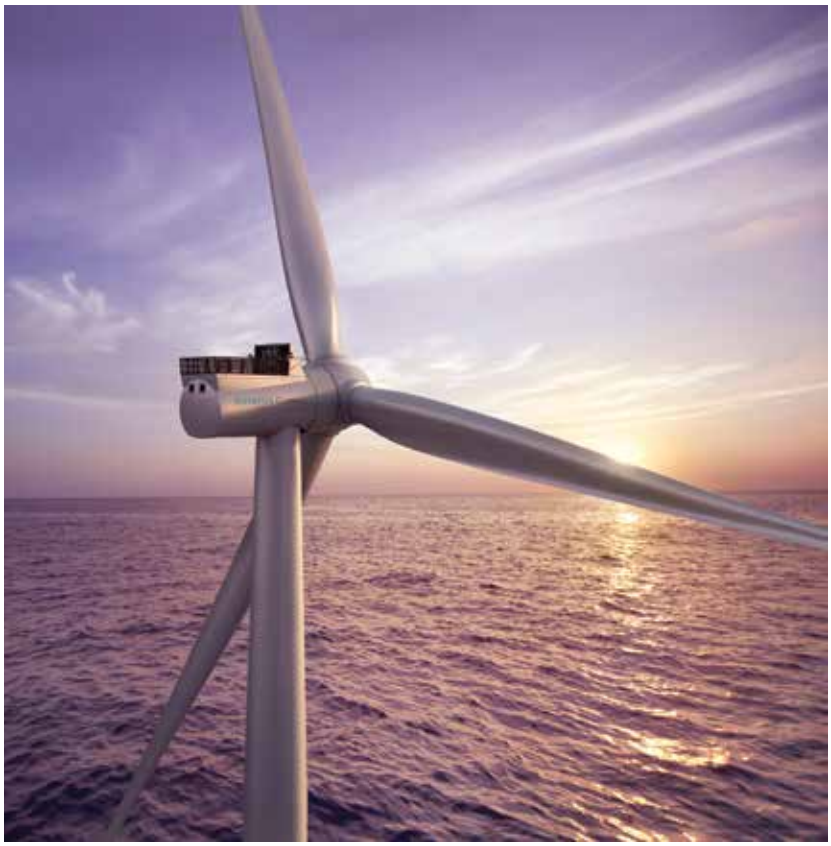
pre-assembly work will also be carried out. Towers are expected to be partly sourced from U.K. suppliers. A single 8-MW turbine is capable of generating enough electricity for more than 8,000 average European households. Originally planned for up to 300 turbines, Hornsea Two has been adapted to the progress of the significantly more powerful hardware. With only 165 units at the same total output, the project benefits from significantly improved economic efficiency and simultaneously reduced LCoE.

The new SG 8.0-167 DD is equipped with a rotor 167 meters in diameter. The blades, 81.5 meters long, deliver an 18 percent wider swept area and 20 percent more annual output than its predecessor, the SWT-7.0-154. It features the technology proven in the direct drive platform combined with a larger-scale rotor in order to offer customers higher returns while minimizing the associated costs and risks.

MORE INFO
www.siemensgamesa.com



The nacelles for Hornsea Two will be produced at SGRE's factory in Cuxhaven, Germany, while the majority of the blades will be made at the factory in Hull, U.K. (Courtesy: Siemens Gamesa)

CONSTRUCTION

Lagerwey builds first 100% public wind farm in the Netherlands

Lagerwey has been contracted to build a new wind farm for De Windcentrale, which will be the first 100 percent public-owned wind farm in the Netherlands. The wind farm consists of three L82-2.3MW wind turbines that will generate wind energy for about 8,000 households. The wind turbines will be in the municipality of Staphorst, between Nieuwleusen and Rouveen. Lagerwey will start constructing the foundations at the end of September 2018.

The wind farm will be exclusively owned by the Dutch public once it is completed in May 2019. The windmill will be virtually divided into thousands of pieces, each of which will represent 500 kW/h. People who live in close proximity to the farm can acquire a piece of the windmill at a discounted price, which means they will gain the most benefits. De Windcentrale has already used this formula to great success with existing wind turbines. But this is the first time they are personally overseeing the construction of a whole wind farm.

"We are proud that a Dutch turbine manufacturer has been selected for this local project," said Daniël Dubbelhuis, sales manager at Lagerwey. "The construction of this 100-percent cooperative wind farm is part of the Lagerwey Lokaal initiative, which aims at maximizing public participation in wind energy, thereby considering local surroundings while also improving employment opportunities in the Netherlands."

MORE INFO www.lagerwey.com

INNOVATION

Suction bucket concept gets test installation

Universal Foundation continues its partnership with Siemens Gamesa to showcase suction bucket technology with focus on industrializing suction bucket technology. The overall target is to decrease the cost of foundation construction and installation by 40 percent to support continued decreases in the Levelized Cost of Energy.

A consortium including Siemens Gamesa, Universal Foundation, Aalborg University, Fred. Olsen Windcarrier, and Offshoreenergy.dk has been awarded 3.8 million euros by the Energy Technology Development and Demonstration Programme (EUDP) via the Danish Ministry of Energy, Utilities and Climate. The partnership seeks to demonstrate how an industrialized suction bucket concept can slash the installation costs of offshore wind

foundations. The specific purpose of this Part 2 project is to complete an offshore trial installation campaign using the new suction bucket concept prototype.

