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Land-Based Wind Market Forecasts to 2030 – Global Analysis by Component Type (Turbines and Balance of System (BoS)), Installation Type (New Installations and Repowering), Capacity, Application and By Geography

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Abstracts

According to Stratistics MRC, the Global Land-Based Wind Market is growing at a CAGR of 40.1% during the forecast period. Land-based wind, often known as onshore wind, is the generation of power from wind turbines built on land rather than offshore. Through the use of a generator, the mechanical power generated by these wind turbines is transformed into electrical power. To increase efficiency, land-based wind farms are frequently situated in hills, broad plains, and other high-wind regions. They provide a sustainable and affordable substitute for fossil fuels and are an essential part of the infrastructure supporting renewable energy. In light of increased environmental concerns, governments and energy businesses invest in land-based wind to satisfy renewable energy targets, improve energy security, and lower carbon emissions.

Market Dynamics:

Driver:

Growing Demand for Clean Energy

The growing need for clean energy is a primary driver of the land-based wind business, hastening investment in wind farms as countries aim to decrease carbon emissions and convert to renewable energy. To encourage the use of wind energy, governments put in place advantageous laws, grants, and incentives. In order to achieve sustainability goals, corporations and utilities are investing more and more in wind power. Efficiency is

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further increased by developments in turbine technology, which makes wind energy a scalable and affordable way to sustainably fulfill the growing demand for electricity worldwide.

Restraint:

High Initial Investment

The large initial investment in land-based wind projects stifles market expansion by raising financial risks and discouraging participation from small and medium-sized firms. Entry hurdles are caused by the costs of grid connections, infrastructure, land acquisition, and turbines. Furthermore, investors are deterred by lengthy payback times and unclear returns on investment, which slows project deployment and expansion, particularly in emerging nations with little financial and regulatory assistance.

Opportunity:

Technological Advancements

Technological advancements significantly drive the land-based wind market by enhancing turbine efficiency, increasing energy output, and reducing costs. Innovations in blade design, materials, and aerodynamics improve performance, while advanced predictive maintenance and AI-driven monitoring optimize operations. Taller towers and larger rotor diameters enable better wind capture, even in low-wind regions. Additionally, advancements in energy storage and grid integration enhance reliability, making wind power a more viable and competitive energy source, accelerating global adoption and market growth.

Threat:

Grid Integration Challenges

Grid integration challenges hinder the land-based wind market by causing instability, transmission bottlenecks, and curtailment issues. Inadequate infrastructure limits the efficient distribution of wind-generated power, leading to energy losses and increased costs. Additionally, variability in wind energy supply creates balancing difficulties, requiring expensive storage solutions or backup systems. These factors slow market expansion and deter investment in new wind projects.

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Covid-19 Impact

The COVID-19 pandemic disrupted the land-based wind market by delaying projects due to supply chain disruptions, labor shortages, and lockdowns. Manufacturing slowdowns affected turbine production, while financial uncertainty led to reduced investments. However, post-pandemic recovery efforts, government stimulus packages, and increased focus on renewable energy accelerated market growth, driving new wind farm installations and strengthening the industry's resilience.

The utility-scale wind farms segment is expected to be the largest during the forecast period

The utility-scale wind farms segment is expected to account for the largest market share during the forecast period, because these initiatives improve grid stability and energy security while also helping the government meet its green targets. Improvements in turbine technology boost efficiency, which speeds up adoption even further. In addition to ensuring financial sustainability, long-term power purchase agreements (PPAs) with utilities and businesses accelerate market expansion and establish wind energy as a competitive alternative to fossil fuels.

The Repowering segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the turbines segment is predicted to witness the highest growth rate, because this increases energy output, extends asset life, and improves grid dependability. Repowering increases the profitability of wind farms by lowering operating costs and optimizing land use efficiency. Adoption is further accelerated by government subsidies for upgrades to renewable energy. Repowering is essential for maintaining and increasing wind energy capacity without needing new locations because many early wind farms are nearing the end of their lives.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share since developments in technology have increased turbine efficiency, reducing costs and making them more competitive with fossil fuels. Further driving market expansion are rising corporate power purchase agreements (PPAs) and rising electricity consumption. Wind energy's position in North America's clean energy transition and long-term sustainability goals is further reinforced by the fact that utilities

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and industry are drawn to it due to worries about energy security and carbon emissions.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR, because of rising energy consumption, carbon neutrality pledges, and governmental regulations. To lessen their reliance on fossil fuels, nations like Australia, China, and India are making significant investments in wind energy. Market expansion is further accelerated by advantageous laws, such as renewable energy objectives and subsidies, technological developments, and falling turbine costs. Wind power is an essential answer for the region's sustainable energy expansion because of the increased electricity consumption brought on by fast industrialization and urbanization.

Key players in the market

Some of the key players profiled in the Land-Based Wind Market include Vestas Wind Systems A/S, GE Vernova, Siemens Gamesa Renewable Energy, Goldwind, Envision, Mingyang Smart Energy, NextEra Energy Resources, Iberdrola, S.A, Nordex SE, Acciona Energia, Enercon GmbH, Suzlon Energy Limited, Senvion S.A, ReNew Power, Pattern Energy Group, Invenergy, Neoen, EDF Renewables and RES Group.

Key Developments:

In December 2024, GE Vernova’s Advanced Research Center (ARC) has supplied a 3.4-140m, 81m hub height wind turbine to the National Renewable Energy Laboratory (NREL), aimed at enabling groundbreaking collaborative research using GE Vernova's assets #- #underscoring the potential for government and private sector cooperation to drive innovation and progress in critical areas of energy research.

In December 2024, Technip Energies and GE Vernova awarded a major contract for the Net Zero Teesside Power project, which aims to be the world’s first gas-fired power station with carbon capture and storage.

In November 2024, GE Vernova, Inc. announced that it has signed a definitive agreement to acquire Woodward, Inc.’s heavy duty gas turbine combustion parts business based in Greenville, S.C. This transaction is an important component of GE Vernova’s strategy of investing in U.S. manufacturing and jobs and strengthening its domestic supply chain.

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Component Types Covered:

- Turbines
- Balance of System (BoS)

Installation Types Covered:

- New Installations
- Repowering

Capacities Covered:

- Below 1 MW
- 1 MW – 3 MW
- Above 3 MW

Applications Covered:

- Utility-Scale Wind Farms
- Distributed (Small-Scale) Wind Energy Systems

Regions Covered:

- North America
  - US
  - Canada
  - Mexico

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  - Italy
  - France
  - Spain
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  - New Zealand
  - South Korea
  - Rest of Asia Pacific
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  - Argentina
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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 2022, 2023, 2024, 2026, and 2030
- 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

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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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