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Onshore Wind Power Market Forecasts to 2034 – Global Analysis By Component (Turbines, Towers, Blades and Balance of Plant (BoP)), Application, End User and By Geography

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Abstracts

According to Stratistics MRC, the Global Onshore Wind Power Market is accounted for $136.4 billion in 2026 and is expected to reach $298.8 billion by 2034 growing at a CAGR of 10.3% during the forecast period. Onshore wind power involves producing electricity through turbines positioned on land in areas with consistent and strong wind conditions, such as plains, elevated terrains, and coastal zones. It is considered a well-established and economically viable renewable energy source, extensively used worldwide. Compared to offshore projects, onshore wind installations are simpler to build and operate, enabling faster financial recovery. This form of energy plays a crucial role in lowering carbon emissions and minimizing reliance on conventional fossil fuels. Continuous innovations in turbine technology, enhanced performance, and favorable regulatory frameworks are accelerating the global growth of onshore wind energy systems.

According to the International Energy Agency (IEA), data shows onshore wind capacity additions rebounded by 70% in 2023, reaching 107 GW, an all-time record. This surge was driven by delayed projects in China and accelerated commissioning in Europe and the United States.

Market Dynamics:

Driver:

Declining cost of wind energy technology

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The reduction in costs associated with wind energy technology plays a crucial role in expanding the onshore wind power market. Innovations in turbine engineering, larger blades, and efficient production techniques have significantly lowered both installation and maintenance expenses. Mass production and improved supply chains have also contributed to making wind energy more economical. As costs decline, the financial attractiveness of wind projects increases, prompting more developers and investors to participate. Affordable wind power encourages utilities and policymakers to include it in their energy strategies, thereby driving widespread adoption and fostering continuous growth in the global onshore wind industry.

Restraint:

High initial investment costs

The considerable upfront capital required for onshore wind projects acts as a major constraint on market expansion. Establishing wind farms involves expenses related to land procurement, turbine setup, transmission infrastructure, and grid integration. While operating expenses are comparatively lower, the initial financial commitment can deter potential investors, particularly smaller firms. Obtaining funding may also be difficult due to concerns about risks and extended return periods. Variations in raw material and equipment costs can further raise overall investment needs. These financial challenges can slow down project development, particularly in emerging economies, thereby limiting the overall growth of the onshore wind energy market.

Opportunity:

Repowering of existing wind farms

Upgrading older wind farms with advanced turbine technology provides a significant opportunity for the onshore wind power market. By replacing outdated equipment with more efficient models, operators can boost electricity generation without expanding land use. Modern turbines offer greater capacity and improved performance, making such upgrades financially beneficial. Repowering also extends the operational life of wind installations and enhances returns on investment. Policymakers and industry players are increasingly focusing on modernizing aging infrastructure to meet rising energy needs. This strategy promotes efficient resource utilization and supports the continued growth of renewable energy production with minimal environmental disruption.

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Threat:

Policy uncertainty and regulatory changes

Frequent changes and inconsistencies in government regulations represent a major threat to the onshore wind power market. Variations in incentives, tax policies, and renewable energy commitments can negatively impact project feasibility and investor confidence. Stable policy frameworks are essential for securing funding and ensuring predictable returns over time. Unclear guidelines and prolonged approval processes can delay project execution. Additionally, changing political agendas in certain regions may reduce emphasis on renewable energy development. These uncertainties create financial and operational risks, discouraging investments and ultimately hindering the steady growth of the onshore wind energy sector worldwide.

Covid-19 Impact:

The outbreak of COVID-19 influenced the onshore wind power market in both negative and positive ways. Early in the pandemic, lockdowns and travel restrictions disrupted supply chains, delayed project timelines, and limited workforce availability, affecting turbine production and installation activities. These challenges increased costs and slowed market progress temporarily. Nevertheless, the situation underscored the need for reliable and sustainable energy sources, prompting governments to include renewable energy in economic recovery strategies. As restrictions were lifted, investments regained momentum with support from policy incentives. The pandemic also promoted digital transformation, enhancing efficiency and reinforcing the sector's long-term development outlook.

The turbines segment is expected to be the largest during the forecast period

The turbines segment is expected to account for the largest market share during the forecast period because they serve as the primary units that transform wind into electrical energy. Comprising key components like generators, gear systems, rotors, and nacelles, they are the most complex and expensive elements of wind energy systems. Ongoing advancements, such as improved efficiency and larger blade spans, have enhanced their energy output and operational capability. Due to their essential function and high share of project expenditure, turbines remain the dominant segment. Their importance drives continuous innovation, attracts major investments, and supports the overall expansion of the onshore wind energy industry.

