

# **Solar Electricity Market Outlook 2025-2034: Market Share, and Growth Analysis By Technology (Photovoltaic Systems, Concentrated Solar Power Systems), By Solar Module (Monocrystalline, Polycrystalline, Cadmium Telluride, Amorphous Silicon Cells, Others), By End User**

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## **Abstracts**

The Solar Electricity Market is valued at USD 125.9 billion in 2025 and is projected to grow at a CAGR of 19.5% to reach USD 625.2 billion by 2034. The solar electricity market continues to expand significantly, driven by increasing global demand for clean and sustainable energy sources amid mounting environmental concerns. Solar electricity generation involves harnessing sunlight through photovoltaic (PV) cells to produce electrical power, reducing dependence on fossil fuels and decreasing carbon emissions. This renewable energy segment has become essential as governments and industries seek viable solutions to mitigate climate change impacts and achieve carbon-neutral objectives. Technological advancements have dramatically improved the efficiency, durability, and affordability of solar panels, encouraging widespread adoption across residential, commercial, industrial, and utility sectors globally. Falling prices and supportive regulatory frameworks have further accelerated the uptake of solar electricity, making it economically competitive with traditional energy sources in various regions. As solar power systems become more advanced and integrated with modern energy infrastructure, the solar electricity market is poised to maintain its growth trajectory, strengthening its position as a cornerstone of global renewable energy strategies. Throughout 2024, the solar electricity market saw robust growth, marked by substantial capacity expansions and technological innovations globally. Significant strides were made in solar technology, with increased adoption of high-efficiency photovoltaic modules, including perovskite and tandem cells, providing greater energy

yields at reduced costs. Utility-scale solar projects experienced notable growth, driven by supportive governmental policies, ambitious renewable energy targets, and improved energy storage integration capabilities, enabling more reliable and efficient grid connectivity. Additionally, the commercial and residential sectors continued their steady expansion, facilitated by declining equipment costs and attractive government incentives. Emerging markets in Asia, Africa, and Latin America saw substantial investments in solar infrastructure, reflecting growing international commitment to renewable energy adoption. Advances in digitalization and artificial intelligence further enhanced operational efficiency and energy management, streamlining solar energy distribution and utilization throughout the year. The solar electricity market is expected to experience continued expansion and innovation, driven by sustained technological progress and global efforts toward decarbonization. Breakthroughs in photovoltaic technology, particularly next-generation perovskite, organic, and quantum dot solar cells, are expected to further enhance efficiency and cost-effectiveness. Large-scale deployment of integrated energy storage systems will significantly improve grid stability and ensure steady power supply, even during periods of limited sunlight. The rise of distributed solar generation and smart grid technologies will increasingly empower consumers, enabling them to produce, store, and manage electricity independently, reshaping traditional energy consumption models. Continued government support, especially in emerging economies, and rising public-private partnerships will catalyze substantial market investments. Overall, the solar electricity market's future appears robust, with continuous advancements and global commitment ensuring long-term growth, sustainability, and widespread adoption of solar power solutions.

## Key Insights Solar Electricity Market

Accelerated adoption of advanced photovoltaic technologies like perovskite and tandem solar cells, significantly boosting efficiency, reducing manufacturing costs, and enhancing the overall attractiveness of solar investments globally.

Increasing integration of energy storage solutions, particularly battery systems, with solar installations, ensuring continuous power supply, improving grid reliability, and facilitating larger-scale renewable energy deployment.

Rapid growth of decentralized and distributed solar generation systems such as rooftop solar installations, empowering individual consumers and businesses to achieve energy independence and significant cost savings.

Enhanced use of digitalization and artificial intelligence for solar power

management, optimizing energy generation, distribution, and consumption, thereby maximizing operational efficiency and grid integration capabilities.

Growing prominence of solar-powered electric vehicle (EV) charging stations, supporting the expanding EV market and further driving renewable energy consumption in transportation sectors globally.

Strong governmental incentives, supportive regulatory frameworks, and ambitious renewable energy targets worldwide, significantly accelerating investments and adoption rates in solar electricity infrastructure.

Continuous decline in solar photovoltaic equipment costs driven by technological advancements and economies of scale, making solar energy increasingly competitive and accessible for diverse consumer segments.

Global commitments toward climate change mitigation and achieving carbon neutrality, intensifying the transition from fossil fuels to renewable energy sources, especially solar power.

Growing consumer awareness and preference for sustainable and clean energy solutions, boosting the residential and commercial adoption of solar electricity systems as a viable alternative to conventional power sources.

Intermittent solar resource availability remains a significant challenge, necessitating advancements in energy storage solutions and efficient grid management strategies to ensure consistent, reliable electricity supply and wider adoption of solar energy systems globally.

## Solar Electricity Market Segmentation

### By Technology

Photovoltaic Systems

Concentrated Solar Power Systems

### By Solar Module

Monocrystalline

Polycrystalline

Cadmium Telluride

Amorphous Silicon Cells

Others

#### By End User

Residential

Commercial

#### Key Companies Analysed

SPIC Solar

Enel SpA

Canadian Solar Inc

Engie

Adani Green Energy Limited

Datang International Power Generation Company Limited

Acciona Energia S.A

Electricite De France SA

Huaneng Power International

Inc.

Trina Solar Limited

Waaree Group

Tata Power Solar Systems Ltd.

Urja Global Limited

Wuxi Suntech Power Co. Ltd.

Azure Power

Vivaan Solar

Ja Solar Holdings Co.

