

Solar PV Panel Industry Outlook 2030: Rising Utility-Scale Solar Investments

Solar PV panel market is projected to reach \$641.1 billion by 2030, driven by renewable energy adoption and solar investments.

WILMINGTON, DE, UNITED STATES,
June 4, 2026 /EINPresswire.com/ --

According to a recent report published by Allied Market Research, the global [solar PV panel market](#) size was valued at \$180.4 billion in 2020 and is projected to reach \$641.1 billion by

2030, registering a CAGR of 11.9% from 2021 to 2030. The remarkable growth trajectory of the industry is being driven by increasing investments in renewable energy infrastructure, supportive government policies, declining solar technology costs, and growing awareness regarding environmental sustainability.



Growing solar installations, government incentives, and efficiency improvements are accelerating solar PV panel market growth."

Allied Market Research

Download PDF Brochure:

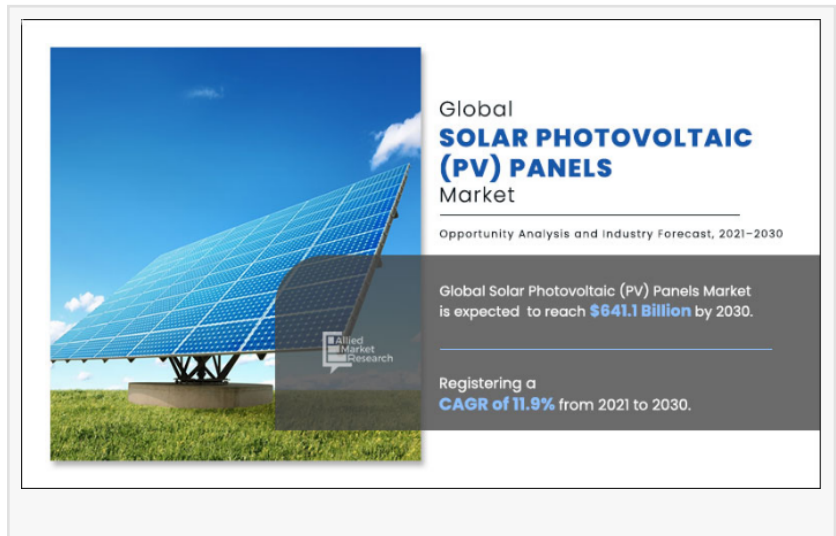
<https://www.alliedmarketresearch.com/request-sample/191>

Introduction to Solar PV Panels

Solar photovoltaic (PV) panels are advanced energy-generation devices that convert sunlight directly into

electricity through photovoltaic cells. These panels are composed of semiconductor materials that absorb solar radiation and transform it into usable electrical energy. Multiple solar cells are interconnected to create a solar panel capable of generating higher power output for residential, commercial, and industrial applications.

Over the past decade, [solar energy](#) has evolved from a niche power source to one of the most widely adopted renewable energy technologies globally. Rising concerns regarding climate change, increasing electricity consumption, and the need to reduce dependence on fossil fuels



have accelerated the deployment of solar PV systems worldwide. As countries pursue ambitious decarbonization goals, the solar PV panel market is emerging as a cornerstone of the global energy transition.

Growing Demand for Renewable Energy Driving Market Expansion

One of the primary factors fueling the growth of the solar PV panel market is the increasing global demand for clean and sustainable energy solutions. Governments, corporations, and consumers are actively seeking alternatives to conventional energy sources to reduce greenhouse gas emissions and improve energy security.

Solar energy offers numerous advantages, including zero operational emissions, abundant availability, low maintenance requirements, and long-term cost savings. These benefits have encouraged widespread adoption across developed and developing economies. As renewable energy targets become more aggressive, utilities and private organizations are investing heavily in large-scale solar projects to meet growing electricity demand while minimizing environmental impact.

The rapid [expansion of renewable energy infrastructure](#) has significantly increased the installation of solar photovoltaic systems, contributing directly to the growth of the global solar PV panel market.

