Bifacial Solar Modules

ANMD-MRS8-076 · Advanced Energy Technologies

A Global Sustainability Due Diligence & Market Research Study

History 2020–2024 · Base Year 2025 · Forecast 2025–2032 · Outlooks 2035 / 2040 / 2050 · Currency US$

WHY THIS REPORT

Bifacial solar modules capture light on both faces — front-side direct irradiance plus rear-side albedo — lifting energy yield by 5-30% over monofacial panels on the same footprint. This decision-grade study sizes the global market three ways — value, shipped capacity and module area — across cell technology, glass configuration and application, across seven regions and four scenarios to 2032, with outlooks to 2050.

SUSTAINABILITY & SDG IMPACT — THE ANMD LENS

Sustainability is this report's backbone, not an afterthought. Bifacial solar modules deliver measurable higher energy yield per watt, longer warranted life and superior tracker-site economics, while terawatt-era manufacturing and circular design strengthen the energy-transition story.

Mapped Sustainable Development Goals:

SDG 7	SDG 9	SDG 11	SDG 12	SDG 13
Affordable Clean Energy	Industry & Innovation	Sustainable Cities	Responsible Consumption	Climate Action

Measurable sustainability outcomes assessed:

- Higher energy yield per watt (5-30% gain)
- Longer warranted life and bankable performance
- Superior economics on trackers and high-albedo sites
- Manufacturing energy, glass/silver sourcing and module end-of-life recyclability as material risks

Framework alignment: Double materiality mapped to GRI, SASB, ISSB, TCFD, TNFD, CSRD and the EU Taxonomy, with greenwashing and SDG-washing screens applied throughout.

WHAT'S INSIDE AT A GLANCE

53 Chapters	9 Report Parts	7 Regions Covered	40+ Country Markets
2025–32 Forecast Horizon	4 Forward Scenarios	25+ Companies Profiled	5 SDGs Mapped

REPORT COVERAGE

Geographic scope: North America, Europe, Asia Pacific, Latin America, Africa, Middle East and Rest of World — with named country intelligence. Asia Pacific is the scale engine (China, India, Japan) on manufacturing and deployment; Europe leads on technology and demand (Germany, Spain, Netherlands); North America is the value leader (United States, Canada) on IRA support; other regions assessed on their own merits.

MARKET OVERVIEW

From premium option to utility-scale default — where modules go glass-glass, TOPCon and HJT bifacial.

Bifacial modules are moving from premium option to the utility-scale default. Demand is driven by tracker-paired ground-mount projects, falling cost premiums and the TOPCon/HJT transition across China, North America and Europe. The market is read three ways — value, shipped capacity and module area — and forecast under four scenarios, each region reported separately.

- **Asia Pacific is the scale engine** — China, on TOPCon and glass-glass manufacturing dominance
- **North America is the value leader** — United States, on tracker-paired ground-mount and IRA support
- **Europe is the demand leader** — Spain, Germany and Italy, on utility-scale deployment
- **Yield economics are the differentiator** — TOPCon and HJT bifacial plus tracker and high-albedo gains

REGIONAL OUTLOOK

Across seven reporting regions, the report separates early commercialisation leaders from high-growth and emerging markets — each profiled in full rather than aggregated into Rest of World.

Region	Stage	Lead Markets & Drivers
Asia Pacific	Scale engine	China, India, Japan — manufacturing, deployment
Europe	Technology / demand leader	Germany, Spain, Netherlands — deployment, policy
North America	Value leader	United States, Canada — IRA support, premium pricing
Middle East	High-growth	Saudi Arabia, UAE — utility-scale solar investment
Latin America	Emerging	Brazil, Chile — renewable-energy expansion
Africa	Emerging	South Africa, Egypt — clean-energy access, build-out

KEY MARKET DRIVERS & RESTRAINTS

Drivers	Restraints
• Tracker-pairing + ground-mount convergence • Energy-yield-gain & bankability value • Policy support (IRA, EU targets, India PLI) • Falling bifacial cost-premium momentum • TOPCon, HJT & glass-glass technology gains	• Price compression & margin pressure • Trade measures & supply-chain localisation • Glass, silver & polysilicon input-cost volatility • Module end-of-life & recyclability gaps • Grid-interconnection & permitting bottlenecks

