

# **Solar Photovoltaic Glass Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Type (Anti-Reflective Coated, Tempered, Transparent Conductive Oxide Coated, Others), By Application (Residential, Non-Residential), By End User (Crystalline Silicon PV Modules, Thin Film PV Modules), By Region & Competition, 2021-2031F**

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## **Abstracts**

The global solar photovoltaic glass market is poised for significant expansion, projected to grow from USD 19.73 billion in 2025 to USD 89.53 billion by 2031, at a robust CAGR of 28.67%. This specialized, highly transparent tempered glass is engineered to shield solar cells from environmental factors while maximizing light transmission for efficient energy conversion. Key drivers for this growth include stringent global decarbonization mandates, the rising adoption of bifacial modules (which require glass on both sides), and ongoing advancements in glass thickness and durability. The substantial demand for such materials is evident from the 597 gigawatts of new capacity installed by the global solar industry in 2024, as reported by SolarPower Europe. However, this promising trajectory is somewhat hindered by grid infrastructure limitations, where aging electrical networks struggle to integrate new variable renewable energy, creating potential bottlenecks for utility-scale project connections and broader market expansion.

## **Market Driver**

A primary catalyst for the Global Solar Photovoltaic Glass Market is the escalating deployment of utility-scale solar power projects, significantly increasing the industry's

material demand. As nations transition to renewables, the construction of vast photovoltaic parks consistently requires durable, high-transmittance glass for extensive module arrays. For instance, the U.S. utility-scale segment set a record by installing 41.4 GWdc in 2024, as per the Solar Energy Industries Association (SEIA), highlighting massive material consumption, especially for large-format modules. Concurrently, the increasing adoption of bifacial modules, which feature dual-glass designs to capture reflected light from both sides, is transforming market requirements. This technology is rapidly becoming standard, with bifacial solar cells expected to secure approximately 90% of the market share, according to the VDMA's ITRPV 16th Edition. This trend is further propelled by substantial regional expansion, exemplified by China's installation of 277 GW of new solar capacity in 2024, as reported by the China Photovoltaic Industry Association (CPIA), driving immense demand for component materials.

## **Market Challenge**

Grid infrastructure limitations present a significant restraint on the Global Solar Photovoltaic Glass Market's expansion. While module production capacity has grown, older electrical grids often lack the capability to integrate variable renewable energy, creating bottlenecks that impede utility-scale project connections. This directly disrupts the supply chain, as delays in project commissioning translate into stalled procurement orders for solar glass manufacturers, whose market uptake is thus constrained by infrastructure readiness rather than the actual solar demand potential. This impediment is underscored by an estimated 1,650 gigawatts of renewable energy capacity, primarily solar photovoltaic projects, globally awaiting grid connections in advanced development stages in 2024, according to the International Energy Agency (IEA). This extensive backlog of stalled demand prevents the solar glass market from achieving its full growth trajectory aligned with global decarbonization objectives.

## **Market Trends**

The solar glass industry is undergoing a notable shift toward low-carbon and recycled glass manufacturing processes, driven by growing pressure to decarbonize the entire solar supply chain. Manufacturers are adapting production techniques to incorporate higher percentages of cullet and renewable energy, moving away from carbon-intensive fossil fuel furnaces, which is fostering a new category of premium, eco-efficient products. A prime example is Saint-Gobain Glass's ORA® low-carbon glass, launched in April 2025, which uses a minimum of 64% recycled content and offers a 42% lower carbon footprint compared to standard clear float glass. Simultaneously, there's a measurable expansion of Transparent Conductive Oxide (TCO) glass for thin-film

panels, a distinct application from standard crystalline silicon modules. Thin-film photovoltaic technologies, such as Cadmium Telluride (CdTe), require a specialized TCO-coated glass layer for front electrical contact, necessitating dedicated production lines. This niche yet high-volume segment is rapidly expanding to support non-silicon module production scaling, as demonstrated by NSG Group's Ohio facility commencing TCO glass production in January 2025 to supply First Solar, which anticipates 14 gigawatts of annual capacity by 2026.

## **Key Market Players**

Compagnie de Saint-Gobain

Yingli Energy Development Company Limited

Nippon Sheet Glass Co., Ltd

TrinaSolar Co., Ltd.

Koch, Inc.

AGC Inc.

Brite Hellas SA Solar Energy Technology

Borosil Technologies Limited

Sharp Corporation

Vishakha Renewables Pvt. Ltd.

## **Report Scope**

In this report, the Global Solar Photovoltaic Glass Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Solar Photovoltaic Glass Market, By Type

Anti-Reflective Coated

Tempered

Transparent Conductive Oxide Coated

Others

#### Solar Photovoltaic Glass Market, By Application

Residential

Non-Residential

#### Solar Photovoltaic Glass Market, By End User

Crystalline Silicon PV Modules

Thin Film PV Modules

#### Solar Photovoltaic Glass Market, By Region

North America

United States

Canada

Mexico

Europe

France

United Kingdom

Italy

Germany

Spain

Asia Pacific

China

India

Japan

Australia

South Korea

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

## **Competitive Landscape**

Company Profiles: Detailed analysis of the major companies present in the Global Solar Photovoltaic Glass Market.

## **Available Customizations:**

Global Solar Photovoltaic Glass Market report with the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

### **Company Information**

Detailed analysis and profiling of additional market players (up to five).

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