

Global Solar Backsheet Market 2026

Market size, segmentation, competitive landscape and outlook

2021-2031

Moving forward, together



Every one of us has, at some point, heard the line from *Alice in Wonderland*: “It takes all the running you can do, to keep in the same place. If you want to get somewhere else, you must run at least twice as fast.” Cliché as the quote has become, our world is changing at extraordinary speed. And yet, to my mind, it matters not only to run fast, but — more importantly — to know where you are running.

We see ourselves as the navigator, ready at the right moment to point out the correct course. By providing current, timely information for the decisions that matter, we aim to protect our clients from missteps and to help them find new opportunities.

It matters to us that you are satisfied with the work we have done. If you have any questions about this report, we will be glad to answer them.

ANDREY SHEVCHENKO, Managing Partner

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Market at a glance

This demo shows the **form and depth** of the report — real narrative with the detailed figures and tables masked as “XXX”. When you order the report, every figure is finalised and verified for your copy, and the full report is delivered within 24–72 hours.

Indicator	Value
Market size (2025)	USD 2.1 bn
Forecast (2031)	USD 3.2 bn
CAGR (2021-2031)	7.1%
Study period	2021-2031
Largest region	Asia-Pacific · 72.8%
Fastest-growing region	Middle East and Africa · 9.6%
Market concentration	Moderate
Licence	Individual / Company

The global solar backsheet market reached USD XXX billion in 2025 and is forecast to attain USD XXX billion by 2031, expanding at a XX% CAGR. Record photovoltaic deployment, longer module warranties and demand for lightweight glass-foil formats support growth, while utility-scale adoption of glass-glass bifacial modules reshapes the addressable market. Asia-Pacific accounted for XX% of 2025 revenue because China remains the center of global module manufacturing, and the Middle East and Africa will deliver the fastest regional growth at XX% CAGR. Material selection is shifting toward fluorine-free, co-extruded and transparent backsheets as manufacturers balance durability, cost, recyclability and bifacial energy yield.

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Executive summary

The global solar backsheet market reached USD XXX billion in 2025 and is forecast to attain USD XXX billion by 2031, expanding at a XX% CAGR. Record photovoltaic deployment, longer module warranties and demand for lightweight glass-foil formats support growth, while utility-scale adoption of glass-glass bifacial modules reshapes the addressable market. Asia-Pacific accounted for XX% of 2025 revenue because China remains the center of global module manufacturing, and the Middle East and Africa will deliver the fastest regional growth at XX% CAGR. Material selection is shifting toward fluorine-free, co-extruded and transparent backsheets as manufacturers balance durability, cost, recyclability and bifacial energy yield.

Indicator	Value
Market size 2025	XXX
Forecast 2031	XXX
CAGR	XXX
Largest region	XXX
Fastest region	XXX

Key findings

- The global solar backsheet market generated USD XXX billion in 2025 and will reach USD XXX billion in 2031.
- Global photovoltaic installations reached approximately 698 GW in 2025, taking cumulative capacity to nearly 3 TW, according to IEA PVPS.
- China accounted for around XX% of new global photovoltaic installations in 2025, reinforcing Asia-Pacific's position as the principal backsheet production and consumption hub.
- Asia-Pacific held XX% of global solar backsheet revenue in 2025.
- Fluoropolymer-based constructions represented XX% of 2025 market value, supported by established outdoor durability and bankability records.
- Fluorine-free PET and polyolefin constructions will expand at XX% CAGR through 2031, the fastest rate among material classes.
- Utility-scale projects accounted for XX% of backsheet demand value despite increasing substitution by dual-glass modules.
- Transparent backsheets will grow at XX% CAGR as module suppliers pursue bifacial output with lower weight than glass-glass designs.

