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Direct Drive Wind Turbine Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

Market Report | 2023-01-23 | 125 pages | Mordor Intelligence

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Report description:

The direct drive wind turbine market is anticipated to register a CAGR of more than 3.4% during the forecast period. In 2020, the COVID-19 outbreak had a moderate impact on the market due to the stringent lockdown protocols imposed by governments worldwide, leading to a delay in the production of direct drive wind turbines. Favorable government policies to adopt clean energy may boost the demand for direct drive wind turbines during the forecast period. The leading wind power plant players have started adopting direct drive systems from the traditional gearbox system due to turbines. Direct drive systems are lighter and more cost-efficient than traditional wind turbines. They do not contain a gearbox, which reduces their weight and eliminates the maintenance problems related to the gearbox. However, the initial capital investment required for a wind power plant is slightly higher compared to the other renewable and non-renewable energy markets. This factor, in turn, is expected to hinder the growth of the market in the coming years.

Key Highlights
Technological advancements, such as increased capacity (1 MW - 3 MW direct drive system) wind turbines, floating wind turbines, and 3D printing, have cut down offshore wind power's overall cost drastically, opening new offshore locations that may drive the wind turbine direct-drive systems market during the forecast period.
Moreover, the integration of innovative technology in wind turbine direct drive systems will enable advanced condition monitoring and predictive maintenance, resulting in increased efficiency and reduced operational and maintenance costs, which may create a significant opportunity for the market in the future.
Asia-Pacific is one of the largest growing markets for direct drive wind turbines. As per the Global Wind Energy Council (GWEC), Asia-Pacific has the largest installed wind energy capacity, accounting for around 60% of the global new wind installed capacity in 2020.

Direct Drive Wind Turbine Market Trends

Offshore Segment to Witness Growth for Turbine Capacity of 1 MW - 3 MW

In 2020, total offshore wind installed capacity surpassed the 35 GW mark, accounting for around 4.8% of the total wind capacity. By 2025, the share of the new offshore installation is expected to exceed 10%, and the total installed base is expected to reach 100 GW, majorly installed with a direct drive system of 1 MW - 3 MW.
The global offshore market witnessed significant new installations of around 6 GW in 2020. China accounted for almost half of the new installations, propelling the direct drive wind turbine market.
The offshore wind annual installations are likely to quintuple by 2025 from 6.1 GW in 2020. In total, around 70 GW of new offshore wind capacity is projected to be added worldwide between 2021 and 2025. Further, the global demand for wind turbine direct drive systems in the offshore sector is increasing significantly.
The wind turbine direct-drive systems are much more robust, efficient, and costlier, as the wind speed in offshore regions is higher. Hence, the growth of the offshore wind energy sector is expected to have a significant impact on the market during the forecast period.

Asia-Pacific Region to Dominate the Market

The installed wind capacity in Asia-Pacific increased to 346.69 GW in 2020 from 291.08 GW in 2019. China's installed capacity primarily dominates the increasing wind capacity.
According to IRENA, Asia-Pacific may become the world's dominant wind market, accounting for more than 50% of onshore and 60% of offshore wind installations by 2050. Asia's onshore wind capacity is expected to grow from 336 GW in 2020 to over 2,600 GW by 2050.
Furthermore, the region attracts significant investments from countries like China and India and emerging countries like Taiwan's wind sector. Chinese manufacturers comprise nearly 95% of the overall wind power market. The government policy and incentives have made China a favorable hotspot for investment. In 2020, the country accounted for over 55% of the new onshore global wind installed capacity.
In addition, India holds the fourth-largest wind power installed capacity globally. These projects are majorly spread in the northern, southern, and western parts of the country. The government has set a target of 60 GW by 2022. The number of projects during the next two years is expected to increase drastically.
This factor, in turn, is expected to present Asia-Pacific as an excellent business destination for players involved in the wind turbine direct drive systems business during the forecast period.

Direct Drive Wind Turbine Market Competitor Analysis

The direct drive wind turbine market is moderately fragmented. The key players in the market include ABB Ltd, Voith GmbH, Avantis Energy Group, Goldwind Science & Technology Co. Ltd, and Emergya Wind Technologies BV.

Additional Benefits:

The market estimate (ME) sheet in Excel format
3 months of analyst support

Table of Contents:

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