

Distributed Solar and Rooftop PV Market Forecasts to 2034 – Global Analysis By Installation Type (Residential Rooftop PV, Commercial Rooftop PV, Industrial Rooftop PV and Community & Shared Solar), Ownership & Financing Model, Capacity Range, Technology, Application and By Geography

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Abstracts

According to Statistics MRC, the Global Distributed Solar and Rooftop PV Market is accounted for \$134.8 billion in 2026 and is expected to reach \$202.2 billion by 2034 growing at a CAGR of 5.2% during the forecast period. Distributed solar and rooftop PV refer to small-scale solar installations placed on homes, businesses, and industrial facilities to produce electricity near where it is used. By minimizing dependence on centralized power systems, these solutions help cut transmission losses and improve energy security. Falling equipment prices and favorable policy frameworks have driven widespread adoption worldwide. These systems often support net metering, enabling users to supply surplus electricity to the grid. Moreover, they support environmental objectives by lowering greenhouse gas emissions and strengthening energy reliability, particularly in cities and underserved regions lacking consistent access to stable power networks.

According to the International Energy Agency, global solar PV investment exceeded USD 480 billion in 2023, surpassing all other power generation technologies combined, highlighting the strong momentum behind both utility-scale and distributed solar markets.

Market Dynamics:

Driver:

Declining solar panel costs

A major factor propelling the distributed solar and rooftop PV market is the steady reduction in the cost of solar panels and system installation. Improvements in technology, mass production, and better supply chain efficiencies have lowered overall expenses significantly. This affordability allows more households and enterprises to invest in solar energy systems. Reduced capital requirements and faster payback periods enhance the appeal for consumers seeking cost-effective energy alternatives. As a result, adoption rates are increasing across various sectors, driving market expansion. Affordable solar solutions are now competing effectively with traditional power sources, encouraging a broader transition toward decentralized and sustainable energy generation.

Restraint:

High initial investment costs

A major limiting factor for the distributed solar and rooftop PV market is the substantial initial cost associated with installing these systems. Even though prices have decreased, the combined expenses of equipment and setup can still be prohibitive for many users. This is especially true for smaller enterprises and households with limited financial capacity. Inadequate financing facilities and extended return-on-investment timelines further reduce attractiveness. While solar energy provides long-term economic benefits, the need for considerable upfront capital discourages adoption. This financial constraint continues to hinder broader market expansion, particularly in developing regions where affordability remains a critical concern.

Opportunity:

Growth of smart cities and digital infrastructure

The development of smart cities and advanced digital infrastructure is opening up new avenues for distributed solar and rooftop PV technologies. These urban initiatives focus on improving energy efficiency and promoting sustainable power sources. Solar systems can be integrated with smart grids and connected devices to enhance energy management and optimize usage. Real-time data monitoring and automation improve system performance and reliability. Increasing government investments in smart city

programs further support renewable energy adoption. As cities become more technologically advanced, the need for decentralized and intelligent energy solutions will continue to boost the expansion of rooftop solar markets.

Threat:

Policy rollbacks and reduction in incentives

The distributed solar and rooftop PV market faces risks from potential reductions or eliminations of government incentives. Financial support mechanisms like subsidies, tax benefits, and favorable tariffs play a crucial role in encouraging adoption. When these incentives are scaled back or withdrawn, the financial attractiveness of solar projects declines. This creates uncertainty for investors and consumers, reducing confidence in long-term returns. Policy fluctuations can disrupt market momentum and slow deployment rates. Because the sector often depends on regulatory support, changes in government priorities can pose a serious challenge to sustained growth and expansion.

Covid-19 Impact:

The distributed solar and rooftop PV market experienced both challenges and opportunities during the COVID-19 pandemic. Early on, restrictions caused disruptions in supply chains, delayed project timelines, and reduced installation activities. Workforce limitations and transportation issues further impacted progress. Despite these challenges, the crisis highlighted the importance of reliable and independent energy sources, increasing demand for decentralized solar solutions. Residential installations saw a rise as households focused more on energy security. Moreover, government-led recovery initiatives emphasized clean energy investments. Consequently, the market rebounded over time, showing strong resilience and maintaining positive long-term growth potential.