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Market size and forecast

Market value by year, USD bn

Indicator	2026	2027	2028	2029	2030	2031	CAGR
Market value, USD bn	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Market volume	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Production	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Imports	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Exports	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Apparent consumption	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Source: XXX

Year-over-year value change

Indicator	2027	2028	2029	2030	2031	CAGR
Market value	X%	X%	X%	X%	X%	X%
Production	X%	X%	X%	X%	X%	X%
Imports	X%	X%	X%	X%	X%	X%
Exports	X%	X%	X%	X%	X%	X%

Source: XXX

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Global Solar Backsheet Market Trends and Growth Drivers

Solar backsheet demand is being pulled in opposite directions by record photovoltaic deployment and rapid redesign of the module laminate. Nearly 3 TW of cumulative global PV capacity creates scale, replacement expertise and stringent lifetime expectations, but the industry's migration toward bifacial glass-glass modules means backsheet revenue no longer rises in direct proportion to annual module shipments.

The value pool is moving toward applications where polymers deliver system advantages: lower module weight, electrical insulation, impact resistance, aesthetic finishes and flexible form factors. Transparent backsheets, high-reflectance white layers and specialty products for rooftop, back-contact and building-integrated modules are therefore growing faster than conventional commodity laminates.

Cost competition remains intense, yet qualification and warranty exposure prevent material selection from becoming a purely price-driven decision. Suppliers that align resin chemistry, coatings, adhesives, encapsulants and module-process conditions can protect margins through proven durability, lower failure risk and faster customer qualification.

Growth drivers

Record global PV deployment

Annual photovoltaic installations reached approximately 698 GW in 2025, creating a large recurring demand pool for module components. Backsheet suppliers benefit directly from expanding module output, particularly in monofacial rooftop, commercial and specialty formats where glass-foil construction remains preferred.

Thirty-year module reliability requirements

Longer product and performance warranties raise the cost of cracking, delamination, chalking and insulation failure. Module manufacturers are allocating greater value to qualified outer layers, adhesion systems and climate-specific constructions that protect warranty economics.

Regional module manufacturing expansion

Factory additions in India, the United States, Europe, Türkiye and Southeast Asia broaden the customer base beyond China's established cluster. Local converters gain an advantage through shorter qualification loops, inventory availability and technical support aligned with regional bills of materials.

Lightweight rooftop and flexible solar

Commercial rooftops, façades, balcony systems and portable modules increasingly require lower structural loads and easier handling. Polymer backsheets and frontsheets enable weight reductions that dual-glass architectures cannot match, sustaining premium demand outside conventional utility modules.

Transparent backsheet adoption

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Transparent backsheets allow bifacial energy collection while retaining the lower weight and established lamination workflow of glass-foil modules. Adoption is strongest in rooftops, carports and distributed systems where mounting loads and breakage risks constrain rear-glass use.

Fluorine-free material transition

Module manufacturers are increasing purchases of co-extruded PET and polyolefin constructions to reduce cost, simplify layer composition and support recyclability targets. Improvements in hydrolysis resistance, UV stabilization and adhesive-free processing expand the qualified application envelope.

Restraints

Glass-glass module substitution

Bifacial TOPCon and heterojunction modules increasingly use rear glass to deliver mechanical rigidity, moisture resistance and symmetric construction. The substitution is most pronounced in large utility projects, reducing polymer backsheet area per gigawatt of new module output.

Module price compression

Excess module capacity and falling selling prices intensify procurement pressure across the bill of materials. Backsheet manufacturers face annual price-down demands even as customers require longer warranties and more extensive qualification evidence.

Raw-material and energy volatility

PET base film, PVF, PVDF, pigments, adhesives and coating energy account for a substantial share of conversion cost. Rapid input-price movements compress margins when annual supply contracts delay pass-through to module customers.

Lengthy material qualification cycles

A backsheet change can trigger component testing, module requalification and renewed customer or financier review. These switching costs favor incumbent constructions and slow commercialization of new fluorine-free, recyclable and transparent products.

Fluoropolymer regulatory exposure

European assessment of a broad PFAS restriction increases documentation and portfolio-planning requirements for PVF- and PVDF-containing products. Suppliers are accelerating lifecycle evidence, emissions controls and fluorine-free alternatives to protect access to environmentally screened projects.