SEGMENTATION SNAPSHOT

By Cell Technology	TOPCon bifacial · heterojunction (HJT) bifacial · PERC bifacial · specialty
By Glass Configuration	Glass-glass · glass-backsheet · vertical / specialty
By Application	Utility-scale · commercial & industrial · ground-mount & tracker
By End User	IPPs · utilities · EPCs · C&I owners
By Business Model	Module sales · OEM supply · PPA-linked · premium-gain
By Scale	Distributed · commercial · utility-scale

TABLE OF CONTENTS — PARTS & CHAPTERS

The full report is organised into nine parts across 53 chapters, listed below. Detailed sub-headings, country tables and directories are provided in the full report.

COMPETITIVE & INVESTMENT SNAPSHOT

The competitive field spans global clean-energy majors, specialist bifacial solar modules makers, and emerging innovators. Deal activity — M&A, technology acquisition and platform expansion — signals a market consolidating around scalable, scale, efficiency and bankability.

Representative players profiled in the full report:

LONGi Green Energy Technology Co., Ltd. · JinkoSolar Holding Co., Ltd. · JA Solar Technology Co., Ltd. · Trina Solar Co., Ltd. · Canadian Solar Inc. · and 20+ further profiled players across manufacturers, developers and emerging innovators.

Investment intelligence: venture, infrastructure, development, climate and blended finance, green bonds and sustainability-linked loans — culminating in a bankability assessment and a Go / No-Go / Conditional-Go investment verdict.

KEY QUESTIONS THIS REPORT ANSWERS

- ? How large is the global bifacial solar modules market, and how fast will it grow to 2032?
- ? Which regions, countries and segments offer the strongest risk-adjusted opportunity?
- ? How do efficiency, yield and bankability change project economics versus incumbent technology?
- ? Who leads, and where is the competitive and patent white space?
- ? Is the investment case bankable — and under what conditions?
- ? How does the category align with the SDGs, energy-access and just-transition and disclosure regulation?

WHY ANMD — THE DIFFERENCE

Most market studies stop at units and revenue. This report is built as a sustainability due diligence instrument — fusing market sizing with ESG, SDG, climate, water and natural-capital intelligence and a decision-ready bankability verdict in a single architecture.

- **Triangulated sizing** — every market read three ways so value, volume and capacity views reconcile rather than conflict.
- **Region-honest forecasting** — Latin America, Africa and the Middle East reported in full, never hidden inside Rest of World, every forecast resolved to the 2025 base year.
- **Integrated evidence base** — company, patent and project databases linked to the analysis, with published-filing patents and FTO treated as an indicator, not a legal conclusion.
- **No-fabrication discipline** — every estimate carries a data-confidence rating and disclosed sources; gaps are flagged for further diligence, never filled with invented numbers.
- **Anti-greenwashing rigour** — SDG-washing and greenwashing screens plus claim-substantiation checks built into the ESG and project analysis.
- **Decision-first structure** — 9 Parts and 53 Chapters culminating in stakeholder playbooks and a clear Go / No-Go / Conditional-Go investment verdict.

WHO SHOULD BUY THIS REPORT

Investors and infrastructure / PE funds, IPPs, utilities and EPC contractors, manufacturers and OEMs, project developers and asset owners, off-takers and corporate buyers, regulators, policymakers and lenders, and corporate strategy and ESG teams.

Access the Full Report

The complete report delivers all 53 chapters in full, with every sub-heading, country table, company and patent directory, forecast model and due diligence checklist.

Purchase at **www.anewmarketdynamics.com** · Standard & Premium licences · Single-Site (SSL) and Global-Site (GSL) options at checkout.

Want the Complete Detailed Table of Contents?

This prospectus lists the nine parts and 53 chapters. The complete detailed table of contents — every sub-heading, country table, exhibit, company and patent directory and annex — is available on request to registered users. To receive it, register with your official company email at **www.anewmarketdynamics.com**. The full detailed table of contents will be sent directly to your registered company email address.