

Wind Energy

**At the Forefront of
Producing Clean
Energy**

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Industry Overview

Germany's wind energy industry is one of the world's largest, and it is at the forefront of technological development. The country's long mechanical and electronic engineering tradition is the backbone underpinning its current strong position. Aside from new onshore and offshore wind turbines, the replacement of older systems with modern equipment will keep demand strong. Germany's central position also makes it an ideal location for European onshore and offshore markets alike.

Our Industry in Numbers

- Germany is Europe's leading wind energy market

- with 11% of globally installed capacity in 2013. (GWEC 2014)
- Germany's 9.1% share of global new installations made it the world's second largest market for new installations in 2013. (GWEC 2014)
- The country's wind energy sector employs over 100,000 people. (BMU 2012)
- Total installed capacity increased by 9.5% to 34,250 MW in 2014. (Deutsche Windguard 2014: On- & Offshore Statistics Fact Sheets 2013)
- Annual 34% increase in newly installed nominal

- capacity between 2012 and 2013. (Deutsche Windguard 2014: On- & Offshore Statistics Fact Sheets 2013)
- 49.8 TWh production in 2014.* (Arbeitsgruppe Energiebilanz, *provisional value)
- Energy production from wind energy sources accounted for 8.4% of total German power consumption of 560 TWh in 2013. (Frauenhofer-ISE 2014)
- Average annual new onshore installation capacity increased by approximately 70% to 2,598 KWh in the ten-year period up to 2013. (Deutsche Windguard

- 2014:
On- &
Offshore
Statistics
Fact
Sheets
2013)

Market Potential

GROWING ONSHORE MARKET

In recent years, German wind energy sector development has been driven by a strong onshore market. By the end of 2013, some 23,645 turbines were already installed in Germany. To encourage further growth, the federal states are currently evaluating further sites for wind energy deployment. Federal states in central and southern Germany, where only a few wind energy projects have been realized to date, have especially intensified their efforts to increase wind power share. Wind power generation in Germany can look back on a history of more than 20 years as the foundation for renewable energy sector growth.

Accordingly, the number of older generation turbines still in operation is considerable. Replacing these older turbines with more efficient, state-of-the-art wind turbines is becoming a major trend. In 2013, one quarter of all newly installed turbines were already classified as being “repowering” projects. Repowering allows wind farm power generation to be significantly increased, even where there are fewer turbines deployed on the site. In addition to the huge market for onshore wind turbines, the growth potential for offshore installations is especially high.

DEVELOPING OFFSHORE MARKET

The offshore wind energy sector is gaining momentum. As of July 2014, ten offshore wind farms with a capacity of over 2.3 GW were under construction with more preparing for construction in 2015.

According to the Federal Maritime

and Hydrographic Agency, the pipeline of approved wind farms currently under construction or in the planning phase is 9 GW. This offers various business opportunities for the offshore industry.

Market Access

Due to the stable onshore market, repowering opportunities, and the tremendous pipeline of offshore projects, various opportunities for wind energy companies can be found. The need to integrate renewable energies into the grid opens an additional, highly interesting market.

Offshore industry

- Cost reduction and standardization
- Innovative service and logistic solutions
- Subsea installation and O&M

- Training for maritime and wind industry personnel

Inland development

- Technology and services for low wind speed sites and complex terrain
- Repowering: renewed development opportunities for wind rich sites
- New projects for small wind due to local restrictions or integration into solar parks. Very small wind will profit from price reductions of batteries.

Grids

- Expansion of transmission grid
- Offshore connections
- Smart grids

Supporting Institutions

Especially in the wind energy sector, many institutions support companies interested in the German market.

The **Federal Ministry of Economic Affairs and Energy** also has dedicated a website to the renewable energy industry in Germany. The Ministry offers up to date information about the sector and a list of German companies active in the wind energy branch.

The **German Wind Energy Association**, BWE, is the largest renewable energy association in the world with around 20,000 members.

Besides offering a wide range of information about the sector, the BWE also hosts the Wind Energy Market, a portal for the global wind energy industry that contains information about the different kinds of turbines on the market, a business directory database as well

as industry-related events and fairs worldwide.

The **German Energy Agency "dena"** is the competence center for energy efficiency and renewable energies in Germany. Dena initiates, coordinates and implements innovative projects and campaigns at a national and international level for energy issues. For the wind energy industry, dena coordinates and maintains the website of the project "Offshore-Wind", which is a platform providing information about offshore wind energy, offshore wind parks as well as news and events in the field.

The **German Engineering Association, VDMA**, is also a helpful address for foreign suppliers interested in the German wind energy sector. The VDMA provides an overview of members active in the industry and operates the VDMA e-Market where

companies can
search for
manufacturers in
the wind energy
sector.

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