+44 20 8123 2220
info@marketpublishers.com

Onshore Wind Energy Market – Global Industry Size, Share, Trends, Opportunity, and Forecast Segmented By Application (Peak Power Management, Power Storage, Demand Response, Frequency Response, And System Stability), By End-User (Industrial, Commercial, and Residential), By Grid Connectivity (Off-Grid And On-Grid), By Wind Capacity (High Wind Speed, Medium Wind Speed, And Low Wind Speed), By Region, Competition 2018-2028

https://marketpublishers.com/r/O216C6BFC067EN.html
Date: October 2023
Pages: 186
Price: US$ 4,900.00 (Single User License)
ID: O216C6BFC067EN

Abstracts

The Global Onshore Wind Energy Market, valued at USD 42.35 billion in 2022, is poised for substantial growth during the forecast period, expected to maintain a robust Compound Annual Growth Rate (CAGR) of 10.02% through 2028. This market comprises several key sectors and components that collectively drive the utilization and expansion of onshore wind energy:

1. Wind Turbine Manufacturing: Within this sector, companies are engaged in the design, development, and production of wind turbines. These machines are pivotal in converting onshore wind energy into electrical power. Wind turbine manufacturers offer a range of turbine types and sizes tailored to various applications, including onshore and offshore wind farms.

2. Wind Farm Development: Entities involved in wind farm development identify suitable locations with abundant and consistent wind resources. They secure permits, design wind farms, and oversee construction activities, encompassing the installation of wind turbines, electrical infrastructure, and related facilities.

+44 20 8123 2220
info@marketpublishers.com

3. Wind Farm Operations: Wind farm operators are responsible for the ongoing maintenance and performance optimization of wind turbines. This involves routine inspections, necessary repairs, and proactive measures to ensure the reliability and efficiency of the turbines.

4. Grid Integration: Efficient transmission of onshore wind energy from wind farms to end-users relies on the integration of wind power into existing electricity grids. Companies and utilities specialize in this field, ensuring the reliable and stable supply of electricity.

5. Financial Involvement: The onshore wind energy market involves a spectrum of financial institutions, investors, and project developers. These entities provide essential funding for onshore wind energy projects, encompassing project financing, equity investments, and renewable energy investment funds.

6. Regulatory and Policy Frameworks: Governments worldwide play a pivotal role in nurturing the growth of onshore wind energy through a variety of policies, incentives, and regulations. These frameworks often include mechanisms such as feed-in tariffs, tax incentives, renewable energy standards, and environmental regulations.

7. Research and Development: Ongoing research and development endeavors are focused on enhancing wind turbine technology, improving energy storage solutions, and optimizing the overall efficiency of onshore wind energy generation.

8. Offshore Wind Energy: While onshore wind energy predominates, there is a growing sector dedicated to offshore wind farms, typically located in bodies of water, such as oceans. Offshore wind holds promise for increased energy production and reduced environmental impact compared to onshore alternatives.

9. Sustainability: Companies operating in the onshore wind energy sector often emphasize their commitment to sustainability by reducing carbon emissions and contributing to a greener and more sustainable energy mix.

In conclusion, the Global Onshore Wind Energy Market encompasses a diverse range of sectors and components that collectively advance the utilization and expansion of onshore wind energy, promoting clean and sustainable energy generation.

Key Market Drivers

+44 20 8123 2220
info@marketpublishers.com

The global Onshore Wind Energy market has experienced remarkable growth and transformation over the past few decades. Driven by the need for cleaner, sustainable energy sources and a global commitment to reducing greenhouse gas emissions, Onshore Wind Energy has become a prominent player in the world's energy landscape. In this comprehensive analysis, we will delve into the key drivers and trends shaping the global Onshore Wind Energy market, explaining them in detail to provide a thorough understanding of the industry's dynamics.

Climate Change and Environmental Concerns

One of the most critical drivers of the global Onshore Wind Energy market is the urgent need to address climate change and mitigate its effects. The burning of fossil fuels for electricity generation and transportation is a significant contributor to greenhouse gas emissions, leading to global warming and environmental degradation. Onshore Wind Energy offers a sustainable alternative by producing electricity without emitting carbon dioxide (CO2) or other harmful pollutants. As governments worldwide commit to reducing emissions under international agreements like the Paris Agreement, wind energy's role in decarbonizing the energy sector becomes increasingly vital. Many countries have established renewable energy targets and policies to transition to cleaner energy sources, reduce dependency on fossil fuels, and combat climate change. These targets often include specific goals for Onshore Wind Energy capacity installation. For example, the European Union has set ambitious targets to achieve a significant share of its energy consumption from renewables, with wind power playing a central role. Such policies create a favorable regulatory environment and incentives for Onshore Wind Energy projects, driving market growth.

