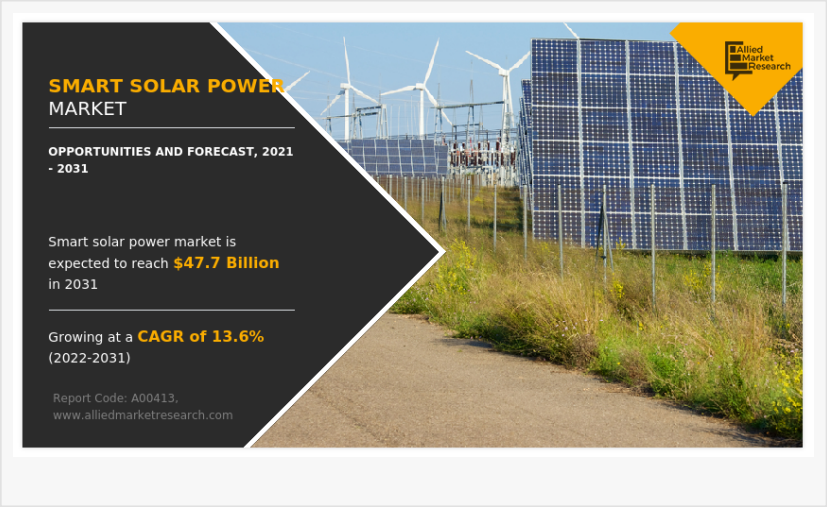
Smart Solar Power Market to Hit USD 47.7 Billion by 2031, Driven by Renewable Shift & IoT Adoption

Global Smart Solar Power Industry Surging at 13.6% CAGR, Fueled by Clean Energy Demand & Digital Tech



WILMINGTON, DE, UNITED STATES, July 24, 2025 /EINPresswire.com/ -- According to a recent report published by Allied Market Research, the global smart solar power market size was valued at $13.4 billion in 2021 and is projected to reach $47.7 billion by 2031, growing at a remarkable CAGR of 13.6% from 2022 to 2031. This surge reflects increasing global demand for sustainable power sources and the integration of smart technologies into the energy sector.

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> Smart solar power market to hit $47.7B by 2031 □□ Boosted by ICT, clean energy demand & industrial uptake. CAGR of 13.6% from 2022–2031.”
>
> *Allied Market Research*

□ What is Driving the Smart Solar Power Market?

Solar energy has emerged as a major contributor to the renewable energy mix due to its infinite supply and environmental advantages. Smart solar systems go beyond traditional solar setups, integrating digital technologies such as smart meters, analytics, SCADA, and remote monitoring to optimize energy usage, reduce costs, and enhance grid reliability.

Increased adoption of Information and Communications Technology (ICT) across industries is playing a pivotal role in the rise of smart solar power solutions. Countries such as India, Japan, and South Korea are actively investing in grid automation and solar infrastructure to meet growing energy needs sustainably.

Strict environmental regulations and government incentives in many regions are also fueling awareness and adoption of smart solar systems. These regulations aim to reduce carbon emissions and support the transition to cleaner energy, adding further momentum to the smart solar power market growth.

 Regional Insights: North America & Asia-Pacific Lead the Way

North America held the largest market share in 2021 and is expected to continue its dominance due to early adoption of advanced solar technologies and supportive government policies. Meanwhile, the Asia-Pacific region is projected to grow at the fastest CAGR during the forecast period. This growth is driven by significant investments in solar manufacturing and infrastructure in China, India, and Japan, as well as growing industrial demand.

 Market Segmentation

By Device

Smart Solar Meters: The largest segment in 2021, enabling accurate energy consumption tracking and billing.

IntelliGrid and RFID: Supporting smart communication and identification in solar networks.

By Solution

Asset Management, Network Monitoring, and Analytics lead the solution segment by improving uptime, optimizing system health, and maximizing ROI.

Other key solutions include SCADA, remote monitoring, outage management, and meter data management.

By Application

Industrial Segment: Accounted for the highest market share in 2021 due to the high energy demand in sectors like manufacturing, government, and healthcare.

Commercial and Residential Sectors: Rapid adoption driven by rising electricity costs and clean energy initiatives.

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 Challenges to Smart Solar Adoption

Despite the impressive growth, the smart solar power industry faces several challenges:

Complex Technology: Smart systems require more sophisticated infrastructure and integration than traditional solar setups.

Land & Installation Issues: Site selection is often hindered by environmental or technical constraints.

Variability of Solar Power: Solar energy is intermittent and can be difficult to manage within distributed power systems.

Reduced Government Subsidies: In some developed nations, declining subsidies for solar installations may slow market uptake.

 Impact of COVID-19 on the Market

The COVID-19 pandemic had a temporary negative impact on the smart solar power market. Lockdowns and global supply chain disruptions led to construction delays and halted manufacturing. For example, the Seychelles government had to delay a floating solar PV project due to the pandemic.

However, the post-pandemic period has shown signs of recovery. Construction activity is rebounding, and governments worldwide are refocusing on renewable infrastructure to reduce reliance on fossil fuels. Additionally, rising residential electricity costs have driven increased adoption of solar systems among homeowners.

 Industrial Uptake Boosting Market Growth

The industrial segment held the largest market share in 2021, with sub-sectors like government, healthcare, and construction increasingly turning to smart solar solutions for cost savings and environmental compliance. Industrial operations benefit significantly from real-time monitoring, predictive analytics, and remote control capabilities of smart solar technologies.

 Smart Solar Power Market Report Summary

 Market Size:

$13.4 billion (2021)

Expected $47.7 billion by 2031

 Growth Rate:

CAGR of 13.6% (2022–2031)

 Leading Regions:

North America leads the market

Asia-Pacific is the fastest-growing region

 Top Device Segment:

Smart Solar Meters

 Leading Solution:

Asset Management

 Top Application Area:

Industrial Sector

 Key Players in the Market

Leading companies shaping the smart solar power market include:

GE Energy

ABB

Siemens

Huawei Technologies Co., Ltd.

Schneider Electric

Aclara Software

Itron Inc.

Silver Spring Networks INC.

HCL Technologies

Landis+GYR AG

These companies are focusing on expanding production capacities, partnerships, R&D in smart grid integration, and acquiring emerging tech startups to stay competitive in the fast-evolving smart solar power space.

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 Conclusion

With climate change, rising power demand, and advancing digital technologies converging, the smart solar power market is set for an exponential leap. From residential rooftops to industrial power grids, smart solar systems are paving the way for a cleaner, smarter, and more efficient energy future.

As global awareness grows and technological barriers lower, smart solar will no longer be an option — it will be a necessity.

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David Correa
Allied Market Research
+ 1 800-792-5285
email us here
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LinkedIn
Facebook
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X