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Solar Backsheet Market Driver and Restraint Impact on the Forecast

Drivers — impact on forecast

Driver	Impact on CAGR	Geography	Horizon
Record global PV deployment	XXX	XXX	XXX
Thirty-year module reliability requirements	XXX	XXX	XXX
Regional module manufacturing expansion	XXX	XXX	XXX
Lightweight rooftop and flexible solar	XXX	XXX	XXX
Transparent backsheet adoption	XXX	XXX	XXX
Fluorine-free material transition	XXX	XXX	XXX

Source: XXX

Restraints — impact on forecast

Restraint	Impact on CAGR	Geography	Horizon
Glass-glass module substitution	XXX	XXX	XXX
Module price compression	XXX	XXX	XXX
Raw-material and energy volatility	XXX	XXX	XXX
Lengthy material qualification cycles	XXX	XXX	XXX
Fluoropolymer regulatory exposure	XXX	XXX	XXX

Source: XXX

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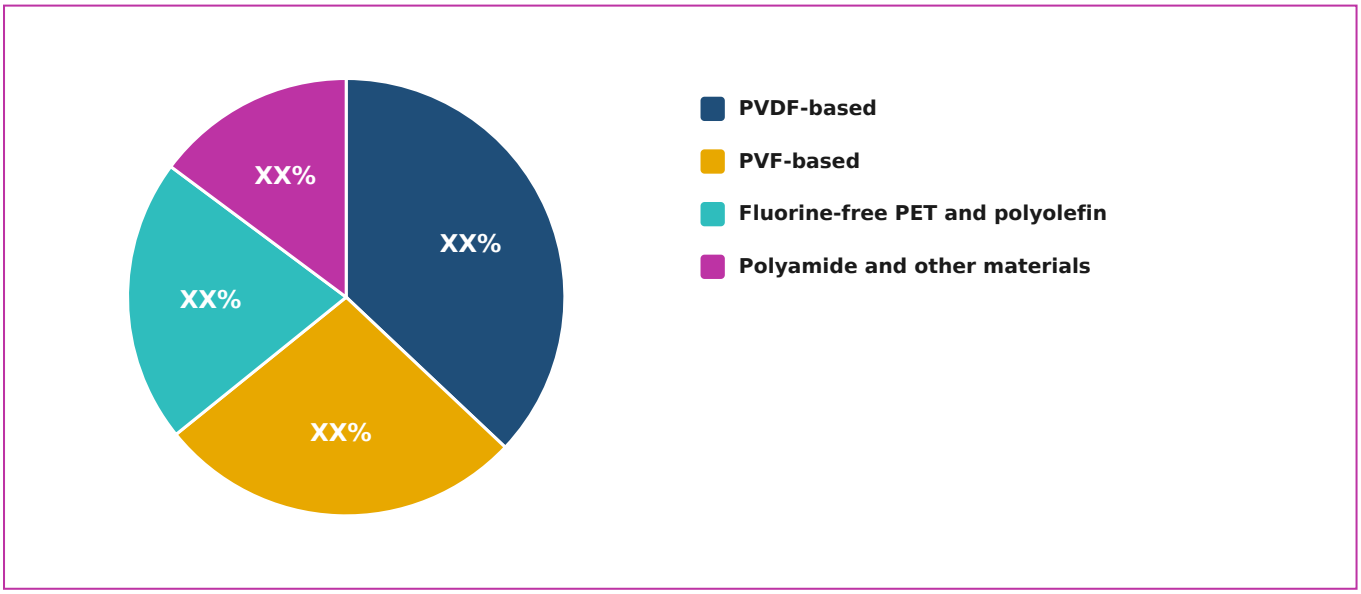
Solar Backsheet Market Segmentation by Material, Construction and Application

By Material

PVDF and PVF retain leadership in modules requiring established weatherability, UV resistance and long field records. Fluorine-free PET and polyolefin constructions are gaining qualification wins because they reduce cost, simplify recycling pathways and support supplier sustainability targets. Polyamide and other specialty materials remain concentrated in technically demanding or legacy designs.