Falling Costs and Technological Advancements

Advancements in wind turbine technology and economies of scale have led to a significant reduction in the cost of Onshore Wind Energy production. Larger, more efficient wind turbines can capture more energy from the wind, reducing the levelized cost of electricity (LCOE). As a result, Onshore Wind Energy has become increasingly competitive with conventional fossil fuels. Innovations such as taller towers, longer blades, and advanced control systems have improved efficiency and grid integration. This cost decline has made Onshore Wind Energy an attractive option for both utilities and consumers. Energy security and diversification of energy sources are critical considerations for many nations. Onshore Wind Energy provides an indigenous, domestic source of electricity production, reducing dependence on imported fossil fuels.

+44 20 8123 2220
info@marketpublishers.com

This enhances energy security by reducing vulnerability to supply disruptions and price fluctuations in the global energy markets. Countries with diverse energy portfolios that include wind power are better equipped to manage energy-related risks. The Onshore Wind Energy industry has a substantial impact on job creation and local economies. The construction, operation, and maintenance of wind farms require a skilled workforce, leading to employment opportunities in both rural and urban areas. Additionally, the Onshore Wind Energy supply chain, including the manufacturing of wind turbines and components, generates economic activity. As a result, governments and regions often view Onshore Wind Energy as a means to stimulate economic growth and reduce unemployment. Corporations are increasingly adopting sustainability goals and environmental, social, and governance (ESG) criteria in their operations. Many large companies are investing in renewable energy projects, including wind farms, to reduce their carbon footprint and meet sustainability targets. These corporate off-take agreements provide stable revenue streams for Onshore Wind Energy developers and drive further investments in the sector. Public awareness of environmental issues and support for renewable energy have grown significantly. Communities often welcome Onshore Wind Energy projects due to their perceived environmental benefits and the potential for local economic development. Public support can facilitate permitting and regulatory approvals for wind farms, making it easier for developers to bring projects to fruition. Integration with other technologies, such as energy storage systems and smart grids, enhances the reliability and flexibility of wind energy. Energy storage allows excess wind power to be stored for later use, reducing the intermittency associated with wind generation. Coupled with advanced grid management systems, Onshore Wind Energy can play a more significant role in supplying stable and reliable electricity.

Offshore Onshore Wind Energy Expansion

Offshore Onshore Wind Energy is gaining momentum worldwide. Offshore wind farms offer the advantage of stronger and more consistent winds, leading to higher energy generation. As technology and experience in offshore wind develop, countries with access to offshore resources are investing heavily in this sector. The expansion of offshore wind contributes to the overall growth of the Onshore Wind Energy market.

Key Market Challenges

Land and Space Constraints & Energy Storage and Grid Integration

One of the fundamental challenges of Onshore Wind Energy is its inherent intermittency and variability. Wind turbines generate electricity when the wind blows, which is not

+44 20 8123 2220
info@marketpublishers.com

constant. This variability can lead to fluctuations in power output, making it challenging to ensure a stable and reliable energy supply. Grid operators must manage this variability effectively to maintain a balanced and secure electricity grid. To address the intermittency issue, energy storage solutions are crucial for storing excess energy when the wind is strong and releasing it when the wind is calm. While advancements in energy storage technologies have been made, there is still room for improvement in terms of efficiency and cost-effectiveness. Additionally, integrating Onshore Wind Energy into existing electrical grids can be complex and may require substantial grid upgrades and infrastructure investments. Onshore wind farms require significant land areas to accommodate the turbines and associated infrastructure. In densely populated regions, finding suitable land for wind farm development can be challenging. Additionally, land-use conflicts may arise as wind projects compete with agriculture, residential areas, and other land uses. Offshore wind farms have alleviated some of these issues but present their own challenges, including construction and maintenance costs. Onshore Wind Energy projects, both onshore and offshore, can have environmental impacts. Bird and bat collisions with wind turbine blades are a concern, as are potential habitat disruptions. Careful site selection and mitigation measures are necessary to minimize these impacts. Additionally, the production and disposal of wind turbine components have environmental considerations, such as materials sourcing and recycling. The production of wind turbines requires specific rare earth metals and materials, such as neodymium and dysprosium for magnets. Securing a stable supply of these materials can be a challenge due to geopolitical factors, market fluctuations, and concerns about resource depletion. Efforts are ongoing to develop alternative materials and reduce reliance on rare earth elements.

Key Market Trends

One of the most prominent trends in the Onshore Wind Energy market is the rapid expansion of offshore wind projects. Offshore wind farms, located in bodies of water such as oceans and seas, benefit from stronger and more consistent wind patterns compared to onshore locations. As technology advances and developers gain experience, offshore wind capacity has surged, particularly in Europe, the United States, and Asia. Key factors driving this trend include:

Higher Energy Yields: Offshore wind farms typically experience higher wind speeds, resulting in increased energy generation and capacity factors.

Grid Connection: Proximity to major population centers enables efficient grid connection, reducing transmission losses and congestion.

+44 20 8123 2220
info@marketpublishers.com

Floating Wind Technology: Advancements in floating wind turbine technology have expanded the potential for offshore wind projects in deeper waters and more remote loc

Technological Advancements and Larger Turbines

Wind turbine technology continues to evolve rapidly, with a focus on increasing efficiency and reducing costs. Key trends in this area include:

Larger Turbines: Manufacturers are producing larger wind turbines with higher hub heights and longer rotor blades. These larger turbines capture more energy from the wind and have higher capacity factors.