Government Incentives and Policy Support Accelerating Adoption

Government initiatives and financial incentives have played a critical role in supporting the growth of the solar industry. Numerous countries have introduced tax credits, subsidies, feed-in tariffs, renewable portfolio standards, and net metering programs to encourage solar energy adoption.

For instance, the U.S. government introduced solar tax credits aimed at reducing installation costs for residential and commercial solar systems. Similar incentive programs have been implemented across Europe, Asia-Pacific, and other regions to stimulate investment in solar technologies.

These supportive policies have reduced financial barriers for consumers and businesses, making solar power increasingly affordable and accessible. As governments continue prioritizing renewable energy development, the solar PV panel market is expected to witness sustained growth throughout the forecast period.

Technological Advancements Enhancing Solar Panel Performance

Continuous technological innovation is transforming the solar industry and improving the efficiency of photovoltaic systems. Manufacturers are investing heavily in research and

development to increase energy conversion rates, improve durability, and reduce manufacturing costs.

Modern solar panels offer significantly higher efficiency levels than earlier generations, enabling greater electricity generation from the same installation area. Advancements in cell architecture, module design, bifacial technology, and smart monitoring systems have enhanced overall system performance.

Furthermore, innovations in manufacturing processes have reduced production costs, making solar energy more competitive with conventional power generation methods. These technological developments continue to strengthen the growth prospects of the solar PV panel market.

Increasing Applications Across Diverse Industries

The versatility of solar photovoltaic technology has expanded its adoption across multiple sectors. Solar panels are increasingly being utilized in residential buildings, commercial facilities, industrial plants, agricultural operations, telecommunications infrastructure, transportation systems, and utility-scale power generation projects.

In remote and off-grid locations, solar PV systems provide reliable access to electricity without requiring extensive transmission infrastructure. Telecommunications towers, rural electrification projects, and isolated communities are increasingly relying on solar energy solutions.

In urban environments, rooftop solar installations are helping businesses and homeowners reduce electricity costs while supporting sustainability goals. These expanding applications continue to create substantial opportunities for the solar PV panel market.

Dominance of Crystalline Silicon Technology

Based on technology, crystalline silicon emerged as the dominant segment in the global market, accounting for approximately 86.8% of revenue share in 2020. This dominance is expected to continue throughout the forecast period due to the superior performance characteristics of crystalline silicon solar panels.

Crystalline silicon technology offers high conversion efficiency, long operational lifespan, excellent reliability, and proven performance under varying environmental conditions. These advantages make it the preferred choice for residential, commercial, industrial, and utility-scale installations.

As demand for high-performance solar solutions continues to increase, crystalline silicon technology is expected to maintain its leadership position within the solar PV panel market.

On-Grid Systems Continue to Lead the Industry

The on-grid segment accounted for the largest market share in 2020 and is projected to maintain its dominance during the forecast period. On-grid solar systems are directly connected to the electricity grid, allowing users to consume generated power while exporting excess electricity back to the network.

The popularity of on-grid systems stems from their cost-effectiveness, ease of installation, and ability to support large-scale electricity generation. Unlike off-grid systems, they do not require expensive battery storage infrastructure, reducing overall project costs.

As governments and utilities expand grid-connected renewable energy projects, on-grid solar installations are expected to remain a major contributor to the growth of the solar PV panel market.

Buy This Report (290 Pages PDF with Insights, Charts, Tables, and Figures):

<https://www.alliedmarketresearch.com/solar-photovoltaic-panel-market/purchase-options>

Utility Sector Emerging as a Key Revenue Generator

Among end-use segments, utilities accounted for the largest share of the market in 2020, representing approximately 42.8% of total revenue. Utility-scale solar projects are becoming increasingly attractive due to declining solar technology costs and rising demand for renewable electricity generation.

Governments and energy companies worldwide are investing heavily in large solar farms, solar parks, floating solar projects, and hybrid renewable energy facilities. These projects contribute significantly to national renewable energy targets and support grid modernization initiatives.

Large-scale utility projects are expected to remain a primary growth engine for the solar PV panel market over the coming decade.

