

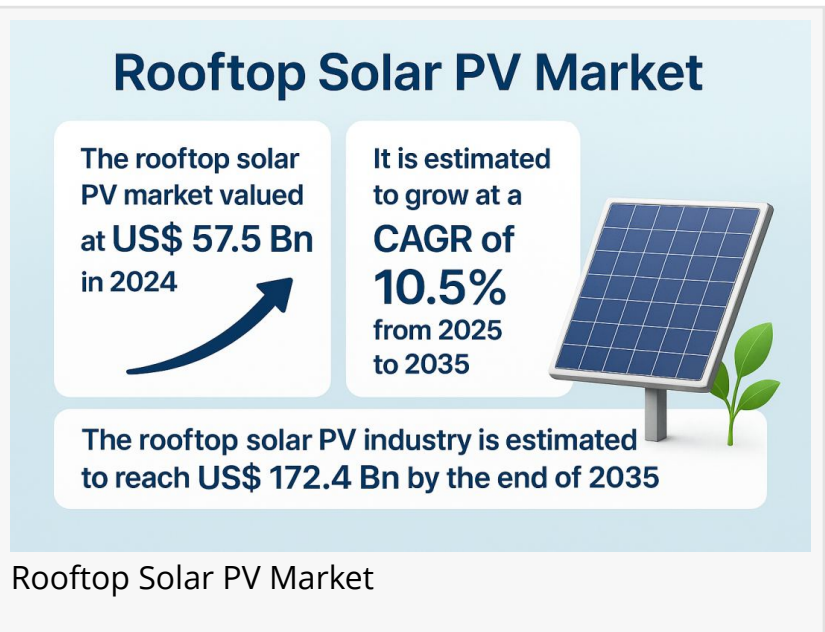
# Rooftop Solar PV Market to Reach USD 172.4 Bn by 2035, Expanding at a CAGR of 10.5% During Forecast Period | TMR

*Declining solar costs, supportive policies, corporate sustainability goals, and rising energy independence needs are driving rooftop solar PV market growth.*

WILMINGTON, DE, UNITED STATES,  
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EINPresswire.com/ -- The [rooftop solar photovoltaic \(PV\) market](#) has emerged as one of the fastest-growing segments in the global renewable energy landscape. Valued at US\$ 57.5 billion in 2024, the industry is projected to expand at a CAGR of 10.5% from 2025 to 2035, reaching a valuation of US\$

172.4 billion by 2035. This strong trajectory reflects the combined force of policy support, cost reductions in solar technologies, and rising demand from consumers and corporations seeking sustainable energy solutions.



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## Market Size and Growth

The rooftop solar PV industry's remarkable growth prospects stem from a combination of favorable economics and expanding adoption across both developed and emerging markets. Over the past decade, the cost of solar modules has declined by nearly 80%, while module efficiency has consistently improved. This has made rooftop solar one of the most cost-competitive renewable energy sources available today.

Businesses, households, and industrial facilities are increasingly recognizing rooftop solar as a tool for long-term cost savings and energy independence. The decentralization of energy through rooftop PV systems reduces dependence on conventional grid power and insulates

users from volatile electricity prices. By 2035, this shift is expected to place rooftop solar at the forefront of clean distributed generation, particularly in markets where retail electricity costs are high and sustainability mandates are strong.

## Market Segmentation

Rooftop solar PV systems can be segmented by end-user, technology, and financing model.

- **By End-User:** Adoption spans residential, commercial, and industrial (C&I) users. While residential users are driven by household energy savings and net metering policies, C&I consumers benefit from predictable energy costs and decarbonization of operations. Retail chains, warehouses, and data centers are leading adopters due to the significant roof space available.
- **By Technology:** Monocrystalline panels dominate the market due to their higher efficiency (20–24%) and ability to maximize power output where space is limited. The cost gap between monocrystalline and polycrystalline panels has narrowed significantly, driving higher adoption. Advanced technologies such as PERC, TOPCon, and HJT are further improving efficiency and reliability.
- **By Financing Model:** Capital expenditure remains a barrier for many users, but new models such as leasing, RESCO frameworks, and Power Purchase Agreements (PPAs) are breaking down financial barriers. These options allow users to avoid high upfront costs while still benefiting from stable, long-term power supply.

