

# CONSTRUCTION

*BOP/EPC • Project Status • Siting • Equipment • Project Due Diligence • Services*

## Siemens 8-MW Wind Turbine Up and Running



The prototype in Østerild, Denmark, will be used for both mechanical and electrical testing until type certification next year. (Courtesy: Siemens Wind Power)

Siemens Wind Power has installed the latest version of its offshore direct drive wind turbine at the national test center in Østerild, Denmark — according to plan. The SWT-8.0-154 is rated at 8 MW and equipped with the proven 154-meter rotor. The prototype was certified by DNV GL in January, confirming all relevant safety features for test operation. The new offshore turbine was installed on a steel tower at a hub

height of 120 meters. The prototype will be used for both mechanical and electrical testing. The final type certificate is expected for 2018.

With the full commissioning of the prototype, Siemens will enter the final development phase for the new turbine that allows for up to 10 percent higher annual energy production (AEP) under offshore wind conditions than the 7-MW model. The upgrade to 8

MW enables a rated power increase of more than 14 percent from 7.0 to 8.0 MW. Similar to the previous upgrade from 6.0 MW to 7.0 MW, the 8-MW turbine will benefit from the established supply chain and proven offshore direct drive technology components. Since the higher rating will be achieved with only a few component upgrades, including a new cooling concept and a new control system, customers will again benefit from key value drivers including fast time-to-market and low risk.

“The installation of the SWT-8.0-154 prototype in Østerild is an important milestone in the success story of our offshore direct drive wind turbines,” said Michael Hannibal, CEO of Offshore at Siemens Wind Power. “The evolution based on our platform strategy demonstrates that innovation to lower the cost of wind energy can work without compromising the proven reliability of a technically mature product.”

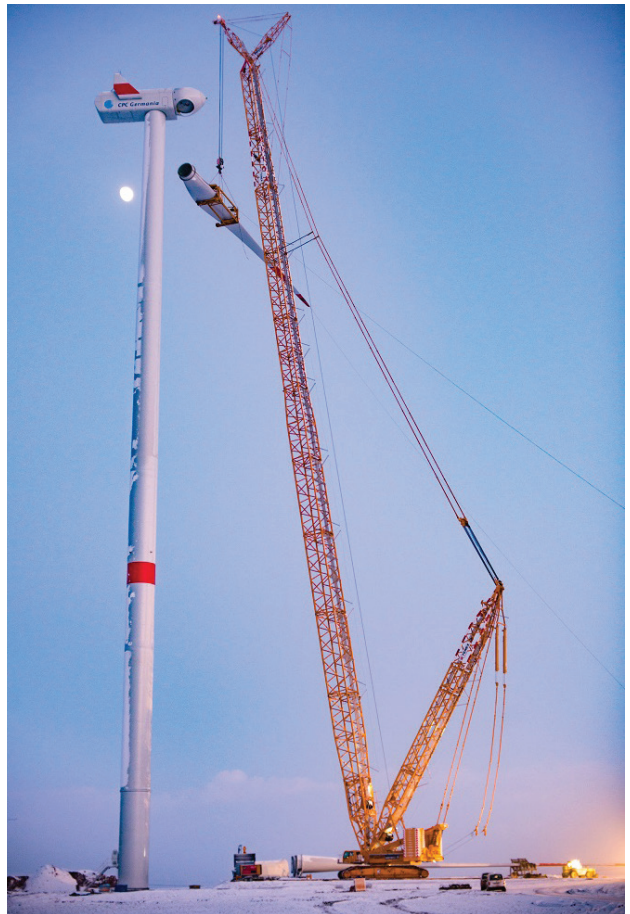
The offshore direct drive is the youngest Siemens wind-turbine platform. It has already made an impact: Recently 100 years of combined operation were reached with 2.5 terawatt-hours (TWh) of electricity produced. The total energy yield harvested by Siemens offshore direct drive generators installed by the end of 2016, corresponds to the energy demand of all households in the city of Munich for an entire year. This amount of electricity has been produced in less than six years, starting with the first SWT-6.0-120 prototype to large offshore projects now in operation such as Westernmost Rough in the U.K. and Gode Wind in German waters. At the same time, Siemens’ Offshore Direct Drive platform helped to avoid 1.25 million metric tons of CO<sub>2</sub> emissions. This corresponds to the emission of all cars in a city the size of Munich over a period of four months. The latest model SWT-8.0-154 is expected to enter serial production in 2019.

