

Floating Offshore Wind Power Market - Growth, Trends, and Forecasts (2023 - 2028)

Market Report | 2023-01-23 | 160 pages | Mordor Intelligence

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Report description:

The floating offshore wind power market is expected to reach 337.92 MW by the end of this year, and it is projected to register a CAGR of over 88.62% during the forecast period.

Though the COVID-19 pandemic negatively impacted the market in 2020, it has reached pre-pandemic levels.

Key Highlights

Over the long term, the growing demand for offshore wind power is expected to stimulate the growth of the floating offshore wind power market. Furthermore, increasing the water depth of offshore wind power projects is considered a game-changing technology to exploit abundant wind potential in deeper waters and drive the growth of the market studied.

On the other hand, the adoption of alternate sources of clean power generation, mainly gas and solar power, is also increasing. As power generation from solar and gas resources are cleaner modes of energy production, the growing adoption of the same is expected to hamper the demand for wind power.

Moreover, the growing interest in offshore wind energy from developing and untapped markets is likely to create lucrative growth opportunities for the floating offshore wind power market during the forecast period.

The European region dominates the market and is also likely to register the highest CAGR during the forecast period. This growth is attributed to the rapid rise in offshore wind power investments, coupled with supportive government policies in the countries of this region, including Norway, the United Kingdom, and France.

Floating Offshore Wind Power Market Trends

The Transitional Water (30 m to 60 m Depth) Segment is Expected to Grow

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In transitional water depths (30-60 m), floating offshore wind turbine (FOWT) technology is more well-developed due to the greater water depth and favorable project economics. The barge model is the most economically viable floating wind turbine design for shallow depths. This model has the shallowest draft of all the floating foundation types and is suitable for operations in depths greater than 30 m. Barge-type floating wind turbines have a square footprint, while some designs consist of a moonpool to reduce stresses caused by wave-induced loading. According to GWEC, a standard floating barge wind turbine with a 6 MW capacity weighs between 2000-8000 tons. However, BW Ideol, with its Damping Pool Barge Floating Substructure Technology, is the only company deployed barge-type FOWT at the MW scale.

Due to lower water depth, FOWT technology is relatively less economically viable than fixed-base technology. Hence, barge technology is expected to occupy a relatively small share of the overall FOWT market during the forecast period. According to the US EPA, as of 2021, only 5 MW of barge FOWT capacity was operational globally. Only 1932 MW of barge FOWT capacity was announced, accounting for only 2.1% of the globally announced offshore wind substructure technology for future projects. Most companies try to commercialize FOWT designs that can be deployed in deeper waters. However, certain semi-submersible technologies can also be deployed at transitional water depths. Several commercial FOWT models based on the semi-submersible design allow them to operate at transitional depths. Several of these models were initially deployed as experimental projects, while some were repurposed as part of commercial projects.

The EolMed project is France's first floating pilot wind farm in the Mediterranean Sea. In May 2022, TotalEnergies announced the start of the project's construction, which is expected to be operational by 2024. The project will consist of three 10 MW floating turbines on the bathymetry of the 62-meter depth and anchored to the seabed. The turbines will use a barge design with a damping pool. The project will be operated by Quadran Energies Marines, Ideol, the civil engineering company Bouygues Travaux Publics, and the wind turbine manufacturer Senvion.

The transitional depth region is suitable for fixed and floating-type wind turbines, with the barge design being the most commercially viable.

Between 2010 and 2021, the global average installed costs decreased by 41%, from USD 4,876/kW to USD 2,858/kW. At its peak in 2011, the global weighted average installed cost was USD 5,584/kW, which was twice its value in 2021. In Europe, the weighted average LCOE of newly commissioned offshore projects decreased by 29% between 2020 and 2021, from USD 0.092/kWh to USD 0.065/kWh. Driven by project economies of scale, there was a 25% reduction in total installed costs year-on-year and an increase in new projects' weighted average capacity factor from 42% to 48% in 2021.

The largest geographical segment for FOWT projects in transitional depths is expected to be in Europe, where significant projects are in the developmental stages, especially in the United Kingdom, Scandinavia, and France. These regions are expected to dominate the deployments made in this market segment during the forecast period.

Europe to Dominate the Market Growth

Europe holds the highest share of offshore wind energy installations globally. According to European Union, Europe represents a quarter of global installations of the total offshore wind market. The country (primarily North Sea countries) is likely to be at the helm of the offshore wind market.

Around 85% of offshore wind installations are globally in European waters. The governments of the European region, particularly in the North Sea area, have set an ambitious target for installing offshore wind farms in their territorial waters.

In 2022, Europe was expected to have an installed capacity of 112 MW of floating offshore wind power capacity, with the United Kingdom, France, Norway, Ireland, and Spain being the major markets in the region.

In August 2022, Cerulean Winds and Ping Petroleum UK signed an agreement on offshore oil and gas facilities powered mainly by offshore wind. Under the agreement, Cerulean Winds, with its consortium of Tier 1 industrial partners, will provide a large floating offshore wind turbine that will be connected via a cable to Ping Petroleum's floating production and storage vessel. The project is expected to come online by 2025. A grant enabled the project to Cerulean Winds through the Floating Offshore Wind Demonstration Program.

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In February 2022, Norway announced plans for its first auction for offshore wind. The tender, scheduled in the second half of this year, would first look for bids to develop at least 1.5 GW of offshore wind capacity to supply the country, with subsequent tenders designed to provide an economic boost by providing more electricity for export to Europe.

These trends, in turn, are expected to present Europe as an excellent business destination for players involved in the floating offshore wind farm business during the forecast period.

Floating Offshore Wind Power Market Competitor Analysis

The floating offshore wind power market is moderately fragmented. Some major players in the market (in no particular order) include General Electric Company, Doosan Enerbility, Siemens Gamesa Renewable Energy, BW Ideol SA, and Vestas Wind Systems AS, among others.

Additional Benefits:

The market estimate (ME) sheet in Excel format

3 months of analyst support

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