

Solar Energy - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2020 - 2029

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Report description:

The Solar Energy Market size in terms of installed base is expected to grow from 1.84 Thousand gigawatt in 2024 to 5.08 Thousand gigawatt by 2029, at a CAGR of 28.82% during the forecast period (2024-2029).

Key Highlights

- Over the medium term, favorable government policies and increasing adoption of solar PV systems, with the declining price of solar panels and installation cost, are likely to support the global solar energy market growth during the forecast period
- On the other hand, factors such as rising adoption of alternate clean power sources, such as gas-fired power plants, onshore and offshore wind projects are likely to hinder the market growth during the study period.
- Nevertheless, an increase in off-grid solar utilization due to the decreasing cost of solar PV equipment and integration with energy storage systems are expected to create several opportunities for the market in the future.
- Asia-Pacific region is expected to be the largest and fastest-growing region in the solar energy market during the forecast period. Due to its increasing solar installations.

Solar Energy Market Trends

Solar Photovoltaic (PV) Expected to Dominate the Market

- Solar PV systems convert sunlight directly into electricity using solar panels made up of semiconductor materials, typically silicon. When sunlight strikes the solar cells, it excites electrons, generating a flow of direct current (DC) electricity. This DC

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electricity is converted into alternating current (AC) using an inverter in homes, businesses, and the electrical grid.

- The cost of solar PV systems has declined rapidly over the past decade. This cost reduction is driven by technological advancements, economies of scale, and improved manufacturing processes. As a result, solar PV has become increasingly cost-competitive with conventional energy sources, making it more attractive for widespread adoption.
- Additionally, the global electricity demand is continuously increasing due to population growth, urbanization, and the electrification of various sectors, including transportation. Solar PV systems offer a scalable and decentralized solution to meet this growing energy demand, particularly in regions with limited or unreliable grid infrastructure.
- According to International Renewable Energy Agency, the global solar photovoltaics installed capacity increased by more than 22% between 2022 and 2021 compared to 2% for concentrated solar power systems. Signifying the increased adaption of solar photovoltaics over concentrated solar power systems.
- Moreover, governments worldwide have introduced supportive policies and financial incentives to promote solar PV installations. These measures include feed-in tariffs, tax credits, grants, and net metering programs. Such policies encourage the adoption of solar PV systems by reducing upfront costs, improving investment returns, and facilitating grid integration.
- For instance, Australia has set a goal of generating 82% of its electricity through renewable sources like solar PV and wind by 2030, and solar PV is expected to be a significant contributor to achieving this target.
- For instance, in November 2022, X-Elio unveiled its intention to construct a solar photovoltaics farm with a capacity of 300 MW near Wagga Wagga, New South Wales. Additionally, X-Elio has initiated the development of two other solar photovoltaics farms, namely the Forest Glen Solar Farm, with a capacity of 120 MW in New South Wales, and the WunghnuSolar Farm, with a capacity of 80 MW in Victoria. These projects form part of X-Elio's extensive portfolio, comprising more than 500 MW of renewable energy projects currently under development in Australia.
- Therefore, based on the abovementioned factors, the utility sector is expected to dominate the solar energy market during the forecast period.

Asia-Pacific Expected to Dominate the Market

- Many countries in the Asia-Pacific region, such as China, India, and Japan, have implemented ambitious renewable energy targets and supportive policies to encourage solar energy adoption. These policies include feed-in tariffs, renewable portfolio standards, and subsidies for solar installations. Strong government support and stable policy frameworks have created a conducive environment for the region's solar energy market growth.
- For instance, according to the International Renewable Energy Agency, the total solar energy installed capacity between 2021 and 2022 grew by more than 110 GW. In 2021 the total installed capacity was around 485 GW, whereas in 2022, it reached 597 GW, with China and India holding major installed capacity.
- Furthermore, the Asia-Pacific countries have a rapidly growing population and expanding economies, leading to an increasing demand for electricity. Solar energy offers a scalable and sustainable solution to this growing energy demand. As a result, there is a strong market potential for solar energy deployment in the region.
- Moreover, several countries in the Asia-Pacific region have undertaken ambitious large-scale solar energy projects. For instance, China has been a leader in utility-scale solar installations, with extensive solar farms and solar parks. These large-scale projects have boosted the cumulative solar capacity in the region and positioned it as a dominant player in the global solar market.
- In March 2022, Alibaba Group's logistics arm Cainiao Network started to use distributed solar power generated by rooftop solar panels installed in its bonded warehouses in China to power its operations. The company had installed the PV power generation systems on 100,000 square meters of warehouse rooftops, which can store 7.862 MW of energy, with an annual power output of over 8 million kilowatts per hour, enough to power more than 3,000 homes. The power generated by the solar power system will be sufficient to power Cainiao's warehouse operations, and excess electricity will be diverted to the grid. Further, by 2023, Cainiao and its partners expect to install rooftop PV generation systems on Cainiao's bonded warehouses spanning a combined 500,000 square meters.

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- Asia-Pacific countries, particularly China, have also emerged as major manufacturing hubs for solar PV components and systems. The region benefits from economies of scale, efficient supply chains, and competitive production costs, significantly reducing the overall cost of solar energy systems. This cost advantage has contributed to the dominance of the Asia-Pacific region in the global solar energy market.
- Therefore, the Asia-Pacific, as mentioned above region, is expected to dominate the solar energy market during the forecasted period.

Solar Energy Industry Overview

The solar energy market is fragmented. Some of the key players in the market (in no particular order) include Canadian Solar Inc., JinkoSolar Holding Co. Ltd, Trina Solar Co. Ltd, SunPower Corporation, and LONGi Green Energy Technology Co. Ltd. among others.

Additional Benefits:

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

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