



GLOBAL ROOFTOP SOLAR INITIATIVE

BASELINE DATA BRIEF



Global Rooftop Solar (300M) Initiative

Baseline Data Brief

THE OPPORTUNITY

Rooftop solar is one of the fastest-scaling energy technologies globally, delivering immediate household savings, rapid deployment, local job creation, and energy security at the point of use.

However, deployment is not linear. The market is currently experiencing:

- Short-term volatility (2025–2026) driven by policy adjustments, grid constraints, and macroeconomic conditions
- A temporary slowdown following a decade of rapid expansion
- Significant upside potential if enabling conditions are strengthened

Against this backdrop, the initiative defines a clear objective:

To accelerate global deployment to 300 million solar + storage rooftops by 2030 equivalent to approximately 2 terawatts (TW) of rooftop solar capacity.

300 million is not a forecast. It is a conditional outcome only achievable through coordinated policy, finance, and deployment action across key markets and cities.

CURRENT GLOBAL POSITION (2026)

Based on IEA PVPS distributed solar capacity data, combined with conversion assumptions:

- Approx 150 million total rooftop systems by end-2026
- Estimated composition:
 - 115 million residential systems (~80%)
 - 35 million small commercial / community systems (~20%)

Because global rooftop system counts are not directly tracked, totals are derived by converting distributed PV capacity into system counts using:

- Regional residential vs. commercial shares
- Average system size assumptions
- Explicit inclusion boundaries (see below)

THE 2030 TARGET: 300 MILLION SYSTEMS = 2 TW ROOFTOP SOLAR

The initiative anchors both system count and energy impact:

- 300 million systems globally
- 2 TW of rooftop solar capacity

This implies an average system size of 6–7 kW globally. This range reflects real-world deployment:

- Emerging markets: 2–6 kW
- OECD residential markets: 6–10+ kW
- Small commercial systems increasing the overall average

Why 2 TW matters

At 2 TW, rooftop solar becomes a core component of global electricity supply, a mass-market energy solution embedded in buildings, and a structural shift toward decentralised energy systems.

It's important to note that this is rooftop solar specifically - not total distributed solar. Distributed solar includes ground-mounted and adjacent systems; the 300M initiative focuses exclusively on building-mounted systems.

THE ACCELERATION PATHWAY (2027–2030)

To reach 300 million systems by 2030, the market must transition from stagnation to sustained high growth.

Required trajectory: 25% CAGR in system count (2027–2030)

This represents:

- A reversal of flat/negative growth in 2025–2026
- A return toward historically demonstrated growth rates

Rooftop solar has historically achieved >30% compound annual growth, and this initiative is designed to restore that trajectory by removing structural barriers.

Baseline projections indicate approximately 225 million systems conservatively by 2030 (without intervention). The initiative therefore unlocks an additional 75 million rooftop systems globally by 2030.

WHAT ENABLES THIS GROWTH

Achieving sustained 25% growth depends on coordinated action across three core levers:

National Missions (Policy & Regulation)

- Streamlined permitting and interconnection
- Distributed solar targets and frameworks
- Storage integration and export rules

City-Level Deployment

- Municipal programme design and incentives
- Bulk procurement and aggregation
- Replicable “solar playbooks”

Finance & Market Access

- Scaled consumer finance (loans, leasing, aggregation)
- Reduced cost of capital
- Standardised delivery models

SYSTEM SIZE ASSUMPTIONS

Global system counts are derived from capacity using average system size assumptions.

- Global working range: 5-10 kW
- Central estimate: 6-7 kW per system

Sensitivity

- A $\pm 20\%$ change in system size shifts total system counts by tens of millions
- Larger systems reduce total system count; smaller systems increase it

Capacity Alignment

- At a 6-7 kW average, 300 million systems $\approx$ 1.8-2.1 TW
- The 2 TW anchor reflects the central, rounded estimate within this range

DEFINITION: WHAT COUNTS AS A “ROOFTOP SOLAR SYSTEM”?

To ensure consistency and credibility, the initiative applies clear inclusion boundaries:

Included Systems

- Residential rooftop systems (including apartments)
- Balcony and plug-in solar systems
- Small business rooftop systems
- Schools, clinics, and community buildings
- All customer-sited, building-mounted systems

System Size Boundary

- Included range: ~0.3 kW to 100 kW DC
- Lower bound (~0.3 kW): captures plug-in / balcony systems
- Upper bound (100 kW): defines the ceiling for community-scale infrastructure

Excluded Systems

- Systems >100 kW (even if rooftop-mounted)
- Behind-the-meter ground-mounted systems
- Utility-scale or quasi-utility distributed projects
- Standalone off-grid field systems not attached to buildings

Why this boundary matters

- Prevents inflation or distortion of system counts
- Maintains focus on people-centred, building-level deployment
- Avoids overlap with large commercial/industrial solar

METHODOLOGY

This framework is based on:

- IEA PVPS distributed PV capacity datasets
- Forward trajectories aligned with IEA outlooks
- Conversion of capacity to system counts using:
 - Average system size assumptions
 - Inclusion boundaries
 - Regional system mix

Because global rooftop counts are not directly tracked, distributed PV is used as a proxy dataset, with explicit adjustments to isolate the rooftop subset

WHY 300 MILLION MATTERS

At 300 million systems and 2 TW of rooftop capacity, solar becomes:

- A meaningful share of global electricity generation
- A driver of household affordability and resilience
- A source of millions of decentralised jobs
- A foundation for long-term political support for energy transition

This is the energy transition at street level...embedded in buildings, owned by people, and visible in daily life.