

Wind Power Converter Market Forecasts to 2032 – Global Analysis By Type (Full-Scale Converter, and Partial-Scale Converter), Component (Power Electronics/Semiconductors, Capacitors and Filters, Heat Sinks and Cooling Systems, Control and Monitoring Systems, Transformers, and Other Auxiliary Components), Power Rating, Application, and By Geography

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Abstracts

According to Statistics MRC, the Global Wind Power Converter Market is accounted for \$6.9 billion in 2025 and is expected to reach \$13.8 billion by 2032, growing at a CAGR of 10.3% during the forecast period. The wind power converter market focuses on power electronics that condition and control the electricity generated by wind turbines before it is sent to the grid. This market includes converters, control systems, and related components for both onshore and offshore wind turbines. Key benefits of these technologies include enhanced turbine efficiency, stable power quality, compliance with grid codes, and improved performance under varying wind conditions, and increased reliability and lifespan of turbine equipment. These advantages contribute to a more cost-effective and predictable approach to wind power generation.

Market Dynamics:

Driver:

Global shift to renewable energy and decarbonization targets

National decarbonization pledges and corporate sustainability goals mandate the urgent global transition to renewable energy, which is the primary market driver. This policy-driven shift, highlighted by the EU's Green Deal and the U.S. Inflation Reduction Act, creates sustained demand for wind power infrastructure. Additionally, rising electricity costs and concerns about energy security are driving increased investments in domestic wind capacity. As a result, governments and utilities are procuring converters at scale to facilitate the integration of new wind farms into the grid, offering the converter market a solid foundation for long-term growth.

Restraint:

High initial investment and maintenance costs

The significant capital expenditure associated with wind power converters and their maintenance constrains market expansion. Project developers face challenges, particularly in price-sensitive emerging markets, as these advanced power electronics account for a significant portion of a wind turbine's total cost. Furthermore, operational expenses for repairs and downtime negatively affect project economics. Financial strain can delay final investment decisions, especially when developers encounter increasingly cost-competitive alternatives like solar photovoltaics (PV).

Opportunity:

Integration with energy storage systems

A noteworthy opportunity lies in the integration of converters with batteries and other energy storage systems. This integration is essential for addressing the intermittency of wind power, allowing for the release of stored energy during peak demand and improving grid stability. Additionally, hybrid projects that combine wind, solar, and storage are gaining popularity, necessitating advanced converter technology for effective energy management. This trend enables manufacturers to create higher-value, integrated solutions and access the wider energy storage market.

Threat:

Intense competition from solar PV and other renewables

The market also encounters significant competition from alternative renewable technologies, primarily solar photovoltaics (PV). Solar PV has experienced more

substantial cost reductions and frequently benefits from shorter installation times and fewer permitting obstacles. Consequently, in many regions, solar is becoming the preferred option for new capacity, which could potentially divert investment away from wind projects. Moreover, evolving grid codes that require advanced functionality increase research and development pressures on converter suppliers, thereby squeezing profit margins within a competitive landscape.

Covid-19 Impact:

The pandemic initially disrupted the global supply chain for critical components, such as semiconductors and magnetics, causing delays in converter manufacturing and wind project completions. Lockdowns and travel restrictions also hindered on-site installation and maintenance services. However, the crisis subsequently highlighted the strategic importance of energy security and resilient domestic supply chains. As economies began to recover, stimulus packages that heavily featured green energy investments helped the market rebound strongly, accelerating project pipelines that had been deferred from 2020.

The full-scale converter segment is expected to be the largest during the forecast period

The full-scale converter segment is expected to account for the largest market share during the forecast period due to its widespread adoption in modern high-capacity wind turbines, especially offshore models. Full-scale converters manage the entire power output, offering superior grid support, fault ride-through capabilities, and power quality, which are essential under stringent modern grid codes. Their proven reliability and compatibility with the latest turbine designs from major original equipment manufacturers (OEMs) ensure continued preference, securing their largest market share position for the foreseeable future.

The control and monitoring systems segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the control and monitoring systems segment is predicted to witness the highest growth rate, driven by the increasing need for operational efficiency, predictive maintenance, and real-time optimization of wind assets. Advanced control systems maximize energy yield, while integrated monitoring and analytics platforms minimize unscheduled downtime and extend component lifespan. The digitalization of wind farms, along with the integration of the Internet of Things (IoT) and artificial intelligence (AI) for performance management are key trends propelling this segment's

accelerated growth.

Region with largest share:

During the forecast period, the Asia Pacific region is expected to hold the largest market share, supported by China's extensive installed wind capacity and ambitious renewable energy targets. China's robust domestic manufacturing ecosystem and consistent annual capacity additions create a significant and stable demand core. Additionally, substantial growth in supporting markets such as India, Japan, and Australia, each pursuing energy mix diversification, contributes significantly to the region's leadership in both new installations and replacement demand.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR, fueled by growing investments in wind energy in emerging Southeast Asian countries like Vietnam, the Philippines, and Thailand. These markets are at earlier stages of wind energy development, presenting significant growth potential from a relatively small starting point. Additionally, continued policy support, rising foreign investment, and the establishment of new offshore wind projects across the region contribute to a robust growth dynamic that surpasses that of more mature markets.

Key players in the market

Some of the key players in Wind Power Converter Market include ABB Ltd, Siemens AG, General Electric Company, Schneider Electric SE, Emerson Electric Co., American Superconductor Corporation, Ingeteam Power Technology, S.A., Vacon Plc, Woodward, Inc., The Switch Engineering Oy, Sungrow Power Supply Co., Ltd., Delta Electronics, Inc., Vertiv Holdings Co., Alstom SA, Dongfang Electric Corporation, and Shenzhen Hopewind Electric Co., Ltd.

Key Developments:

In September 2025, GE Vernova secured an order for eight 6MW-164m onshore wind turbines for a repowering project in Germany.

In April 2025, ABB launched a new circuit breaker solution tailored for next-generation wind turbines, enhancing reliability and efficiency in high-power switching.

In February 2025, AMSC expanded its Windtec Solutions for wind turbine efficiency, including power electronics relevant to converters for renewable energy integration.

Types Covered:

Full-Scale Converter

Partial-Scale Converter

Components Covered:

Power Electronics/Semiconductors

Capacitors and Filters

Heat Sinks and Cooling Systems

Control and Monitoring Systems

Transformers

Other Auxiliary Components

Power Ratings Covered:

Low Power (? 1 MW)

Medium Power (1 MW \$\$- 3 MW)

High Power (? 3 MW)

Applications Covered:

Onshore Wind

Offshore Wind

Regions Covered:

North America

US

Canada

Mexico

Europe

Germany

UK

Italy

France

Spain

Rest of Europe

Asia Pacific

Japan

China

India

Australia

New Zealand

South Korea

Rest of Asia Pacific

South America

Argentina

Brazil

Chile

Rest of South America

Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & Africa

What our report offers:

- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2024, 2025, 2026, 2028, and 2032
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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