

Onshore Wind Turbine Market Opportunity, Growth Drivers, Industry Trend Analysis, and Forecast 2024 - 2032

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Abstracts

The Global Onshore Wind Turbine Market, valued at USD 125.8 billion in 2023, is projected to expand at a CAGR of 6.5% from 2024 to 2032. Onshore wind turbines, installed on land, play a crucial role in renewable energy generation, helping reduce dependence on fossil fuels. By harnessing wind energy to produce electricity, these turbines support the growing demand for clean energy sources worldwide. A key factor driving market growth is the rising installed capacity of onshore wind turbines, in line with ambitious renewable energy targets. Advancements in turbine design, including larger rotor diameters and higher hub heights, significantly boost efficiency and energy capture, spurring product demand.

Additionally, supportive government policies—such as tax incentives, feed-in tariffs, and specific renewable energy goals—further encourage the development and adoption of onshore wind projects globally. In terms of product segmentation, the grid-connected onshore wind turbine segment is expected to exceed USD 197.5 billion by 2032. This growth is largely attributed to technological innovations, favorable policy frameworks, and the escalating focus on renewable energy to mitigate climate change. Grid-connected turbines contribute directly to energy grids, and many countries are expanding their onshore wind capacity to meet renewable energy commitments. Modern turbines now incorporate advanced control systems that enable real-time monitoring and efficient grid management, optimizing performance and ensuring grid stability—key factors driving market expansion.

Regarding turbine rating, the >1 MW to 3 MW segment is set to grow at a CAGR of over 7% through 2032. These medium-sized turbines are increasingly adopted for their cost-effectiveness, adaptability to various site conditions, and compatibility with smaller-scale

projects. Innovations in turbine design, like improved aerodynamics and new blade materials, enhance efficiency by enabling these turbines to generate power even at lower wind speeds. Additionally, a decreasing levelized energy cost for onshore wind makes these turbines financially attractive, supporting broader adoption and market momentum. In the regional landscape, Europe's onshore wind turbine market is anticipated to surpass USD 74.5 billion by 2032. Driven by the continent's focus on expanding wind capacity to support climate goals, the European market benefits from the adoption of more efficient and larger turbines that maximize energy yield per installation. Operators are also increasingly utilizing AI-driven maintenance, digital monitoring, and predictive analytics to improve turbine performance and minimize downtime, thus strengthening the onshore wind energy market outlook in Europe and globally.

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