

Rooftop Solar Photovoltaic Installation - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2020 - 2029

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Report description:

The Rooftop Solar Photovoltaic Installation Market size is estimated at 109.80 gigawatt in 2024, and is expected to reach 162.53 gigawatt by 2029, growing at a CAGR of 8.16% during the forecast period (2024-2029).

The market was negatively impacted by COVID-19 in 2020. Presently the market has now reached pre-pandemic levels.

Key Highlights

- Over the long term, supportive government policies in the form of incentives and tax benefits for solar panel installation, declining PV installation costs, and rising panel efficiencies are expected to drive the market during the forecast period
- On the other hand, owing to the geopolitical tensions between China and western countries, the solar PV supply chain is highly vulnerable to disruptions. Geopolitical events leading to import bans and higher tariffs are expected to restrain the market, as several major western countries are overdependent on China for solar PV panels.
- Nevertheless, New technological advancements and development of perovskite solar cells are expected to create several opportunities for rooftop solar PV installation market in the future.
- Asia-Pacific was the largest market for rooftop solar PV installation in 2021. The region is also likely to be the fastest-growing market during the forecast period due to the presence of several developing economies, such as China and India.

Rooftop Solar Photovoltaic (PV) Installation Market Trends

Residential Rooftop Installation Expected to Dominate the Market

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- The residential segment includes individual houses and residential building complexes. Residential rooftop mounted systems are small compared to commercial and industrial rooftop systems. The residential rooftop solar PV system typically has a capacity range of up to 50 kW.
- The deployment of residential rooftop solar PV systems has increased significantly in recent years across the world, owing to the declining costs and the government's supportive policies. Residential rooftop solar PV installations can be arranged in smaller configurations for mini-grids or personal use. There is a rise in demand for residential rooftop systems from various countries where residents need accessible, affordable, and reliable electricity options. In many countries, the electricity generated from solar PV electricity is more economically attractive than buying electricity from the grid.
- For instance, in the past couple of years, the United States experienced rapid growth in residential rooftop solar installed capacity, particularly in the fourth quarter of 2021, the residential rooftop segment added 1,156 MW. Furthermore, as per the solar energy industries association, rooftop solar installers completed more than 500,000 residential projects in 2021. Residential solar installations grew 30% year-over-year in 2021, the highest annual growth rate since 2015. This rise in demand for residential solar projects can be attributed to the reducing cost of energy generation cost, extreme weather events, improved solar storage capacity, and an increased number of home EV charging stations across the country. In 2017, the total residential solar PV installation in the United States was around 2.2 GW, which increased to 4.2 GW in 2021.
- In May 2022, the President of the European Commission, Ursula von der Leyen, announced residents to install the rooftop solar for new residential buildings by 2029. Due to the Russia-Ukraine conflict, the European Union has revised its renewable energy targets, which can be ascribed to the lowering the dependency on fossil fuels. Furthermore, the European Commission increased its renewable energy target for 2030 from 40% to 45%. To achieve this ambitious target, the government is planning to provide renewable go-to-areas where governments can give a quicker permitting process. Currently, the permitting process takes six to nine years, which is expected to bring down to one year.
- The European Union is also promoting the local manufacturing of solar panels. For instance, Enel Green Power signed a deal with the European Union to scale up a solar panel Gigafactory in Italy. Enel Green Power, with funding from European Union, aims to raise its production by fifteen-fold to 3 GW from the current 200 MW. The production facility is expected to be commissioned by July 2024. The total investment is around EUR 600 million, and European Union funding will likely be around EUR 118 million. This will also help to reduce the rooftop solar panel cost in the near future, which is expected to boost the demand for residential rooftop solar systems in Europe.
- The demand for residential rooftops has increased in countries, such as China, India, and Australia, in the past couple of years due to government initiatives to promote solar energy projects in the residential sector and reduced installation costs.
- For instance, the Government of India initiated phase II of the Ministry of New and Renewable Energy's (MNRE) grid-connected rooftop solar program. Under this program, in April 2022, the Tamil Nadu energy development agency issued a tender to install 12 MW of grid-connected residential rooftop solar systems in Tamil Nadu. Similarly, Telangana state's Renewable Energy Department Corporation invited bids to appoint suppliers to build 50 MW of grid-connected residential rooftop solar projects.
- Therefore, owing to the above points, residential rooftop solar PV installation market is expected to dominate the market during the forecast period.

Asia-Pacific Expected to Dominate the Market

- Asia-Pacific, in recent years, has been the primary market for solar energy installations. The Levelized Cost of Energy (LCOE) for solar PV in the last decade reduced by more than 88%, because of which developing countries in the region, such as Indonesia, Malaysia, and Vietnam, saw an increase in solar energy installation capacity in their total energy mix.
- China is home to nearly all the largest solar photovoltaic (PV) manufacturing companies and facilities globally, with nearly 70% of the global solar PV manufacturing capacity situated in China. These companies also dominate other businesses such as polysilicon, ingot, and wafer-making, which form an integral part of the solar panel supply chain. This extraordinary control of the

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global solar PV supply chain puts Chinese manufacturers at a greater advantage when compared to solar equipment manufacturers from other countries.

- China has been rapidly expanding distributed rooftop solar PV capacity, especially in the eastern coastal regions, where the demand is higher. However, only 20 GW of the 78 GW of distributed solar capacity is residential, and around 58 GW is generated on offices and industrial buildings. For C&I buildings, investors will usually lease a rooftop, provide power to the building owner at a discount, and sell the remainder to the grid.

- In June 2021, China's National Energy Administration (NEA) published a notice on county-level trials of distributed solar power generation, designed to boost rooftop solar. 75 county-level governments have picked firms to install distributed solar and are set to start trials. According to the NEA, any county equipped with appropriate rooftops, good grid access and the technical and financial capacity to roll out the programme will be eligible for the program and will be helped by electricity grid companies in the form of provision of connections and network upgradations to export energy. Additionally, at least 50% of the rooftops of a county's Party and government buildings and 0% of other public buildings such as hospitals and schools should be suitable for the installation of rooftop solar PV.

- According to the Indian Ministry of New and Renewable Energy, as of March 2020, 36.69 GW of total solar projects are in the pipeline for which Letter of Intent (LoI) has been issued but not commissioned and for around 18.47 GW tenders have been issued but LoI are yet to be issued.. In 2020-21, India imported solar wafers, cells, modules and inverters worth USD 2.5 billion.

- The increased adoption of rooftop solar in the country can be attributed to high retail tariffs for C&I consumers, favorable net metering policies, corporate social responsibility programs and increased consumer awareness.

- Therefore, owing to the above points, Asia-Pacific is expected to dominate the rooftop solar PV installation market during the forecast period.

Rooftop Solar Photovoltaic (PV) Installation Industry Overview

The rooftop solar installations market is consolidated in nature. Some of the key players in the market (in no particular order) include Titan Solar Power NV Inc, Momentum Solar, Canadian Solar Inc., Elemental Energy Inc., and Semper Solaris Construction Inc among others.

Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

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