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Wind Blade Composites Market by Fiber Type (Glass Fiber, Carbon Fiber, Other Fiber Types), Resin Type (Epoxy, Polyurethane, Other Resin Types), Blade Size (Up to 50 Meters, Over 50 Meters), Application (Onshore, Offshore), and Region - Global Forecast to 2030

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Abstracts

The wind blade composites market is estimated to be valued at USD 13.28 billion in 2025 and reach USD 21.87 billion by 2030, at a CAGR of 10.5% from 2025 to 2030. The demand for carbon fiber within the wind blade composites sector is experiencing significant growth, primarily driven by the increasing requirements for larger, more efficient wind turbines. Carbon fiber provides a superior strength-to-weight ratio compared to conventional materials, facilitating the production of longer, lighter, and stiffer blades. These attributes are critical for optimizing the energy output of turbines, particularly in offshore applications where maximizing performance is essential to mitigate high infrastructure costs. Additionally, carbon fiber enhances the fatigue resistance and longevity of blades, reducing maintenance requirements and extending their operational life. As global initiatives to promote renewable energy and decrease carbon emissions gain momentum, the expansion of wind energy installations is accelerating, further propelling the adoption of advanced materials, such as carbon fiber, in blade manufacturing.

“Polyurethane resin to be second fastest-growing resin type segment during forecast period”

The demand for polyurethane resin is primarily driven by its exceptional mechanical properties, cost efficiency, and improved manufacturing productivity. Compared to

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conventional resins, polyurethane resin offers superior mechanical strength and enhanced fatigue resistance, making it an optimal choice for the production of durable yet lightweight wind turbine blades. Its low viscosity facilitates accelerated infusion rates during the manufacturing process, leading to a significant reduction in production cycle times and an overall increase in productivity. Additionally, the cost-effectiveness of these resins allows manufacturers to produce high-quality blades at reduced costs, which is essential for the wind energy sector as it moves towards achieving cost parity with traditional energy sources.

“Wind blades up to 50 meters length to be second-fastest-growing blade size segment during forecast period”

Wind blades measuring up to 50 meters are projected to be the second-fastest growing segment in the wind blade composites market, largely attributed to their prevalent application in onshore wind farms, particularly in developing regions and areas with lower wind capacity. These shorter blades offer a more cost-efficient for manufacturing, transportation, and installation, rendering them ideal for markets characterized by limited infrastructure or smaller-scale wind energy initiatives. Furthermore, a significant proportion of older wind turbines, still operational and undergoing replacement or upgrades, were originally engineered to support blades of this size. Policy frameworks and investments in renewable energy—especially within emerging markets such as the Asia-Pacific region—further bolster the deployment of smaller turbines, thereby enhancing the uptake of these blades.

“Onshore wind turbines to be second-fastest growing application segment during forecast period”

Onshore wind turbines are anticipated to exhibit the second-highest growth rate within the overall wind blade composites market, driven by their extensive adoption, cost efficiency, and simpler installation processes compared to offshore counterparts. Onshore wind projects typically have shorter development timelines and lower costs, facilitating large-scale deployments across various regions, particularly in nations with abundant land resources and proactive renewable energy policies. Consequently, the demand for composite materials utilized in wind blade manufacturing has markedly increased for onshore applications. Recent advancements in composite technology have led to the production of longer, lighter, and more resilient blades specifically designed to meet the requirements of onshore turbines.

“Europe to register second-highest growth rate in wind blade composites market during

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forecast period”

Europe is anticipated to rank as the second-fastest-growing region in the wind blade composites market throughout the forecast period. This growth can be attributed to a robust commitment to renewable energy, ambitious climate objectives, and a well-established wind energy infrastructure. The European Union has instituted stringent targets to reduce carbon emissions and enhance the share of renewables in its energy portfolio, with wind power as a pivotal component. Key players, including Germany, Denmark, and the Netherlands, are making significant investments in both onshore and offshore wind initiatives, thereby driving the demand for high-performance, lightweight, and durable composite materials for turbine blades. Furthermore, the region’s advanced manufacturing capabilities, coupled with ongoing technological innovations in materials science and favorable regulatory environments, are essential factors propelling the swift expansion of the wind blade composites market. Additionally, the modernization of older wind farms through the integration of cutting-edge, more efficient blades crafted from advanced composites further stimulates market growth in the region.

This study has been validated through interviews with industry experts globally. The primary sources have been divided into the following three categories:

By Company Type: Tier 1 - 60%, Tier 2 - 20%, and Tier 3 - 20%

By Designation: C-level - 33%, Director-level - 33%, and Managers - 34%

By Region: North America - 20%, Europe - 25%, Asia Pacific - 25%, Middle East & Africa - 20%, and South America - 10%

Report provides a comprehensive analysis of the following companies:

China Jushi Co., Ltd. (China), DowAksa (Turkey), Teijin Limited (Japan), SGL Carbon (Germany), Hexcel Corporation (US), Gurit Services AG (Switzerland), China National Building Material Group Corporation (China), Toray Industries, Inc. (Japan), Rochling (Germany), Exel Composites (Finland), Evonik (Germany), Arkema (France), Owens Corning (US), Exxon Mobil (US), and Huntsman (US).

Research Coverage

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This research report categorizes the wind blade composites market based on fiber type (glass fiber, carbon fiber, and other fiber types), resin type (epoxy, polyurethane, and other resin types), blade size (up to 50 meters and over 50 meters), application (onshore wind turbines and offshore wind turbines), and region (North America, Europe, Asia Pacific, Middle East & Africa, and South America). The scope of the report includes detailed information about the major factors influencing the growth of the wind blade composites market, such as drivers, restraints, challenges, and opportunities. A thorough examination of the key industry players has been conducted to provide insights into their business overviews, solutions and services, key strategies, and recent developments in the wind blade composites market are all covered. This report includes a competitive analysis of the upcoming startups in the wind blade composites market ecosystem.

Reasons to Buy this Report

The report will help the market leaders/new entrants in this market with information on the closest approximations of the revenue numbers for the overall wind blade composites market and the subsegments. This report will help stakeholders understand the competitive landscape and gain more insights to position their businesses better and plan suitable go-to-market strategies. The report also helps stakeholders understand the market pulse and provides information on key market drivers, restraints, challenges, and opportunities.

The report provides insights on the following pointers:

Analysis of key drivers (Rising new installations of wind turbines, Increasing turbine size), restraints (High raw material costs, Limited blade recycling technology), opportunities (Development of recyclable resin, Increasing offshore wind turbine installations), and challenges (Geopolitical instability, High capital investments) influencing the growth of the wind blade composites market.

Product Development/Innovation: Detailed insights into upcoming technologies, research & development activities, and product launches in the wind blade composites market.

Market Development: Comprehensive information about lucrative markets – the report analyzes the wind blade composites market across varied regions.

Market Diversification: Exhaustive information about services, untapped

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geographies, recent developments, and investments in the wind blade composites market.

Competitive Assessment: In-depth assessment of market shares, growth strategies, and offerings of leading players such as China Jushi Co., Ltd. (China), DowAksa (Turkey), Teijin Limited (Japan), SGL Carbon (Germany), Hexcel Corporation (US), Gurit Services AG (Switzerland), China National Building Material Group Corporation (China), Toray Industries, Inc. (Japan), R?chling (Germany), Exel Composites (Finland), Evonik (Germany), Arkema (France), Owens Corning (US), Exxon Mobil (US), and Huntsman (US) in the wind blade composites market.

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