Commercial and Industrial Sector Witnessing Rapid Growth

The commercial and industrial segment is anticipated to register the fastest growth during the forecast period. Businesses across various industries are increasingly adopting solar energy solutions to reduce operating expenses and improve sustainability performance.

Corporate sustainability commitments, rising electricity costs, and environmental regulations are encouraging organizations to invest in rooftop and ground-mounted solar installations. Manufacturing facilities, warehouses, office complexes, shopping centers, and logistics hubs are among the major adopters of solar technology.

As energy-intensive industries seek greater energy independence and operational efficiency, demand from commercial and industrial users is expected to accelerate the growth of the solar PV panel market.

Asia-Pacific Maintains Market Leadership

Regionally, Asia-Pacific dominated the global market in 2020, accounting for more than 52.5% of total revenue. The region's leadership can be attributed to rapid industrialization, strong government support, favorable solar policies, and the presence of major solar panel manufacturers.

Countries such as China, India, Japan, South Korea, and Vietnam have made significant investments in solar energy infrastructure. Growing electricity demand, increasing environmental concerns, and declining solar installation costs continue to support market expansion throughout the region.

China remains a global leader in solar manufacturing and deployment, while India is emerging as one of the fastest-growing solar markets worldwide. These factors are expected to reinforce Asia-Pacific's dominant position in the solar PV panel market.

Europe Emerging as a High-Growth Region

Europe is expected to register the highest CAGR during the forecast period. The region's strong commitment to carbon neutrality, renewable energy targets, and sustainable development initiatives is driving substantial investment in solar power projects.

Countries such as Germany, France, Spain, Italy, and the Netherlands are actively expanding solar capacity to reduce dependence on fossil fuels and achieve climate objectives. Increasing adoption of rooftop solar systems, utility-scale installations, and innovative solar technologies is creating favorable conditions for market growth.

As European nations continue accelerating their energy transition efforts, the solar PV panel market is expected to witness significant opportunities across the region.

Impact of COVID-19 on the Solar PV Panel Market

The COVID-19 pandemic created temporary challenges for the global solar industry. Lockdowns, travel restrictions, workforce shortages, and supply chain disruptions affected manufacturing operations and project implementation activities across several countries.

Production facilities experienced interruptions due to limited labor availability and restrictions on industrial operations. In addition, transportation delays impacted the availability of raw materials and solar equipment, causing project postponements and increased costs.

However, despite these short-term setbacks, the industry demonstrated resilience and gradually recovered as restrictions eased. Growing focus on green recovery initiatives, renewable energy investments, and sustainable infrastructure development supported the market's rebound. The pandemic ultimately reinforced the importance of resilient and decentralized energy systems, further strengthening long-term demand for solar energy solutions.

Competitive Landscape and Leading Companies

The global solar PV panel market is characterized by intense competition and continuous technological innovation. Major industry participants are focusing on capacity expansion, product development, strategic partnerships, and technological advancements to strengthen their market positions.

Key companies operating in the market include JA Solar, Jinko Solar, Aiko Solar, First Solar, Hanwha Solutions, Tongwei Group Co., Ltd., Shunfeng International Clean Energy Co., Ltd., Trina Solar, Yingli Solar, and Waaree Energies Ltd. Other notable participants include Risen Energy, GCL-SI, Talesun, SunPower Corporation, and ReneSola.

These companies are investing significantly in research and development activities to improve product efficiency, enhance manufacturing capabilities, and address evolving customer requirements.

Get a Customized Research Report: <https://www.alliedmarketresearch.com/request-for-customization/191>

Future Outlook

The future of the solar PV panel market remains highly promising as global energy systems continue transitioning toward sustainability. Rising electricity demand, favorable policy frameworks, technological innovation, declining installation costs, and increasing environmental awareness are expected to drive substantial market expansion through 2030.

As governments pursue ambitious renewable energy targets and businesses prioritize sustainability initiatives, solar photovoltaic technology will play a critical role in meeting future energy requirements. With expanding applications across residential, commercial, industrial, and utility sectors, the solar PV panel market is well-positioned to become one of the most influential segments of the global renewable energy industry during the coming decade.