The commercial rooftop PV segment is expected to be the largest during the forecast period

The commercial rooftop PV segment is expected to account for the largest market share during the forecast period because it offers significant financial and practical benefits for businesses. Commercial buildings typically have large rooftop areas and consistent daytime energy needs, allowing for efficient solar power utilization. Installing solar systems helps organizations lower electricity costs and enhance energy efficiency. Companies are also better positioned to invest in such projects and take advantage of

flexible financing options. Increasing focus on environmental sustainability and corporate initiatives further boosts adoption. Consequently, commercial rooftop solar systems maintain a leading position in the market across multiple industries and locations.

The hybrid systems (solar + storage) segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the hybrid systems (solar + storage) segment is predicted to witness the highest growth rate. Their capability to store surplus energy and supply power during non-generating periods enhances reliability and efficiency. Growing demand for uninterrupted electricity, coupled with concerns over grid reliability, is driving adoption. Continuous improvements in battery technology and decreasing costs are making these systems more accessible. Furthermore, they provide greater control over energy usage and reduce dependence on traditional grids. These advantages are encouraging widespread adoption across various sectors, positioning hybrid systems as a key growth segment.

Region with largest share:

During the forecast period, the Asia-Pacific region is expected to hold the largest market share, supported by fast-paced urban growth, rising energy needs, and proactive government initiatives. Several countries have introduced supportive measures such as incentives and net metering to encourage rooftop solar installations. Expanding industrial and commercial activities, along with population growth, are increasing electricity demand, driving solar adoption. Lower costs of solar equipment and growing environmental awareness further boost market expansion. The region also benefits from the presence of major solar manufacturing hubs and large deployment programs, which reinforce its leading position in the global distributed solar market.

Region with highest CAGR:

Over the forecast period, the Rest of the World (RoW) region is anticipated to exhibit the highest CAGR, driven by rising power demand and plentiful solar energy potential. Governments are increasingly aiming to diversify energy sources and reduce reliance on conventional fuels while expanding electricity access in underserved areas. Favourable policies, along with global funding and investments, are supporting solar deployment. Challenges such as high electricity prices and inconsistent grid supply are further boosting interest in decentralized solutions. Growing awareness of renewable

energy advantages is accelerating adoption, positioning the region for significant market growth in the coming years.

Key players in the market

Some of the key players in Distributed Solar and Rooftop PV Market include Tata Power Solar, Adani Solar, Waaree Energies, Vikram Solar, Loom Solar, Microtek Solar Solutions, Havells Solar, Servotech Renewable Power Systems, Moser Baer Solar Ltd, EMMVEE, RenewSys Solar, Canadian Solar, Tesla Inc., Suntech Power Holdings, Trina Solar, JinkoSolar, First Solar and SunPower Corporation.

Key Developments:

In November 2025, Adani Groups and Bondada sign MoU for five-year partnership framework launching a long-term collaboration in Bharat's renewable energy sector. The partnership begins with a 650 MW solar project awarded to Bondada Engineering by Adani Green Energy, laying the foundation for a strong pipeline of future joint initiatives.

In July 2025, First Solar and UbiQD establish long-term quantum dot supply agreement. The supply agreement is expected to enable the early adoption of QD in thin film modules, which has the potential for UbiQD to grow to over 100 metric tons of production per year.

Installation Types Covered:

Residential Rooftop PV

Commercial Rooftop PV

Industrial Rooftop PV

Community & Shared Solar

Ownership & Financing Models Covered:

Customer-Owned Systems

Third-Party Owned

Utility-Facilitated Rooftop Programs

Capacity Ranges Covered:

Below 10 kW

10-100 kW

Above 100 kW

Technologies Covered:

Crystalline Silicon PV

Thin-Film PV

Building-Integrated PV (BIPV)

Applications Covered:

On-Grid Rooftop PV

Off-Grid Rooftop PV

Hybrid Systems (Solar + Storage)

Regions Covered:

North America

United States

Canada

Mexico

Europe

United Kingdom

Germany

France

Italy

Spain

Netherlands

Belgium

Sweden

Switzerland

Poland

Rest of Europe

Asia Pacific

China

Japan

India

South Korea

Australia

Indonesia

Thailand

Malaysia

Singapore

Vietnam

Rest of Asia Pacific

South America

Brazil

Argentina

Colombia

Chile

Peru

Rest of South America

Rest of the World (RoW)

Middle East

Saudi Arabia

United Arab Emirates

Qatar

Israel

Rest of Middle East

Africa

South Africa

Egypt

Morocco

Rest of Africa

What our report offers:

- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2023, 2024, 2025, 2026, 2027, 2028, 2030, 2032 and 2034
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as

per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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Note: Tables for North America, Europe, APAC, South America, and Rest of the World
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