



By increasing the rotor diameter to 193 meters, the SG 10.0-193 DD new wind turbine offers up to 30 percent more AEP than its predecessor, the SG 8.0-167 DD. (Courtesy: Siemens Gamesa)

MANUFACTURING

Siemens Gamesa launches 10 MW offshore wind turbine

Siemens Gamesa Renewable Energy (SGRE), a world leader in the offshore industry, recently launched the SG 10.0-193 DD, the company's first 10-plus MW offshore wind turbine. Based on the experience of its previous generations, the newest wind turbine in the SGRE offshore product portfolio builds on proven technology for maximum energy yield at all wind speeds. It offers the same reliability while improving profitability and reducing risk for customers.

"The new SG 10.0-193 DD combines

experiences and knowledge from five generations of proven direct drive technology in one 10 MW turbine. A showcase of strong performance, swift time-to-market, and low risk in the offshore wind energy market," said Markus Tacke, CEO of SGRE.

The 10-MW rating is made possible through a larger generator diameter, building on the proven SGRE Direct Drive generator technology.

By increasing the rotor diameter to 193 meters, this new wind turbine offers up to 30 percent more AEP than its predecessor, the SG 8.0-167 DD. Its 94-meter-long blades provide a swept area of 29,300 square meters.

Each blade is almost the same length as one soccer field.

The technology on the offshore direct drive platform allows for the re-

use of most components from previous generations, providing a short time to market. The prototype is expected to be installed in 2019 with commercial market deployment expected in 2022.

"Siemens Gamesa has been applying its knowledge and experience directly into offshore wind turbines for decades," said Andreas Nauen, CEO of the SGRE Offshore Business Unit. "Utilizing proven components and concepts provides us with a strong, established value chain, with clear processes and skilled employees ready to go, leveraging on a fully-developed and industrialized supply chain."

The nacelles of this new offshore wind turbine will be initially manufactured at the SGRE factory in Cuxhaven, Germany, the world's largest plant for offshore wind turbine nacelles.

The annual energy production of one SG 10.0-193 DD is sufficient to supply about 10,000 European households with electricity. This means that an offshore wind park composed of 20 of these turbines would cover the annual electricity consumption of a city the size of Liverpool.

“The Levelized Cost of Energy from offshore wind continues to decrease as industry scale and performance grow,” Nauen said. “New markets are developing across the globe, all of which require cost-efficient, reliable, and clean power for generations. The SG 10.0-193 DD enables us as market leaders to meet these needs in close cooperation with our customers, stakeholders, and society-at-large.”

SGRE has the largest track record in the sector among offshore turbine manufacturers. With a capacity of more than 12.5 GW installed and more than 3,100 offshore wind turbines in operation globally, the company has established itself as the leader in the offshore market. Siemens Gamesa’s experiences reach back as far as 1991, when it established the world’s first offshore wind park. Through a strong focus on safety and innovation, SGRE constantly strives to reduce the Levelized Cost of Energy from offshore wind power.

MORE INFO www.siemensgamesa.com

▶ MANUFACTURING

Vestas first company to install 100 GW of wind turbines

Vestas has been a pioneer in wind-energy solutions and a cornerstone in making the world’s energy mix sustainable. In late 2018, a new milestone was reached in that 40-year journey, as Vestas achieved 100 GW of installed wind turbines with the installation of a V110-2.0 MW turbine at MidAmerican Energy’s Wind XI project in Iowa.

Since the inaugural installation of



Today, Vestas’ largest onshore wind turbine is the V150-4.2 MW turbine. (Courtesy: Vestas)

a V10-30 kW turbine in Denmark in 1979, Vestas has installed more than 66,000 turbines in about 80 countries across six continents and has been a key part of taking wind energy from niche to mainstream. Today, Vestas’ largest onshore wind turbine is the V150-4.2 MW turbine, and the 100-GW milestone has thus been made possible by the continuous evolution of the company’s wind-energy technology and solutions, which have seen output and efficiency increase to a level that has made wind energy the cheapest form of electricity in many markets.