Advanced Materials: The use of advanced materials, such as carbon fiber composites, is reducing the weight of turbine components while maintaining strength and durability.

Digitalization and Smart Technology: Wind farms are increasingly equipped with sensors and digital platforms that enable real-time monitoring, predictive maintenance, and optimization of turbine performance.

Segmental Insights

Wind Capacity Insight

High wind speed segment dominated the market in 2022. Since there are turbines that run separately and provide electricity of around 2.3 MW, the high wind speed projects are predicted to dominate the market.

Regional Insights

The Europe region has established itself as the leader in the Global Onshore Wind Energy Market with a significant revenue share in 2022. Europe onshore wind energy market accounts for the largest market share due to the need for clean energy is rising, and severe limitations on producing conventional electricity are fostering growth in the European countries. Further, the Germany onshore wind energy market held the largest market share, and the UK onshore wind energy market was the fastest growing market in the European region.The North America onshore wind energy market is expected to grow at the fastest CAGR from 2022 to 2030. Over the past five years, onshore wind energy power generating technology has advanced to optimize electricity produced per

+44 20 8123 2220
info@marketpublishers.com

installed megawatt capacity and to cover more locations in North America with lower wind speeds. Moreover, US onshore wind energy market held the largest market share, and the Canada onshore wind energy market was the fastest-growing market in the North America region.

Key Market Players

- Siemens Energy
- Vestas Wind Systems
- Siemens Gamesa Renewable Energy
- General Electric (GE) Renewable Energy
- Goldwind
- Envision Energy
- Nordex SE
- Suzlon Energy
- Orsted
- NextEra Energy Resources
- China Guodian Corporation (China Energy)

Report Scope:

In this report, the Global Onshore Wind Energy Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

- Global Onshore Wind Energy Market, By Application:
- Peak Power Management

+44 20 8123 2220
info@marketpublishers.com

Power Storage

Demand Response

Frequency Response

System Stability

Global Onshore Wind Energy Market, By End User:

On-premises

Cloud

Global Onshore Wind Energy Market, By Grid Connectivity:

Off-Grid

On-Grid

Global Onshore Wind Energy Market, By Wind Capacity:

High Wind Spee

Medium Wind Speed

Low Wind Speed

Global Onshore Wind Energy Market, By Region:

North America

United States

Canada

Mexico

+44 20 8123 2220
info@marketpublishers.com

Asia-Pacific

China

India

Japan

South Korea

Indonesia

Europe

Germany

United Kingdom

France

Russia

Spain

South America

Brazil

Argentina

Middle East & Africa

Saudi Arabia

South Africa

Egypt

UAE

+44 20 8123 2220
info@marketpublishers.com

Israel

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Onshore Wind Energy Market.

Available Customizations:

Global Onshore Wind Energy Market report with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

+44 20 8123 2220
info@marketpublishers.com

Contents

+44 20 8123 2220
info@marketpublishers.com

6. NORTH AMERICA ONSHORE WIND ENERGY MARKET OUTLOOK

7. GLOBAL ONSHORE WIND ENERGY MARKET OUTLOOK

+44 20 8123 2220
info@marketpublishers.com

+44 20 8123 2220
info@marketpublishers.com

8. EUROPE ONSHORE WIND ENERGY MARKET OUTLOOK

+44 20 8123 2220
info@marketpublishers.com

9. SOUTH AMERICA ONSHORE WIND ENERGY MARKET OUTLOOK

+44 20 8123 2220
info@marketpublishers.com

10. MIDDLE EAST & AFRICA ONSHORE WIND ENERGY MARKET OUTLOOK

+44 20 8123 2220
info@marketpublishers.com

+44 20 8123 2220
info@marketpublishers.com

+44 20 8123 2220
info@marketpublishers.com

+44 20 8123 2220
info@marketpublishers.com

I would like to order

Product name: Onshore Wind Energy Market – Global Industry Size, Share, Trends, Opportunity, and Forecast Segmented By Application (Peak Power Management, Power Storage, Demand Response, Frequency Response, And System Stability), By End-User (Industrial, Commercial, and Residential), By Grid Connectivity (Off-Grid And On-Grid), By Wind Capacity (High Wind Speed, Medium Wind Speed, And Low Wind Speed), By Region, Competition 2018-2028

Product link: https://marketpublishers.com/r/O216C6BFC067EN.html

Price: US$ 4,900.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:
info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page https://marketpublishers.com/r/O216C6BFC067EN.html

To pay by Wire Transfer, please, fill in your contact details in the form below:

First name:
Last name:
Email:
Company:
Address:
City:
Zip code:
Country:
Tel:
Fax:
Your message:

**All fields are required

Custumer signature _____

Please, note that by ordering from marketpublishers.com you are agreeing to our Terms

+44 20 8123 2220
info@marketpublishers.com

& Conditions at https://marketpublishers.com/docs/terms.html

To place an order via fax simply print this form, fill in the information below and fax the completed form to +44 20 7900 3970