believe they should be able to enjoy solar savings whether they're renters or homeowners.

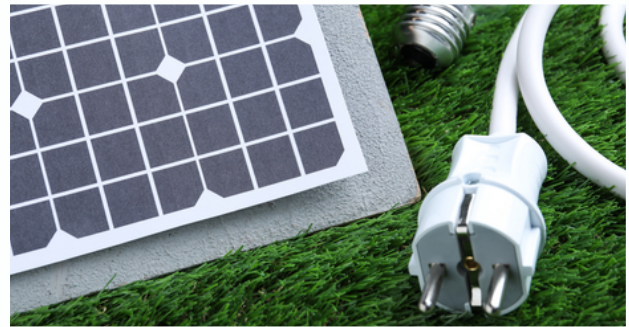
In California, users already under a Net Energy Metering (NEM) agreement through rooftop solar, can *add* plug-in solar to expand their existing system by up to 1 kW.

UL released its UL3700 (Outline of Investigation) in December 2025 to "further define" the safety & compliance requirements for plug-in solar systems. They've also begun offering testing and certification services for the same since January 2026.

While this still is a few shots from a national standard, it's a huge step in that direction.



# THE AMERICAN HORIZON FOR PLUG-IN SOLAR



No doubt plug-in solar has made its way into America. Advocacy organizations like **Brightsaver** lead this change from the forefront, actively working for policies supporting these systems. They recommend a policy approach similar to what's seen in Utah. Mainly for a new class of dedicated small PV systems exempt from utility requirements.

For these systems to grow in the US, policies may focus on three essentials: clear safety and interconnection standards, fair utility rules, and accessible incentives. We may also see better export credit structures further speeding up adoption. With the right framework, plug-in solar can move out of its gray area and become a big part of America's energy landscape.

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