

# Perovskite Solar Market to Surge from \$350.07M (2024) to \$8.8B (2032) at 38.05% CAGR

*The Perovskite Solar Cells Market is set to grow from \$350.07M in 2024 to \$8.81B by 2032*

AUSTIN, TX, UNITED STATES, July 1, 2025 /EINPresswire.com/ -- Market Value and Growth Trends

The Global Market for [Perovskite Solar Cells Market Size](#) was valued at approximately USD 350.07 Million in 2024 and is anticipated to rise significantly, reaching around USD 8,805.49 Million by 2032. This reflects a strong compound annual growth rate (CAGR) of 38.05% throughout the forecast period from 2025 to 2032.



Research institutions and private companies alike are pouring resources into making these cells commercially viable. Some of the key drivers pushing this market forward include high energy conversion efficiency, low fabrication costs compared to silicon-based cells, and the increasing emphasis on carbon-neutral goals by 2030 in multiple nations.

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The U.S. Perovskite Solar Cells Market is gaining traction, fueled by clean energy goals and cost-effective tech, contributing to the global surge toward \$8.81B by 2032.”

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Regional Outlook

North America, particularly the United States, has been playing a significant role in developing and piloting perovskite solar cell technologies. The region benefits from robust funding for clean energy R&D and a high concentration of startups and

university-backed innovations. Government incentives for solar deployment further enhance the region's market potential.

Europe is another front-runner, with countries like Germany, the UK, and Sweden investing heavily in pilot-scale production and commercialization of tandem solar cells that incorporate perovskite layers on top of silicon.

In Asia-Pacific, countries such as Japan, China, and South Korea are exploring perovskite cells for both consumer and industrial use. This is largely driven by the need for energy security and the availability of large-scale manufacturing infrastructure.

### Key Companies Shaping the Market

Several companies and research organizations are at the forefront of innovation in this space, working to bridge the gap between lab success and commercial scalability:

Alfa Aesar

Dyename AB

Energy Materials Corp,

Fraunhofer ISE

Frontier Energy Solution

FrontMaterials Co. Ltd.

FUJIFILM Wako Pure Chemical Corporation

G24 Power Ltd.

Greatcell Energy

Microquanta Semiconductor Co. Ltd.

Market Segmentation:

By Product: Rigid, Flexible

By End-user: Aerospace & Defense, BIPV, Solar Panel, Smart Glass, Others

By Application: Smart Glass, Solar Panel, BIPV, Others

By Region: North America, Latin America, Europe, Asia Pacific, Middle East, and Africa

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## Technological Advancements

Recent innovations are helping overcome the early challenges of perovskite solar cells, such as material degradation and sensitivity to moisture and heat. Improved encapsulation techniques, hybrid cell configurations (like silicon-perovskite tandems), and lead-free perovskite alternatives are accelerating market acceptance.

Efficiency records for perovskite cells have rapidly improved, with laboratory efficiencies now exceeding 25%, which is comparable or even superior to traditional silicon solar cells. The goal over the next few years is to ensure this performance can be maintained consistently in real-world conditions for 20+ years, a crucial milestone for commercial deployment.

## Latest News of USA

In the United States, 2025 marked a milestone year for perovskite solar development. A California-based startup, Tandem Tech Solar, unveiled a new pilot plant designed to produce perovskite-silicon tandem panels at scale. The facility, backed by venture capital and clean energy funds, aims to demonstrate the commercial viability of these panels in residential and industrial applications.

Meanwhile, the U.S. Department of Energy (DOE) launched a new funding round aimed at accelerating the commercialization of next-generation PV technologies, with a significant portion earmarked for perovskite R&D. This includes partnerships with national laboratories and universities to further improve stability and reduce manufacturing costs.

A major U.S. utility company also announced plans to integrate perovskite panels into a 20 MW demonstration solar farm, which would be one of the largest projects using the technology to date in North America.

## Latest News of Japan

### Japan's Solar Revolution: Perovskite Panels Powering the Future

#### Solar Output Equivalent to 20 Nuclear Reactors

Japan's latest perovskite solar panels are designed to produce a remarkable 20 GW of power equivalent to the output of 20 nuclear reactors.

## Urban Energy Breakthrough with Flexible PSCs

These lightweight, bendable panels can be installed on walls, rooftops, cars, and even streetlights transforming urban surfaces into powerful clean energy sources.

## Driving Toward Net-Zero Emissions by 2050

With PSC technology at the forefront, Japan is accelerating its journey toward carbon neutrality, reducing fossil fuel dependence and boosting domestic energy production.

## Innovation Rooted in Efficiency and Accessibility

Perovskite solar cells offer superior performance in low-light and limited-space environments, making them ideal for dense cities and scalable for global adoption.

Japan has long been a leader in solar innovation, and 2025 is no exception. Panasonic recently revealed that it is collaborating with a national research institute to develop flexible perovskite solar panels designed for smart buildings and mobile devices. This aligns with Japan's growing interest in lightweight and compact renewable energy solutions for urban infrastructure.

Additionally, Japan's Ministry of Economy, Trade, and Industry (METI) launched a national initiative to support perovskite solar cell deployment in disaster-resilient housing and portable energy units. This reflects the country's focus on clean, decentralized power sources that can function even during emergencies or grid disruptions.

Several Japanese universities have also published research on lead-free perovskite alternatives, showing promising early results that could help the country lead the way in environmentally safer photovoltaic solutions.

## Conclusion

The Perovskite Solar Cells Market is undergoing a significant period of transformation. Backed by cutting-edge R&D, supportive policies, and rising global demand for efficient renewable energy sources, this technology is well-positioned to become a mainstream solution in the solar energy sector. As countries like the U.S. and Japan lead with advancements in commercial-scale projects and material innovations, perovskites are no longer just a lab experiment they are fast becoming the future of solar energy.

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