“We have pioneered wind energy across the globe for 40 years, and to install 100 GW together with our customers and partners is something we are extremely proud of as it underlines how far Vestas and wind energy have come,” said Anders Runevad, Vestas president and CEO. “It’s also a pleasure to celebrate this milestone with a key customer like MidAmerican Energy. Reaching this milestone has required continuous innovation, strong commitment and great execution from all Vestas’ employees, and the 100 GW therefore represents a key part of the foundation that enables us to develop the sustainable energy solutions of the future.”

During the journey to 100 GW, Ves-

tas has helped remove more than 100 million metric tons of CO₂ from the atmosphere by providing sustainable and cost-effective solutions to meet the world’s energy demand. By crossing this 100 GW threshold, Vestas has installed approximately 10 percent of the world’s total 1 TW of installed wind- and solar-energy capacity.

The capacity of the Wind XI project will grow to up to 2,000 MW and consist of multiple sites in Iowa placed into service between 2017 and 2019. Powered by V110-2.0 MW turbines built at Vestas’ factories in Colorado, Wind XI will deliver clean, low-cost wind energy to MidAmerican Energy’s customers and communities. Vestas will provide operations and maintenance for Wind XI project sites via long-term AOM 5000 service agreements.

Based on global average electricity, 100 GW of wind energy saves around 129 million metric tons of CO₂ annually, equaling CO₂ emissions from:

- ▶ 141 billion pounds of burned coal.
- ▶ 298 million barrels of oil.
- ▶ 22.54 million U.S. homes yearly electricity use.
- ▶ 33 coal-fired power plants.
- ▶ Carbon sequestered from 152 million acres of forest.

MORE INFO www.vestas.com

MANUFACTURING

Terra-Gen chooses DEIF for controller upgrades on Pacific Crest farm

The independent power producer Terra-Gen is upgrading 20 Vestas V47 wind turbines on its Pacific Crest wind farm in Tehachapi, California, with a control retrofit solution from the Danish company, DEIF.

The increased demand for competitive power production and the rapid development in the wind industry necessitates that older turbine models such as the Vestas V47 are equipped to meet today's performance standards.

DEIF's control retrofit solution extends the turbine lifetime and optimizes the turbine performance in terms of variable speed concepts, extended cut-out and adaptive power setpoint. So far, 20 Vestas V47s on the Pacific Crest Wind Farm will be retrofitted.

"We strive to run our turbines ef-

ficiently — at the lowest cost," said Ward Scobee, chief operating officer at Terra-Gen. "The Pacific Crest Wind Farm is a high-wind site, and the cost of downtime is critical. So, with the controller upgrade and thus performance optimizations, I am convinced that we will extend turbine lifetime, reduce our downtime, and increase the revenue of the total wind farm."

With a DEIF retrofit control solution for Vestas V47, the turbines can operate without the VRCC and at the same time run above 600 kW and as close to the rated power level as possible. For Terra-Gen, the retrofit solution from DEIF means they have no VRCC-related costs such as spare parts, lost production due to downtime, and derating, and they aim to reach a three-year ROI.

"The upgrade of the turbines on the Pacific Crest Wind Farm sets new standards for lifetime extension, performance optimization, and secures availability without the VRCC," said Jean Felber, sales and business development manager at DEIF.

MORE INFO www.deif.com

MANUFACTURING

Vestas receives 122-MW order for project in Iowa

With reference to Vestas Wind Systems A/S' company announcement No. 22/2016 of June 17, 2016, Vestas has received a 122-MW order from MidAmerican Energy Company, a subsidiary of Berkshire Hathaway Energy, for the Wind XI project in Iowa.

The order includes supply and commissioning of V110-2.0 MW turbines as well as a ten-year Active Output Management 5000 (AOM 5000) service agreement. Deliveries are expected to begin in the third quarter of 2019 while commissioning is planned for fourth quarter of 2019.

MORE INFO www.vestas.com



DEIF's control retrofit solution extends the turbine lifetime and optimizes the turbine performance in terms of variable speed concepts, extended cut-out and adaptive power setpoint. (Courtesy: DEIF)