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Offshore Wind Energy Market Forecasts to 2032 – Global Analysis By Component (Turbine, Substructure, Electrical Infrastructure, and Other Components), Foundation Type, Water Depth, Turbine Capacity, Ownership, Application and By Geography

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Abstracts

According to Stratistics MRC, the Global Offshore Wind Energy Market is accounted for $47.20 billion in 2025 and is expected to reach $175.14 billion by 2032 growing at a CAGR of 20.6% during the forecast period.Offshore wind energy is the generation of electricity using wind turbines located in bodies of water, typically in oceans or large lakes, where wind speeds are stronger and more consistent than on land. These turbines convert wind kinetic energy into electrical power, offering a clean, renewable source of energy. Offshore wind farms help reduce greenhouse gas emissions, support energy diversification, and contribute to the global transition toward sustainable and low-carbon power systems.

According to NREL, as of May 2024, there are 174 MW of offshore wind power in operation globally.

Market Dynamics:

Driver:

Rising energy security concerns

As countries seek to reduce reliance on imported fossil fuels, offshore wind offers a stable and renewable alternative. Governments are increasingly prioritizing offshore wind in national energy strategies to enhance grid resilience. The consistent and high-

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speed wind conditions offshore make it a reliable source of power generation. Additionally, offshore wind farms contribute to decarbonization goals, aligning with global net-zero commitments. This rising focus on energy security is accelerating investments in offshore wind infrastructure.

Restraint:

Complex installation and logistics

Transporting large turbine components and assembling them at sea requires specialized vessels and equipment. The high cost and technical expertise needed for deep-water installations can deter new entrants. Maintenance operations are also more difficult and expensive compared to onshore wind farms. Furthermore, unpredictable weather conditions can delay construction timelines and increase operational risks. These logistical hurdles continue to restrain the rapid deployment of offshore wind energy.

Opportunity:

Expansion of grid infrastructure

Upgrading transmission systems is essential to integrate large-scale offshore wind power into national grids. Governments are investing in subsea cables and interconnectors to support long-distance energy transfer. Enhanced grid connectivity enables better load balancing and reduces curtailment of renewable energy. Additionally, smart grid technologies are being deployed to manage variable wind power more efficiently. These developments are unlocking new offshore wind zones and boosting investor confidence.

Threat:

Environmental and marine ecosystem concerns

The construction and operation of turbines can disrupt habitats and migration patterns of marine species. Underwater noise from pile driving may affect marine mammals and fish behaviour. There are also concerns about seabed disturbance and changes in sediment transport. Regulatory scrutiny and environmental impact assessments are becoming more stringent as a result. These ecological concerns could delay project approvals and increase compliance costs for developers.

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Covid-19 Impact

The COVID-19 pandemic initially disrupted offshore wind supply chains and delayed project timelines. Lockdowns and travel restrictions hindered the movement of personnel and equipment to offshore sites. However, the crisis also highlighted the importance of resilient and decentralized energy systems. Governments responded by including offshore wind in post-pandemic green recovery plans. As a result, the offshore wind sector has rebounded strongly and continues to gain momentum.

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

The floating segment is expected to account for the largest market share during the forecast period, due to its ability to harness wind resources in deep-water locations. Unlike fixed-bottom turbines, floating platforms can be deployed in regions with greater wind speeds and fewer spatial constraints. This flexibility opens up vast new areas for offshore wind development, especially for countries with steep continental shelves. Technological advancements are improving the stability and cost-efficiency of floating systems.

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

Over the forecast period, the power generation segment is predicted to witness the highest growth rate, due tothe increasing demand for clean electricity. Offshore wind farms are being scaled up to meet national renewable energy targets and reduce carbon emissions. The sector benefits from strong policy support, including feed-in tariffs, auctions, and tax incentives. Technological improvements in turbine efficiency and capacity are enhancing energy output.

Region with largest share:

During the forecast period, the Asia Pacific region is expected to hold the largest market sharedue toits vast coastline and strong policy support. Countries like China, Japan, South Korea, and Taiwan are aggressively expanding their offshore wind capacity. Government-backed auctions, subsidies, and long-term energy plans are accelerating project development. The region also benefits from a robust manufacturing base and growing expertise in offshore construction.Rapid urbanization and rising electricity demand are further driving the need for renewable energy.

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Region with highest CAGR:

Over the forecast period, the North America region is anticipated to exhibit the highest CAGR, owing to favorable regulatory frameworks and ambitious clean energy goals. The United States and Canada are investing heavily in offshore wind to diversify their energy mix and reduce emissions. Federal and state-level initiatives, including lease auctions and tax credits, are attracting major developers. Additionally, public support for renewable energy is growing amid concerns about climate change and energy security.

Key players in the market

Some of the key players profiled in the Offshore Wind Energy Market include Orsted, Iberdrola, RWE, Ocean Winds, NextEra Energy Resources, Siemens Gamesa Renewable Energy, Equinor, Vestas, Vattenfall, GE Renewable Energy, EDF Renewables, Mingyang Smart Energy, Northland Power, Goldwind, and SSE Renewables.

Key Developments:

In June 2025, Iberdrola launches niba, its own 100% digital corporate start-up, with a proposal focused on agility, artificial intelligence and customer orientation. The project was created with the aim of continuing to respond to new market needs.

In May 2023, Siemens Gamesa and Repsol have strengthened their commercial ties with the signing of two new contracts for the supply of 40 SG 5.0-145 onshore turbines for six wind farms in Spain, totaling 200 MW. Following this agreement, Repsol will have eight wind farms employing Siemens Gamesa technology, reaching a total of 324 MW.

Components Covered:

- Turbine
- Substructure
- Electrical Infrastructure
- Other Components

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Foundation Types Covered:

- Fixed-Bottom
- Floating

Water Depth Covered:

- Shallow Water
- Transitional Water
- Deep Water

Turbine Capacity Covered:

- Up to 3 MW
- 3-6 MW
- 6-10 MW
- Above 10 MW

Ownership Covered:

- Utility Companies
- Government/Public Sector
- Independent Power Producers (IPPs)
- Oil & Gas Companies

Applications Covered:

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- Power Generation
- Hybrid Systems
- Green Hydrogen Production
- Demonstration
- Other Applications

Regions Covered:

- North America
  - US
  - Canada
  - Mexico
- Europe
  - Germany
  - UK
  - Italy
  - France
  - Spain
  - Rest of Europe
- Asia Pacific
  - Japan

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China

India

Australia

New Zealand

South Korea

Rest of Asia Pacific

South America

Argentina

Brazil

Chile

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 2024, 2025, 2026, 2028, and 2032

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- 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

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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(2024-2032) ($MN)

Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

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