The partnership builds on an ongoing project (Part 1) under which a next generation suction bucket concept has been designed and an 8x8 meter prototype has been fabricated. During Part 2, the prototype will be used for the offshore trial installation campaign. The new concept merges the noise-free installation advantages of suction buckets with industrialized fabrication methods using coil steel (instead of classical plate steel). The fabrication method was originally developed between Siemens Gamesa and the Danish steel specialist Ib Andresen Industries for application in onshore towers.

The new concept merges the noise-free installation advantages of suction buckets with industrialized fabrication methods using coil steel (instead of classical plate steel). (Courtesy: Universal Foundation)

"By applying this innovative fabrication method to suction bucket technology in offshore wind, the steel plate thickness can be reduced to below 20 millimeters, compared to today's typical thickness of 30 to 40 millimeters for this type of foundation," said Finn Daugaard Madsen, project manager with SiemensGamesa. "This means use of lower costs steel with higher supply availability. The assembly process is much more suitable for high volume manufacturing, and hence supply bottlenecks can be eliminated and costs reduced. A key element is to ensure the structural integrity of the foundation both during installation and operation. During Part 2 of the project, we are excited to prove the installation integrity of the system."

"The project is interesting in many ways," said Søren Andreas Nielsen, head of R&D, Universal Foundation. "We all share the view that suction technology provides some obvious installation advantages, both in terms of environmental impact and costs. Cost of fabrication and supply security continue as one of the challenges to overcome for suction buckets. The competitive environment of offshore wind drives us to think innovation, and this project enables us to cut the total system cost by 40 percent."

The aim is to mature the industrialized suction bucket concept toward full commercial scale.

MORE INFO

www.universal-foundation.com

INNOVATION

Vestas and Maersk Supply Service partner to lower energy costs

Vestas and Maersk Supply Service have entered into an innovation partnership to jointly develop solutions and next-generation technology for the sustainable energy industry. The partnership aims to address the industry's future challenges within installation and logistics to decrease the cost of energy.

Driven by consumer demand for sustainable energy and continuous reduction in levelized cost of energy, global wind energy production is set to double by 2027. One of the industry's main challenges to continue this trajectory is to lower the cost of transporting and installing wind turbines as they increase in size and will be installed in remote locations.

Combining Vestas' insight into sustainable energy with Maersk Supply Service's marine and logistics experience, the companies will collaborate on solving challenges within the industry related to logistics, installation, and service. Despite different backgrounds, Vestas and Maersk Supply Service have overlapping long-term goals — Vestas' ambition is to be the global leader in sustainable energy solutions and Maersk Supply Service's vision is to actively take part in solving the energy challenges of tomorrow.

As the partnership's first step toward addressing these goals, the two companies are developing a crane solution for both onshore and offshore wind turbines that could significantly bring down the cost of installation. The installation concept, called Vertical Installer, involves a crane that will enable the use of lower cost assets in the logistics value chain. The project is being developed in cooperation with MHI Vestas Offshore Wind, and has received $7.4 million in funding for the next three years from the Energy Technology Development and Demonstration Programme (EUDP) via the Danish Ministry of Energy, Utilities, and Climate.

"The partnership with Maersk Supply Service will significantly improve and expand Vestas' existing market-leading capabilities for advanced installation and logistics solutions," said Bo Svoldgaard, senior vice president for Innovation & Concepts at Vestas. "We have a strong strategic fit, and the new Vertical Installer crane underlines how the partnership will support our goal to improve our efficiency in an area that will grow in importance as turbine components get bigger and infrastructure become more complex."

"This is an exciting step for Maersk Supply Service and a great example of how our marine knowledge and versatile fleet can be leveraged in new industries," said Steen S. Karstensen, CEO of Maersk Supply Service. "Our partnership with Vestas and the development of Vertical Installer demonstrates that we are taking action to overcome industry challenges and ensure that the energy needs of the next generation are met."

"The Vertical Installer crane is the latest example of innovation that will

continue to drive offshore wind forward," said Flemming Ougaard, chief operations officer at MHI Vestas Offshore Wind. "The concept will allow for improved logistics and more efficient installation — critical areas for our customers' business case. We are proud to participate with Vestas and Maersk Supply Service in bringing this concept to life."

Maersk Supply Service initiated and continues to drive the Vertical Installer project with the aim of finding a more efficient method to install offshore wind turbines using its current fleet. Vestas and MHI Vestas Offshore Wind are providing the industry insight necessary to ensure the new solution is tailored to industry needs and developed with the most up-to-date knowledge of challenges, logistics, operator requirements, and potential design modifications for future wind turbine models. They are also providing access to test facilities both off- and onshore, which will reduce project risks and the time required before the solution is available in the market.

MORE INFO:
www.maersksupplyservice.com

MAINTENANCE

Seacat sends ships to Beatrice Wind Farm

Class-leading offshore energy support vessel (OESV) operator, Seacat Services, has secured a further charter agreement at Beatrice Offshore Wind Farm (Beatrice).

This latest two-year contract will see Seacat Mischief and her sister vessel, Seacat Magic, provide logistical support to manufacturer and service provider Siemens Gamesa Renewable Energy (Siemens Gamesa) throughout the operations and maintenance (O&M) phases.

Seacat Mischief and her sister vessel, Seacat Magic, provide logistical support to manufacturer and service provider Siemens Gamesa Renewable Energy (Siemens Gamesa) throughout the operations and maintenance (O&M) phases. (Seacat Services)

The pair of 23-meter jet propulsion catamarans will be based out of Wick Harbour in Scotland, with Seacat Mischief arriving on site in mid-August, and Seacat Magic in April 2019. They will become the third and fourth Seacat Services vessels to work at Beatrice, joining Seacat Resolute, which has just commenced a separate nine-month construction charter for Siemens