## Regional Analysis

### Asia Pacific (APAC)

APAC is the undisputed leader in the rooftop solar PV market, accounting for nearly 56.4% of global share. China, India, and Japan are the main drivers of growth, fueled by government incentives, distributed generation goals, and large-scale domestic manufacturing that reduces module costs. India's National Rooftop Solar Program and China's distributed generation policies have created massive opportunities in both residential and C&I segments.

### Europe

Europe remains the second-largest market, supported by ambitious EU climate targets, high retail electricity prices, and robust policy frameworks such as feed-in tariffs, net metering, and tax credits. Consumer awareness of sustainability and strong demand for prosumer models have further strengthened adoption. Despite regulatory shifts, Europe has maintained steady momentum in rooftop PV deployment post-pandemic.

## North America

The U.S. is witnessing accelerating growth thanks to the Inflation Reduction Act (IRA), which provides long-term certainty through investment tax credits and supportive frameworks for distributed solar. Large corporations adopting rooftop solar for ESG compliance and energy cost management are further fueling adoption.

### Market Drivers and Challenges

#### Key Drivers

1. **Economic Accessibility:** Declining solar module prices, reduced costs of inverters and BOS components, and financing innovations have made rooftop solar accessible across income levels and business segments.
2. **Policy Support:** Government frameworks such as subsidies, tax credits, and net metering create a stable investment climate. Corporate sustainability pledges and Net Zero goals amplify demand.
3. **Technological Advancements:** Digital monitoring, AI-driven predictive maintenance, and blockchain-based energy trading enhance system efficiency and transparency, boosting consumer trust.

#### Challenges

Despite strong growth, challenges remain. High upfront costs remain a deterrent in markets without supportive financing models. Grid integration issues such as variability and stability continue to pose technical challenges for utilities. Additionally, regulatory uncertainty in certain regions and limited rooftop space in dense urban areas may restrain adoption rates.

#### Market Trends

The rooftop solar PV market is witnessing several transformative trends. Monocrystalline dominance is a key shift as efficiency gains and falling costs make it the preferred choice for both residential and C&I users. Another trend is the integration of storage solutions with rooftop PV systems, enabling users to store excess power and ensure uninterrupted supply. Digitalization is also redefining system performance, with AI, IoT, and cloud-based analytics enabling real-time monitoring and predictive maintenance.

#### Competitive Landscape

The rooftop solar PV market is characterized by a mix of global manufacturers and regional players. Leading companies include LONGi Green Energy, JinkoSolar, Trina Solar, Canadian Solar,

First Solar, and Tata Power Solar. These firms are investing heavily in high-efficiency module technologies such as PERC, TOPCon, and HJT, as well as in integrated rooftop solutions that combine smart inverters, monitoring systems, and energy storage.

Strategic partnerships, capacity expansions, and technology innovation are central to their competitive strategies. By providing end-to-end solutions, these companies are increasing the reliability and attractiveness of rooftop solar systems for households and businesses alike.

## Future Outlook

Looking ahead, the rooftop solar PV market is poised for significant expansion through 2035. Energy decentralization will remain a key theme, with distributed rooftop systems contributing to grid resilience and energy security. Falling costs and innovative financing will make solar accessible to a wider user base, particularly in emerging economies where electricity affordability is a concern.

Policy support will remain pivotal, with frameworks such as the U.S. IRA, the EU's Fit for 55, and India's renewable targets continuing to drive momentum. Corporate demand for sustainable energy will also accelerate adoption, particularly as ESG reporting becomes stricter. Integration with energy storage and digital platforms will unlock new business models and revenue streams, further strengthening the rooftop solar ecosystem.

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