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Intro to Plug-in Solar

Bringing balcony solar to the US

brightsaver.org

A 501(c)(3) non-profit organization

What is Plug-in "Balcony" Solar?

- Small, modular PV units (≤1200W) that plug into a standard outlet - costing as low as $500-$600 in Europe.

- Feeds power directly into the home's electrical system through a standard outlet (like an appliance in reverse)

- Offsets grid use and reduces bills - up to 25% per month - in **VT -** $120-$360/yr depending on system size / battery inclusion.

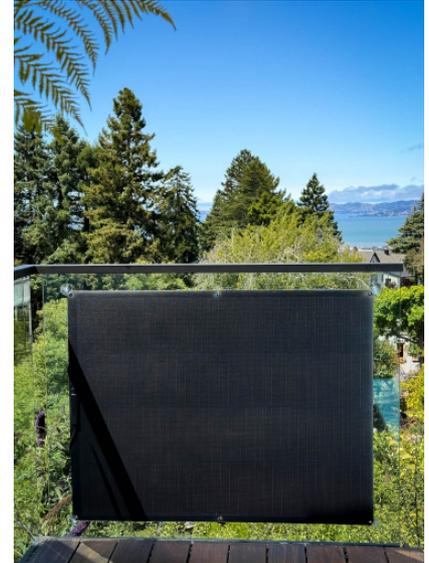- Works with traditional grid-connected homes, like rooftop solar.

System Types

Backyard solar with or w/out battery – 2/4 X 400W panels, along with microinverter, aluminum mount, cables, and smartphone app for energy savings monitoring.

Small **balcony** systems

Germany

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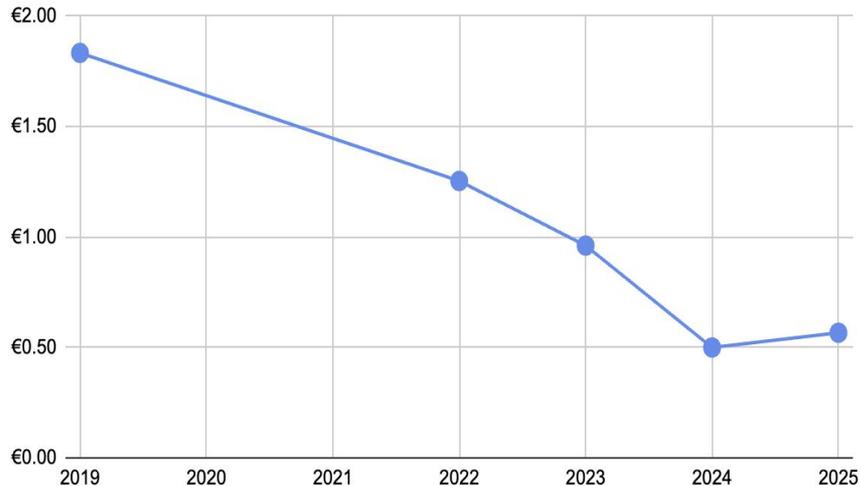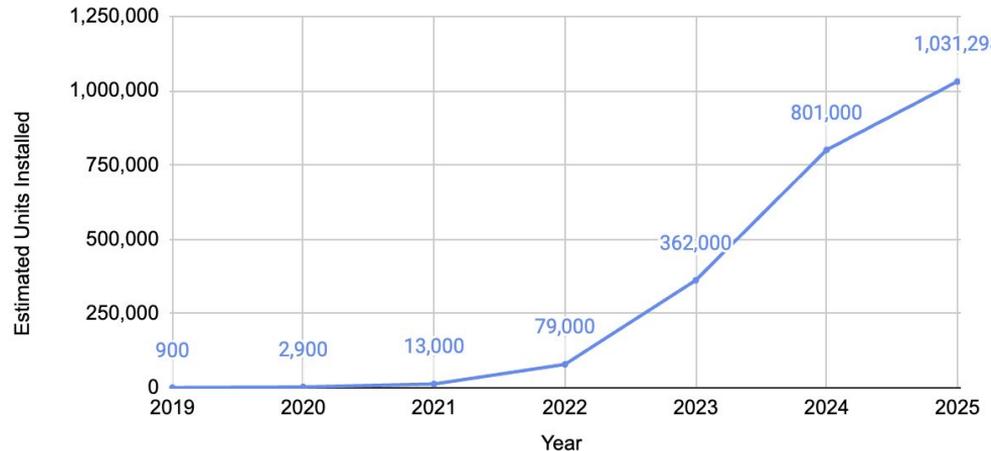## Balcony PV kit spot price in Germany (€/Wp, documented ranges 2019-2025)

