South Korea Wind Energy - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

Market Report | 2025-04-28 | 90 pages | Mordor Intelligence

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Report description:

The South Korea Wind Energy Market size in terms of production capacity is expected to grow from 2.68 gigawatt in 2025 to 3.75 gigawatt by 2030, at a CAGR of 7% during the forecast period (2025-2030).

Key Highlights
- In the medium term, the primary driver for the market will be the government's efforts to reduce dependency on fossil fuels and thereby improve the country's air quality.
- A lack of investment due to the low rate of return on invested capital is likely to hinder the market's growth during the forecast period.
- Nevertheless, with the objective of increasing its renewable share in the country's energy mix to 20% by 2030, South Korea is expected to increase its renewable capacity to 63.8 GW by 2030. Moreover, wind energy in the country is expected to increase its capacity to nearly 17.7 GW by 2030, which is likely to create an opportunity for the market to grow in the near future.

South Korea Wind Energy Market Trends

The Onshore Segment is Expected to Dominate the Market

- As one of the largest economies in Asia-Pacific, South Korea has been pushing to reduce its heavy reliance on coal and nuclear power. In response to the rising environmental concerns, South Korea plans to boost the share of renewable power generation to as much as 35% by 2040. Further, the country's pledge to reach net zero by 2050 was a significant pronouncement from an Asian

industrial powerhouse.
- According to the country's third Energy Master Plan (EMP) 2019, the government aims to increase the share of renewable power from 6.5% to 20% by 2030 and 30-35% by 2040.
- According to the International Renewable Energy Agency, onshore wind energy was the prominent segment in the South Korean wind energy sector, with nearly 2.03 GW of installed capacity as of 2023. With an increase in demand for cleaner energy, the segment is expected to grow further with the implementation of new onshore wind projects.
- Onshore wind turbines are easier to install and are low in investment compared to offshore. According to the Energy Information Administration (EIA), offshore wind is 2.6 times more expensive than onshore wind power. It is 3.4 times more expensive than power produced by a natural gas combined-cycle plant.
- In June 2024, Vestas got an order for a 90 MW order to power a wind project in South Korea. The order consists of 21 V136-4.2 MW wind turbines in 4.3 MW. The project is expected to be commissioned in 2026. Such types of projects are expected to drive the expansion of the onshore wind market during the forecast period.
- Thus, completing the under-construction and planned projects is likely to increase the overall onshore installed capacity and dominate the country's wind energy market.

Upcoming Offshore Wind Projects are Expected to Drive the Market

- The country has large onshore wind potential, but development has faced problems with complex permitting, local opposition, and growing grid connectivity issues. Thus, while onshore wind capacity is expected to increase, South Korea is turning to offshore wind as the big game changer, announcing some of the most ambitious projects in the world.
- South Korea targets 9.2 GW of wind power by 2025 and 16 GW by 2030, of which 12 GW will comprise offshore wind. This may be an over-reach, considering the 2.03 GW of onshore wind and 136 MW of offshore wind installed as of 2023.
- Further, several companies have been investing in offshore wind energy projects. For instance, in February 2023, BP and Deep Wind Offshore formed a joint venture to explore offshore wind opportunities in South Korea. Under the agreement, BP secured a majority stake of 55% in Deep Wind Offshore's nascent offshore wind portfolio. This portfolio encompasses four projects spanning the Korean peninsula, with a substantial generating potential of 6 GW.
- The government of South Korea aims for 22% of its energy to come from renewable sources by 2030. This target is expected to create a significant opportunity for offshore wind in the country, as it has great potential in the upcoming period.
- Moreover, with rising challenges like limited onshore land for setting up onshore wind farms, the government's concentration toward offshore is growing. It is likely to invest KRW multi-trillion in the R&D of wind technology, which will develop the offshore sector in the upcoming years.

South Korea Wind Energy Industry Overview

The South Korean wind energy market is moderately fragmented. The key players in the market are Equinor ASA, Vestas Wind Systems AS, Siemens Gamesa Renewable Energy SA, Global Wind Energy Co. Ltd, and Hyosung Heavy Industries.

Additional Benefits:

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

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