Value share by material, 2025



Source: XXX

Value by material, USD bn

Segment	2026	2027	2028	2029	2030	2031	Share 2025	CAGR
PVDF-based	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
PVF-based	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Fluorine-free PET and polyolefin	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Polyamide and other materials	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Source: XXX

By Backsheet Construction

Traditional TPT and TPE laminates retain a premium position through their PVF field history, while KPK and KPE constructions balance PVDF weatherability with competitive conversion economics. Co-extruded PPE, PET and polyolefin sheets are taking share by removing adhesive interfaces and shortening production

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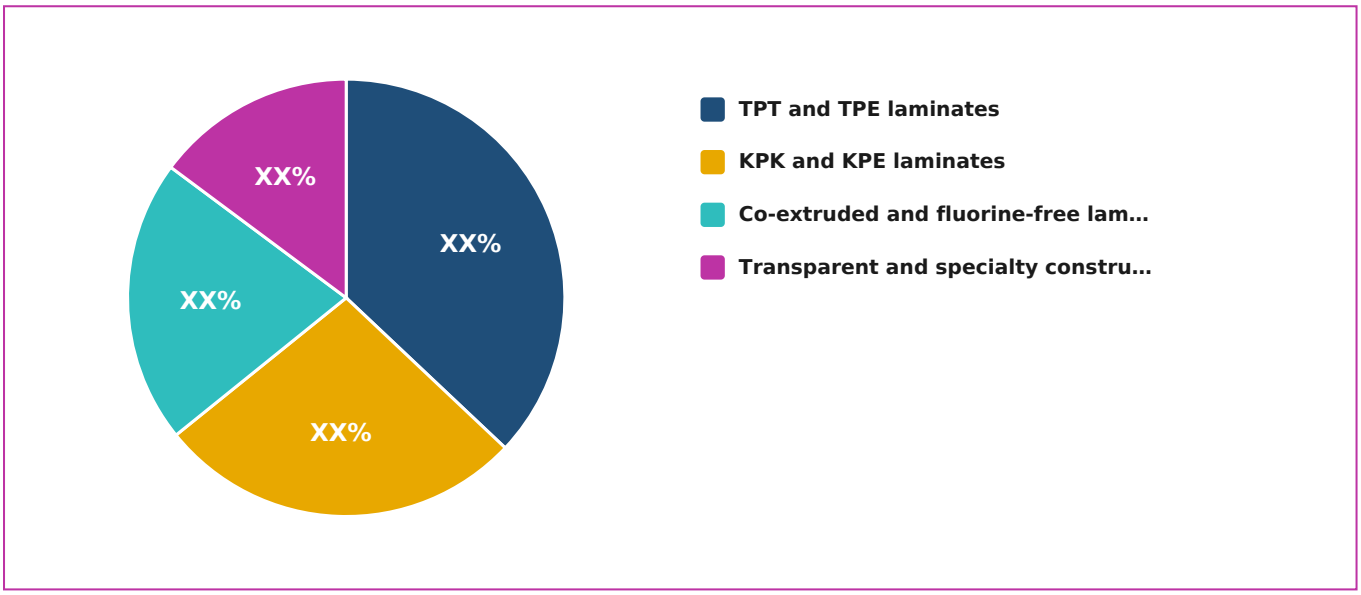
processes. Transparent and specialty constructions command higher prices in bifacial and lightweight applications.

Value share by backsheet Construction, 2025



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Value by backsheet Construction, USD bn

Segment	2026	2027	2028	2029	2030	2031	Share 2025	CAGR
TPT and TPE laminates	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
KPK and KPE laminates	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Co-extruded and fluorine-free laminates	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Transparent and specialty constructions	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Source: XXX

By Color and Optical Function

White backsheets dominate because high reflectance supports cell-to-module power and matches mainstream monofacial designs. Transparent products are expanding with bifacial modules where lower weight and familiar glass-foil processing offset rear-glass advantages. Black backsheets serve premium residential and building-integrated applications in which appearance supports higher module pricing.

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Value by color and Optical Function, USD bn

Segment	2026	2027	2028	2029	2030	2031	Share 2025	CAGR
White	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Transparent	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Black	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Other colors and functional finishes	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Source: XXX

By Module Application

Monofacial crystalline-silicon modules remain the largest application because rooftop and commercial markets continue to favor established glass-foil bills of materials. Bifacial clear-backsheet products gain where rear-side generation is valuable but rear-glass weight is undesirable. Flexible, lightweight and BIPV modules generate disproportionate value per square meter through specialized barrier and weathering requirements.