Source: Priwatt, HTW Berlin, Business Insider, Heise Online, ADAC, Finanztip

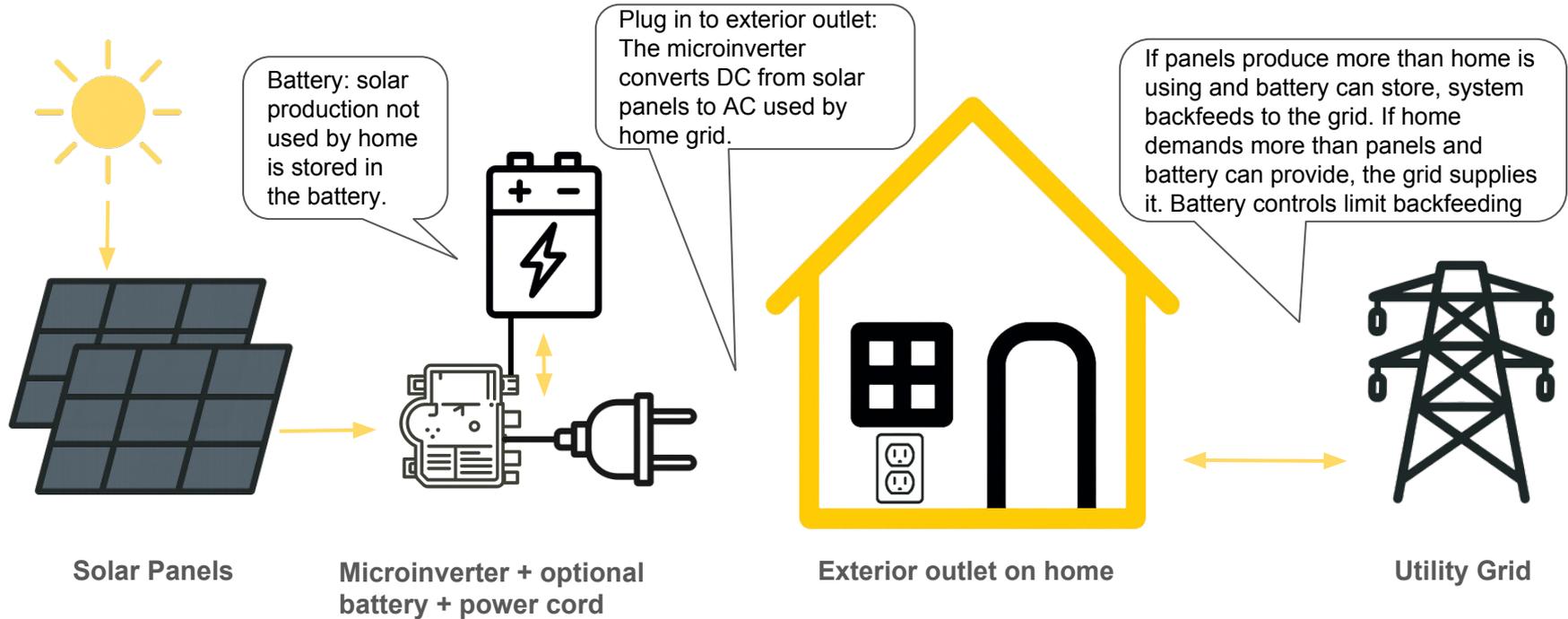## Registered Balcony Solar Units in Germany, 2019-Q2 2025

Up to ≈ **4 million households** have already installed in **Germany** <u>in just 4 years</u>

Germany Right Now

Image: obs/EmpowerSource UG

How does Plug-in Solar work in Europe + Utah?

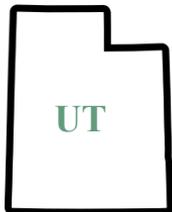# What Legislation Aims to Achieve

Bright Saver's model legislation
(following Raymond Ward's HB340)

- **Creates a New Plug-In Category:** ≤1,200W exempt from one-size-fits-all interconnection rules designed for rooftop solar 5-20X larger

- **Not Eligible for Net Metering:** Uncompensated; small-scale backfeeding is zero cost or liability to utilities

- **Safety:** Legislation points towards UL or equivalent NRTL certification as safety measure for what will surely be rapidly evolving technologies.