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The industrial captive power segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the industrial captive power segment is predicted to witness the highest growth rate due to rising industrial interest in affordable and dependable energy sources. Businesses are increasingly developing their own wind energy systems to manage electricity costs and reduce reliance on external power supplies. This trend is also driven by corporate sustainability initiatives and the need to comply with environmental standards. Supportive regulatory frameworks and access policies are further promoting this segment. The ability to consume self-generated power improves operational efficiency, making captive wind energy an attractive and rapidly expanding option for industrial users.

Region with largest share:

During the forecast period, the Asia-Pacific region is expected to hold the largest market share due to widespread adoption and strong policy backing in nations like China and India. High wind potential, availability of suitable land, and increasing energy needs driven by economic growth contribute to its leadership. Governments across the region promote renewable energy through incentives, targets, and supportive regulations. Continuous investments in transmission networks and infrastructure enhance project feasibility. Additionally, the presence of key industry players boosts technological development and production capacity.

Region with highest CAGR:

Over the forecast period, the Europe region is anticipated to exhibit the highest CAGR due to its strong focus on sustainability and clean energy transition led by the European Union. Nations like Germany, Spain, and France are actively increasing wind energy installations to meet emission reduction goals and strengthen energy independence. Well-established infrastructure, supportive regulations, and ongoing technological advancements are driving this expansion. The modernization of older wind farms further boosts capacity growth. With rising investments and policy support, Europe continues to emerge as the most rapidly expanding region in the onshore wind energy sector.

Key players in the market

Some of the key players in Onshore Wind Power Market include Iberdrola S.A., Duke Energy, NextEra Energy Resources, Vestas Wind Systems AS, Siemens Gamesa

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Renewable Energy SA, Enel Green Power S.p.A., Pattern Energy Group Inc., Nordex Group, Enercon GmbH, Brookfield Renewable Partners, TransAlta Corp, Renewable Energy Systems (RES), Invenergy LLC, Clearway Energy, Boralex Inc, Mainstream Renewable Power, Apex Clean Energy and Windlab Ltd.

Key Developments:

In January 2026, Nordex Group and VERBUND Green Power has entered into a multi year framework agreement with the Nordex Group, a leading global manufacturer of onshore wind turbines, for the potential procurement of up to 700 MW capacity in wind turbines. The agreement was officially signed in VERBUND Green Power’s Madrid office by Dietmar Reiner, Managing Director of VERBUND Green Power, and Jos? Luis Blanco, CEO of the Nordex Group.

In September 2025, Iberdrola and Selex Gruppo Commerciale have signed a renewable energy purchase agreement – known as a PPA (Power Purchase Agreement) – for a total of 1,250 GWh. The agreement, signed with the distribution leader SELEX, will provide photovoltaic energy for a volume of 125 GWh per year and a capacity of 77 MW.

Components Covered:

- Turbines
- Towers
- Blades
- Balance of Plant (BoP)

Applications Covered:

- Utility-scale Projects
- Community-scale Projects
- Industrial Captive Power

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End Users Covered:

- Power Utilities
- Independent Power Producers (IPPs)
- Industrial & Commercial Consumers

Regions Covered:

- North America
- United States
- Canada
- Mexico
- Europe
- United Kingdom
- Germany
- France
- Italy
- Spain
- Netherlands
- Belgium
- Sweden
- Switzerland

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Poland

Rest of Europe

Asia Pacific

China

Japan

India

South Korea

Australia

Indonesia

Thailand

Malaysia

Singapore

Vietnam

Rest of Asia Pacific

South America

Brazil

Argentina

Colombia

Chile

Peru

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- Rest of South America
- Rest of the World (RoW)
- Middle East
  - Saudi Arabia
  - United Arab Emirates
  - Qatar
  - Israel
  - Rest of Middle East
- Africa
  - South Africa
  - Egypt
  - Morocco
  - Rest of 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 2023, 2024, 2025, 2026, 2027, 2028, 2030, 2032 and 2034
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)

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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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Note: Tables for North America, Europe, APAC, South America, and Rest of the World (RoW) Regions are also represented in the same manner as above.

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