Ltd

Aiko Solar

Trina Solar

Zhongli

Suntech

Statkraft As

National Grid Plc

Agder Energi Sa

Ibc Solar Ag

Centrotherm International Ag

Schott Solar Ag

Ecotricity Group Ltd

Lightsource Bp Renewable Energy Investments Limited

Hive Energy

Solaria Energia Y Medio Ambiente Sa

Iberdrola Sa

Cobra Instalaciones Y Servicios Sa

Red Electrica Corporacion Sa

Edf En

Saint Gobain

Wagner Solar

Ekotechnik Czech Sro

Svp Solar Sro

Solar Global As

Solartec Holding As

Photon Energy Nv

Modus Energy

Polski Solar Holding

Renesola Ltd

Sunshine Solar Energy Srl

Amerisolar

Altius-Solar

Nivus Gmbh

Danagroup.Hu

Nextera Energy Inc

Vestas Wind Systems A/S

General Electric Co

M. A. Mortenson Company

First Solar

Inc

Sunpower Corporation

Renewable Energy Systems Ltd

Rosendin Electric Inc

Hanwha Corporation

8 Lg Electronics Inc.

Inkosolar Holding Co. Ltd

Swinerton Renewable Energy

8minute Solar Energy

Atlas Renewable Energy

Sonnedix Power Holdings Ltd

Enerwhere Sustainable Energy Dmcc

Acwa Power Barka Saog

Alsa Solar Systems Llc

Benban Solar Project

Kathu Solar Park

Ilanga Concentrated Solar Power 1

Jasper Solar Power Project

Kalkbult Solar Plant

Kaxu Solar One

Lesedi Solar Pv Project

## Solar Electricity Market Analytics

The report employs rigorous tools, including Porter's Five Forces, value chain mapping, and scenario-based modeling, to assess supply–demand dynamics. Cross-sector influences from parent, derived, and substitute markets are evaluated to identify risks and opportunities. Trade and pricing analytics provide an up-to-date view of international flows, including leading exporters, importers, and regional price trends.

Macroeconomic indicators, policy frameworks such as carbon pricing and energy security strategies, and evolving consumer behavior are considered in forecasting scenarios. Recent deal flows, partnerships, and technology innovations are incorporated to assess their impact on future market performance.

## Solar Electricity Market Competitive Intelligence

The competitive landscape is mapped through OG Analysis' proprietary frameworks, profiling leading companies with details on business models, product portfolios, financial performance, and strategic initiatives. Key developments such as mergers &

acquisitions, technology collaborations, investment inflows, and regional expansions are analyzed for their competitive impact. The report also identifies emerging players and innovative startups contributing to market disruption.

Regional insights highlight the most promising investment destinations, regulatory landscapes, and evolving partnerships across energy and industrial corridors.

## Countries Covered

North America — Solar Electricity market data and outlook to 2034

United States

Canada

Mexico

Europe — Solar Electricity market data and outlook to 2034

Germany

United Kingdom

France

Italy

Spain

BeNeLux

Russia

Sweden

Asia-Pacific — Solar Electricity market data and outlook to 2034

China

Japan

India

South Korea

Australia

Indonesia

Malaysia

Vietnam

Middle East and Africa — Solar Electricity market data and outlook to 2034

Saudi Arabia

South Africa

Iran

UAE

Egypt

South and Central America — Solar Electricity market data and outlook to 2034

Brazil

Argentina

Chile

Peru

*\* We can include data and analysis of additional countries on demand.*

## Research Methodology

This study combines primary inputs from industry experts across the Solar Electricity value chain with secondary data from associations, government publications, trade databases, and company disclosures. Proprietary modeling techniques, including data triangulation, statistical correlation, and scenario planning, are applied to deliver reliable market sizing and forecasting.

## Key Questions Addressed

What is the current and forecast market size of the Solar Electricity industry at global, regional, and country levels?

Which types, applications, and technologies present the highest growth potential?

How are supply chains adapting to geopolitical and economic shocks?

What role do policy frameworks, trade flows, and sustainability targets play in shaping demand?

Who are the leading players, and how are their strategies evolving in the face of global uncertainty?

Which regional “hotspots” and customer segments will outpace the market, and what go-to-market and partnership models best support entry and expansion?

Where are the most investable opportunities—across technology roadmaps, sustainability-linked innovation, and M&A—and what is the best segment to invest over the next 3–5 years?

## Your Key Takeaways from the Solar Electricity Market Report

Global Solar Electricity market size and growth projections (CAGR), 2024-2034

Impact of Russia-Ukraine, Israel-Palestine, and Hamas conflicts on Solar Electricity trade, costs, and supply chains

Solar Electricity market size, share, and outlook across 5 regions and 27 countries, 2023-2034

Solar Electricity market size, CAGR, and market share of key products, applications, and end-user verticals, 2023-2034

Short- and long-term Solar Electricity market trends, drivers, restraints, and opportunities

Porter's Five Forces analysis, technological developments, and Solar Electricity supply chain analysis

Solar Electricity trade analysis, Solar Electricity market price analysis, and Solar Electricity supply/demand dynamics

Profiles of 5 leading companies—overview, key strategies, financials, and products

Latest Solar Electricity market news and developments

## Additional Support

With the purchase of this report, you will receive

An updated PDF report and an MS Excel data workbook containing all market tables and figures for easy analysis.

7-day post-sale analyst support for clarifications and in-scope supplementary data, ensuring the deliverable aligns precisely with your requirements.

Complimentary report update to incorporate the latest available data and the impact of recent market developments.

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