- **No fiscal impact:** Legislation is enabling the market, no subsidy or incentives required.
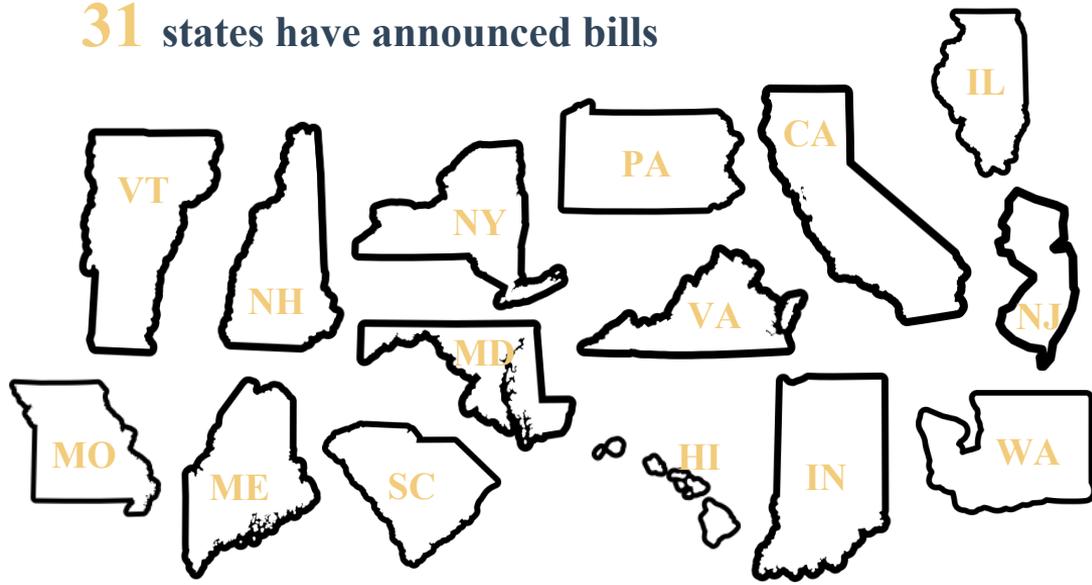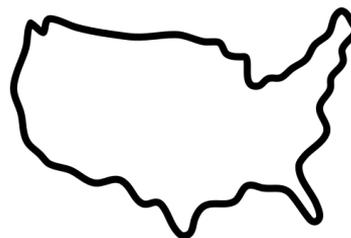
Legislative Progress

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1 state law 2025

UT

+2 more states planning to introduce 2026

31 states have announced bills

VT

NH

NY

PA

CA

IL

VA

NJ

MO

ME

SC

MD

HI

IN

WA

Plug-in Solar Momentum

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Safety:

UL 3700, the new UL certification, eliminates "regulatory gray area," provides clear path for manufacturers for safety and liability.

UL 3700 complies with **NEC** and **NFPA**
- Ensures safety of PIPV systems in worst possible conditions (ie, old wiring)
- Incorporates UL 1741 which ensures automatic shut-down within milliseconds of power outage, protecting line-workers

Public awareness: Average weekly Google search volume for "balcony solar" increased 250% in 2nd vs. 1st half of 2025 and by 164% for "plug-in solar" – coverage in **40+ media outlets, inc.**

Market enablement: 2 manufacturers began selling plug-in solar in the U.S in 2025 in Utah. More will enter as states pass legislation.

Grid Impact Report

Brooks Engineering Report (Dec 2025)

- **No Net Export:** Even at **40% market share of 1.2 kW systems**, all energy produced is absorbed by aggregate hourly demand = **zero net export** at the substation level across all U.S. regions.

- **Neighborhood "Sink":** While an individual home may have de minimus export, this excess is immediately consumed by the "minimum load" of the other homes in the sector.

- **Grid Neutrality:** BDo not negatively impact **distribution infrastructure** + can delay costly infrastructure updates.

- **Comparison to Conservation:** The grid impact of 1.2 kW plug-in solar is identical to **energy conservation measures** that reduce demand during the middle of the day.