Value by module Application, USD bn

Segment	2026	2027	2028	2029	2030	2031	Share 2025	CAGR
Monofacial crystalline-silicon modules	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Bifacial clear-backsheet modules	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Flexible, lightweight and BIPV modules	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Thin-film, off-grid and specialty modules	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Source: XXX

By Installation Segment

Utility-scale solar remains the largest source of module demand but exhibits the highest glass-glass substitution rate. Commercial and industrial rooftops benefit polymer backsheets because weight, handling, structural loading and rapid installation influence project economics. Residential demand supports black, high-reflectance and premium-warranty products, particularly in Europe, Japan, Australia and North America.

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Value by installation Segment, USD bn

Segment	2026	2027	2028	2029	2030	2031	Share 2025	CAGR
Utility-scale	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Commercial and industrial	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Residential and small distributed	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Source: XXX

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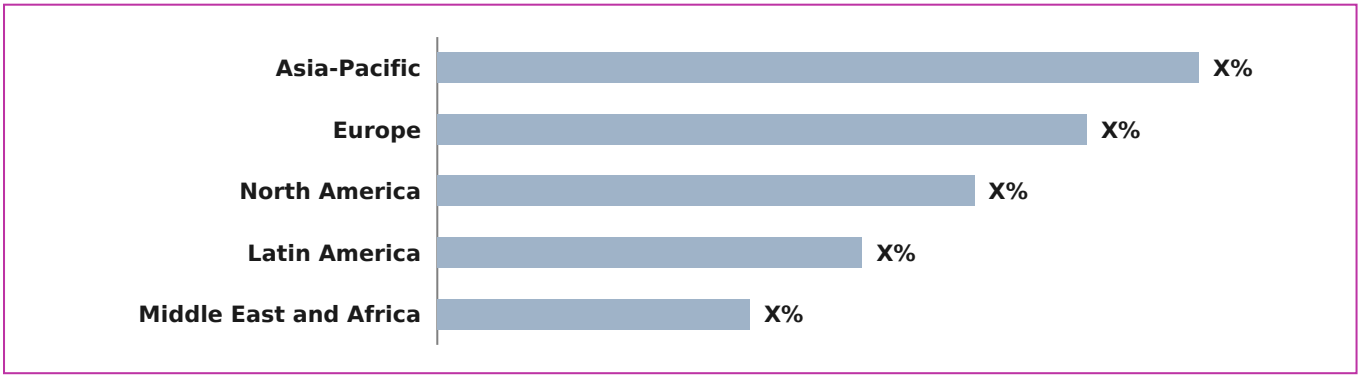
Solar Backsheet Market Regional Analysis and Country Outlook

Asia-Pacific generated XX% of global revenue in 2025, reflecting the concentration of photovoltaic module manufacturing, backsheet coating, PET-film supply and lamination capacity in China, Japan, South Korea and India. China remains the industry's price-setting center, while India is developing into the region's most important incremental market as domestic module capacity, ALMM requirements and production-linked incentives stimulate local component sourcing. Japan and South Korea retain strategic positions in high-performance films and specialty polymer technologies.

North America accounted for XX% of 2025 value and will grow at XX% CAGR through 2031. New United States module factories expand the serviceable market for locally stocked and qualified backsheets, although utility developers' preference for bifacial glass-glass modules limits addressable area. Europe represents XX% of revenue and emphasizes traceability, lifecycle performance, low-carbon materials and fluorine-free design; Germany and Italy lead regional consumption, while European suppliers maintain influence in premium laminates and qualification-intensive applications.

The Middle East and Africa will record the fastest regional expansion at XX% CAGR, supported by utility procurement, desert-climate performance requirements and emerging module assembly in Saudi Arabia, the United Arab Emirates, Egypt and South Africa. Latin America will advance at XX% CAGR, led by Brazil, Mexico and Chile, where distributed generation and commercial rooftops preserve demand for glass-backsheet modules alongside expanding utility-scale bifacial fleets.

