

Background information

October 2019

Service operations vessel Bibby Wavemaster Horizon sets new standards in operating Germany's largest offshore wind project

Electricity production from offshore wind power plants has become a major pillar of the energy transition. At sea, the wind is stronger and more consistent on average than on land. However, the harsh offshore conditions and the long distances to the coast present logistical challenges for the operators of offshore wind power plants. This is why ships specially designed for offshore service provide more efficient and cost-saving maintenance of wind power plants at sea. The Bibby Wavemaster Horizon is the latest of its kind and will be in service in the North Sea from winter 2019 on behalf of Siemens Gamesa and EnBW.

Service for wind power plant in the North Sea

The EnBW Hohe See wind power plant is located around 95 kilometers north of Borkum and around 100 kilometers northwest of Helgoland. The Albatros wind power plant is 105 kilometers from both coasts. The wind power plants are equipped with 87 of Siemens Gamesa's most modern wind turbines. The total capacity of 609 megawatts is the equivalent of an average coal-fired power plant. After commissioning by the end of the year, the two wind power plants together will generate around 2.5 billion kilowatt hours of electricity annually, covering the consumption of 710,000 households.

The EnBW Hohe See wind power plant is located around 95 kilometers north of Borkum and around 100 kilometers northwest of Helgoland. The Albatros wind power plant is 105 kilometers from both coasts. The wind power plants are equipped with 87 of Siemens Gamesa's most modern wind turbines, with a total capacity of 609 megawatts, the equivalent of an average coal-fired power plant over an area of around 53 square kilometers.

When commissioned at the end of 2019, the two wind power plants together will generate around 2.5 billion kilowatt hours of electricity annually, providing clean energy for 710,000 households.

Floating workshop, spare parts warehouse, office and hotel in one

EnBW and Siemens Gamesa charter the special ship for a total of ten years. It was built in Romania by the Dutch shipbuilder Damen and launched in 2019. It is operated by the Liverpool shipping company Bibby Marine Services.

The almost 90-meter-long Bibby Wavemaster Horizon is optimally equipped for service operations on the high seas. The Bibby Wavemaster Horizon can accommodate a crew of up to 60 for up to 30 days. This eliminates the need for time-consuming and strenuous transfer journeys previously required with daily service boats. On board there are offices, a fitness room and common rooms.

The crew regularly consists of a 20-member team for ship operation and up to 40 technicians and specialists from Siemens Gamesa and EnBW for the maintenance and servicing of the two wind power plants. The service technicians will alternate 14 days of work at sea with two weeks off. Emden will be the Horizon's home port, where the ship will be moored and refitted every four weeks. Here EnBW built a service base next to the airfield to allow the technicians to fly to the two wind farms by helicopter.

Newly-developed gangway for ship to wind turbine transfer

The Bibby Wavemaster Horizon is specially designed to provide technicians with secure access to offshore wind power plants in adverse wind and wave conditions. A newly-developed gangway, which can dock precisely to the foundation of the wind turbine with the aid of sensors and hydraulics, is central to the secure access. At 1.20 meters, the gangway is also wider than on other service ships, which allows material and tools to be carried on Euro pallets.

Efficient operation leads to lower costs for offshore wind power

The cost advantages of the service ship will be complemented by a new organization of service operations at sea. Work that previously took three to four days can now often be completed within 24 hours, thanks to optimized processes and standardization.

The Bibby Wavemaster Horizon provides better access to remote offshore wind power plants than ever before, setting new standards in offshore service. The high-tech equipment and the optimized operating and service processes tailored to the ship can significantly reduce the costs of operating offshore wind power and improve yields.

Innovations in offshore wind turbines lead to a leap in wind energy performance

In fewer than 30 years, the generation of electricity from offshore wind has emerged as one of the most impressive technological and economic developments in the energy mix. Whereas Siemens Gamesa's first offshore wind turbines from 1991 had a capacity of 450 kilowatts (KW), the turbines used at EnBW's current offshore wind power plants have a capacity of 7 megawatts (MW) - more than 15 times greater.

The modern 7 MW turbines have a rotor diameter of 154 meters and a nacelle weighs 320 tons. These impressive machines can be safely installed and commissioned on the high seas in less than 24 hours. The nacelles, which contain the generator and electrical components, are produced at the Siemens Gamesa manufacturing plant in Cuxhaven, Germany. There they are loaded directly from the factory onto transport ships for installation.

In 2022, Siemens Gamesa plans to begin delivery of its latest offshore wind turbine - the SG 10.0-193 DD – with a capacity of 10 MW. The annual power generation of a single SG 10.0-193 DD is enough to supply around 10,000 European households with electricity. Compare this with the approximately 450 average European households which one turbine from 1991 could supply!

About Siemens Gamesa Renewable Energy

Siemens Gamesa is a global leader in the wind power industry, with a strong presence in offshore, onshore and services. Through its advanced digital capabilities, the company offers one of the broadest product portfolios in the industry as well as industry-leading service solutions, helping to make clean energy more affordable and reliable. With over 95 GW installed worldwide, Siemens Gamesa manufactures, installs and maintains wind turbines, both onshore and offshore. Its backlog stands at €23 billion. The company is headquartered in Spain and listed on the Spanish stock exchange (included in the Ibex-35 index).

About EnBW Energie Baden-Württemberg AG

EnBW is one of the largest energy supply companies in Germany and Europe, and supplies electricity, gas, water and energy-related products and services to around 5.5 million customers with a workforce of 21,000 employees. The company is investing heavily in the expansion of renewable energy. It has already added more than 1,200 megawatts of renewable generating capacity in recent years. By 2025, EnBW plans to invest over five billion euros to further expand renewables in Germany and selected foreign markets. In wind power alone – both onshore and offshore – at least 3,500 megawatts are to be added by 2025. EnBW's offshore wind office with some 150 employees is located in Hamburg's Chilehaus.

Medien Contact:

Siemens Gamesa

Peter Jefimiec

Tel.: +49 172 1401412

E-Mail: peter.jefimiec@siemensgamesa.com

EnBW

Stefanie Klumpp

Telefon +49 711 289-82385

E-Mail: stefanie.klumpp@enbw.com