

Wind Turbine Blades

ANMD-MRS8-073 · 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

Wind turbine blades are the defining component of every wind machine — the aerodynamic structure that captures kinetic energy and sets the turbine's power, cost and footprint. This decision-grade study sizes the global market three ways — value, installed capacity and blades shipped — across blade material, length class 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. Wind turbine blades deliver measurable clean-energy capture, higher annual energy production and lower levelised cost, while recyclable blade design opens a path to circularity for a component long destined for landfill.

Mapped Sustainable Development Goals:

SDG 7 Affordable Clean Energy	SDG 9 Industry & Innovation	SDG 11 Sustainable Cities	SDG 12 Responsible Consumption	SDG 13 Climate Action
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Measurable sustainability outcomes assessed:

- Higher annual energy production and lower LCOE
- Clean-energy capture at growing scale
- A path to blade circularity and landfill diversion
- Composite material sourcing, blade end-of-life recyclability and manufacturing energy 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 glass-fibre commodity to materials-and-circularity battleground — where blades go longer, carbon-hybrid and recyclable.

Wind turbine blades are moving from a glass-fibre commodity to a materials-and-circularity battleground. Demand is driven by onshore repowering, offshore scale-up, and net-zero targets across China, Europe and North America, even as blade recycling and supply-chain localisation reshape the field. The market is read three ways — value, installed capacity and blades shipped — and forecast under four scenarios, each region reported separately.

- **Asia Pacific is the scale engine** — China, on onshore and offshore manufacturing and volume
- **Europe is the technology leader** — Denmark, Germany and Spain, on offshore and recyclable blades
- **North America is the value leader** — United States, on repowering and offshore build-out
- **Materials and circularity are the differentiators** — carbon-hybrid and recyclable thermoplastic plus longer blades

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
<ul style="list-style-type: none"> • Repowering + offshore-scale-up convergence • AEP-gain & levelised-cost value • Policy support (net-zero, offshore targets, IRA) • Circularity & recyclable-blade momentum • Carbon-fibre, segmented & thermoplastic gains 	<ul style="list-style-type: none"> • Capital intensity & supply-chain localisation • Blade end-of-life & recycling-infrastructure gaps • Composite material & resin cost volatility • Logistics & transport constraints at length • Permitting, grid & offshore-build bottlenecks

SEGMENTATION SNAPSHOT

By Blade Material	Glass-fibre (GFRP) · carbon-fibre hybrid (CFRP) · segmented / modular · recyclable / thermoplastic
By Length Class	<60m · 60-80m · 80-100m · >100m offshore large-format
By Application	Onshore · offshore · distributed / small wind
By End User	Turbine OEMs · IPPs · utilities · wind developers
By Business Model	OEM supply · Tier-1 manufacture · aftermarket & recycling
By Scale	Distributed · onshore utility · offshore large-format

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.

Part I — Report Foundation, Discovery and Strategic Intelligence

- › Chapter 1. Scope, Methodology and Report Architecture
- › Chapter 2. Industry Discovery Summary — Wind Turbine Blades
- › Chapter 3. Executive Intelligence and Decision Dashboard
- › Chapter 4. Strategic Findings, Materiality and Investment Verdict Preview

Part II — Market Intelligence, Sizing, Forecasting and Segmentation

- › Chapter 5. Industry Overview and Market Evolution
- › Chapter 6. Market Dynamics
- › Chapter 7. Global Market Size and Forecast, 2020–2032
- › Chapter 8. Market Segmentation Analysis
- › Chapter 9. End-User and Demand-Side Intelligence
- › Chapter 10. Pricing, Cost and Commercial Model Intelligence

Part III — Regional and Country Intelligence

- › Chapter 11. Global Regional Intelligence Framework
- › Chapter 12. North America Market Intelligence
- › Chapter 13. Europe Market Intelligence
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Part IV — Technology, Innovation and Category-Specific Intelligence

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- › Chapter 20. Emerging and Next-Generation Technology Intelligence
- › Chapter 21. Category-Specific Intelligence Module
- › Chapter 22. Research, Innovation and Funding Landscape

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- › Chapter 25. Mergers, Acquisitions, Partnerships and Ecosystem Intelligence
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- › Chapter 35. Social Impact, Human Capital and Community Intelligence
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Part VIII — Scenario, Future Intelligence and Final Due Diligence Verdict

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- › Chapter 44. Risk Register, RAG Rating and Anti-Greenwashing Screen
- › Chapter 45. Bottom-Line Verdict and Strategic Recommendations
- › Chapter 46. Implementation Roadmap and Stakeholder Playbooks

Part IX — Annexes, Directories and Reference Material

- › Chapter 47. Methodology Annex
- › Chapter 48. Corporate Directory and Company Intelligence Annex
- › Chapter 49. Patent Directory and Patent Intelligence Annex
- › Chapter 50. Project Intelligence Annex
- › Chapter 51. Forecast Annex
- › Chapter 52. Sustainability KPI Annex
- › Chapter 53. Reference Annexes

COMPETITIVE & INVESTMENT SNAPSHOT

The competitive field spans global clean-energy majors, specialist wind turbine blades 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:

Vestas Wind Systems A/S · Siemens Gamesa Renewable Energy, S.A. · LM Wind Power (GE Vernova Inc.) · TPI Composites, Inc. · Xinjiang Goldwind Science & Technology Co., Ltd. · 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 wind turbine blades 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.