Growth rate by region, 2025-2031



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Market value by region, USD bn

Region	2026	2027	2028	2029	2030	2031	Share 2025	CAGR
Asia-Pacific	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Europe	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
North America	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Latin America	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Middle East and Africa	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Source: XXX

Market value by leading country, USD bn

Country	2025	2031	Share 2025	CAGR
United States	XXX	XXX	XXX	XXX
Germany	XXX	XXX	XXX	XXX
United Kingdom	XXX	XXX	XXX	XXX
Belgium	XXX	XXX	XXX	XXX
Netherlands	XXX	XXX	XXX	XXX
Japan	XXX	XXX	XXX	XXX
China	XXX	XXX	XXX	XXX
Mexico	XXX	XXX	XXX	XXX

Source: XXX

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Solar Backsheet Market Competitive Landscape and Company Share

The solar backsheet market is moderately concentrated: the ten largest suppliers captured XX% of 2025 revenue, while a long tail of Chinese, Indian and regional converters competed on price, lead time and module-factory proximity. Hangzhou First Applied Material, Jolywood, Cybrid Technologies and Crown Advanced Material command scale in Asia, while DuPont, Krempel, Coveme, RenewSys and Dunmore hold differentiated positions in performance films, qualified laminates and regional technical service.

Competitive advantage rests on accelerated-aging evidence, field history, encapsulant compatibility, consistent dielectric performance and the ability to qualify constructions across multiple module platforms. Fluoropolymer incumbents continue to monetize durability credentials, while co-extruded and coated fluorine-free suppliers are gaining share through lower conversion costs and improved environmental positioning.

Investment is moving toward transparent films, adhesive-free co-extrusion, high-reflectance layers, localized slitting and rapid-response application laboratories. Strategic direction is also shaped by glass-glass substitution: successful suppliers are concentrating on rooftop, lightweight, back-contact, flexible and specialty modules where polymeric rear protection delivers a clear system-level advantage.

Leading companies

Company	HQ	Est. revenue 2025	Market share 2025	YoY
Hangzhou First Applied Material Co., Ltd.	XXX	XXX	XXX	XXX
Jolywood (Suzhou) Sunwatt Co., Ltd.	XXX	XXX	XXX	XXX
Cybrid Technologies Inc.	XXX	XXX	XXX	XXX
Crown Advanced Material Co., Ltd.	XXX	XXX	XXX	XXX
DuPont de Nemours, Inc.	XXX	XXX	XXX	XXX
Krempel GmbH	XXX	XXX	XXX	XXX
Coveme S.p.A.	XXX	XXX	XXX	XXX
RenewSys India Pvt. Ltd.	XXX	XXX	XXX	XXX
Dunmore Corporation	XXX	XXX	XXX	XXX
SKC Ltd.	XXX	XXX	XXX	XXX

Source: XXX

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Solar Backsheet Market Forecast, Technology Outlook and Opportunities

The market will expand from USD XXX billion in 2025 to USD XXX billion in 2031. Photovoltaic installations will remain the principal volume engine, but value creation will increasingly depend on product mix because rear-glass adoption reduces backsheet intensity in mainstream utility modules. Revenue growth will therefore outpace area growth where transparent, high-barrier and application-specific constructions command premiums.

The central forecast assumes sustained global PV additions, continued module-price pressure and a progressive shift toward glass-glass construction in bifacial utility projects. An accelerated distributed-solar scenario would lift 2031 demand above the central case because residential, commercial, flexible and building-integrated modules retain higher glass-foil penetration; faster universal adoption of dual-glass modules would create the principal downside.

Winning suppliers will combine proven outdoor durability with fluorine-free options, transparent products and regional qualification support. Portfolios designed around climate-specific stress profiles, lower embodied carbon and easier material separation will secure preferred-supplier status as module manufacturers move from component cost optimization toward lifecycle value and traceable product design.

Opportunities

- Co-extruded fluorine-free backsheets with simplified layer structures
- Transparent backsheets for bifacial rooftop and weight-sensitive installations
- High-reflectance backsheets for back-contact and high-efficiency modules
- Repairable and recyclable backsheet systems supporting circularity
- Localized coating and converting capacity in India, the United States and the Middle East
- Application-specific backsheets for deserts, coastal zones, agrivoltaics and floating PV

> This preview shows the form and depth of the report. The full report contains every figure, segment- and country-level detail and full company profiles. On purchase all figures are finalised and verified, and the report is delivered within 24–72 hours.

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