Trending Reports in Energy and Power Industry:

Solar Photovoltaic (PV) Panel Market

<https://www.alliedmarketresearch.com/solar-photovoltaic-panel-market>

Photovoltaic Market

<https://www.alliedmarketresearch.com/photovoltaic-market>

Solar Energy Market

<https://www.alliedmarketresearch.com/solar-energy-market>

Perovskite Solar Cell Market

<https://www.alliedmarketresearch.com/perovskite-solar-cell-market-A13745>

Perovskite Market

<https://www.alliedmarketresearch.com/perovskite-market-A74280>

Smart Solar Power Market

<https://www.alliedmarketresearch.com/smart-solar-power-market>

Solar Cell Market

<https://www.alliedmarketresearch.com/solar-cell-market-A08602>

Solar Tracker Market

<https://www.alliedmarketresearch.com/solar-tracker-market>

Solar Tracker Installation Market

<https://www.alliedmarketresearch.com/solar-tracker-installation-market-A05955>

Solar Photovoltaic (PV) Installations Market

<https://www.alliedmarketresearch.com/solar-photovoltaic-PV-installations-market>

Airport Solar Power Market

<https://www.alliedmarketresearch.com/airport-solar-power-market>

Solar Photovoltaic Glass Market

<https://www.alliedmarketresearch.com/solar-photovoltaic-glass-market>

Rooftop Solar PV Market

<https://www.alliedmarketresearch.com/rooftop-solar-pv-market-A124759>

Concentrated Solar Power Market

<https://www.alliedmarketresearch.com/concentrated-solar-thermal-market>

Solar Panel Market

<https://www.alliedmarketresearch.com/solar-panel-market>

Solar Concentrator Market

<https://www.alliedmarketresearch.com/solar-concentrator-market-A47255>

Solar Energy Storage Market

<https://www.alliedmarketresearch.com/solar-energy-storage-market-A17238>

Solar Cell and Module Market

<https://www.alliedmarketresearch.com/solar-cell-and-module-market-A207453>

Transparent Solar Cells Market

<https://www.alliedmarketresearch.com/transparent-solar-cells-market-A53571>

Renewable Energy Market

<https://www.alliedmarketresearch.com/renewable-energy-market>

AI in Energy Market

<https://www.alliedmarketresearch.com/ai-in-energy-market-A12587>

Clean Energy Market

<https://www.alliedmarketresearch.com/clean-energy-market-A43785>

About Us

Allied Market Research (AMR) is a full-service market research and business-consulting wing of Allied Analytics LLP based in Portland, Oregon. Allied Market Research provides global enterprises as well as medium and small businesses with unmatched quality of "Market Research Reports" and "Business Intelligence Solutions." AMR has a targeted view to provide business insights and consulting to assist its clients to make strategic business decisions and achieve sustainable growth in their respective market domain.

Pawan Kumar, the CEO of Allied Market Research, is leading the organization toward providing high-quality data and insights. We are in professional corporate relations with various companies and this helps us in digging out market data that helps us generate accurate research data tables and confirms utmost accuracy in our market forecasting. Each and every data presented in the reports published by us is extracted through primary interviews with top officials from leading companies of domain concerned. Our secondary data procurement methodology includes deep online and offline research and discussion with knowledgeable professionals and analysts in the industry.

David Correa

Allied Market Research

+ + + + + + + + + + +1 800-792-5285

[email us here](#)

Visit us on social media:

[LinkedIn](#)

[Facebook](#)

[YouTube](#)

[X](#)

This press release can be viewed online at: <https://www.einpresswire.com/article/917259254>

EIN Presswire's priority is source transparency. We do not allow opaque clients, and our editors try to be careful about weeding out false and misleading content. As a user, if you see something we have missed, please do bring it to our attention. Your help is welcome. EIN Presswire, Everyone's Internet News Presswire™, tries to define some of the boundaries that are reasonable in today's world. Please see our Editorial Guidelines for more information.

© 1995-2026 Newsmatics Inc. All Right Reserved.