About 150 Siemens offshore direct drive wind turbines have been handed over to customers. More than 600 units of Siemens’ offshore direct drive wind turbines have been sold since the launch of the large gearless turbine in 2011.

The innovative product platform incorporates the unique technical experience from more than 2,300 installed offshore turbines and nearly 1,300 onshore direct-drive wind turbines. ↘

*Source: Siemens Wind Power*

For more information,  
go to [www.siemens.com/wind](http://www.siemens.com/wind)



The Terex Superlift 3800 lattice boom crawler crane equipped with the Boom Booster kit. (Courtesy: Terex Cranes)

## Boom Booster Kit Increases Lift Capacities for Turbine Construction

Big construction activity recently took place nearby the small town of Lüderitz, Germany. A number of large, 149-meter hub-height wind turbines were erected to help supply clean, renewable energy for the city and surrounding north-central Germany region.

Heavy lifting specialist Franz Bracht Kran-Vermietung GmbH of Erwitte, Germany, mobilized its crew and high capacity crane equipment to Lüderitz, including the Terex Superlift 3800 lattice boom crawler crane, to quickly and efficiently install the new power-generation equipment. Crew members transported enough boom and jib components plus superlift structure and counterweight for the 165-meter boom configuration required for the turbine erection process.

For this installation, however, the massive crawler crane was equipped for the first time with a new



type of boom configuration and frame option that increased crane capacity and improved rigging efficiency.

“With the new options, we can achieve a performance increase of 30 percent, meaning we get more lift capacity,” said Eric Jahn, six-year crane operator for Franz Bracht.

### INCREASED RADIUS

Standing between Franz Bracht’s crews and turbine erection were curbstones that forced crews to slightly adjust the lift plan on the Lüderitz application.

“The curbstones surrounded the wind turbine, which kept us from getting as close as we would have originally liked for the lift,” Jahn said. “However, the Boom Booster kit enabled us to erect the tower sections without a problem.”

The new Boom Booster kit increases the stiffness of the main boom by increasing boom width from the standard 3 meters to a width of 3.5 meters. Up to seven booster sections with 12-meter lengths can be installed on the crane’s main boom, allowing it to reach a maximum hook height of 174 meters. The boom kit comes standard with the Terex Cranes fall protection system, and its design allows two additional boom sections to “slide” into the Boom Booster kit during transportation to eliminate the need for at least one truckload.

“This can result in up to 1,000 euros in transportation savings, depending on the crane configuration,” said Guntram Jakobs, product marketing manager for Terex Cranes.

### WORK DONE ON TIME

Even with curbstones requiring the use of a longer lift radius, the Superlift 3800 crane easily handled the task. Turbine erection advanced quickly and seemingly nothing could stop Franz Bracht from completing construction at the wind farm, until a major snowstorm with high winds slowed progress to a crawl.

Even with the mid-season storm delaying progress for nearly three weeks, Franz Bracht still was able to complete the work on time and within budget using the Terex Superlift 3800 crane with the new Boom Booster kit.

“My coworker and I have been operating the crane for about two months, and we can definitely tell the difference with the Boom Booster kit,” Jahn said. “We’re really looking forward to working every day with this crane. The bottom line is that a tremendous crane has been made better and more powerful.”

*Source: Terex Cranes*

For more information, go to [www.terex.com](http://www.terex.com)



In combination with a high capacity crane, Soul enables operators to take the next step in developing offshore wind farms. (Courtesy: Ulstein Group)

## Soul Jack-Up Vessel Is the Next Step Up For Offshore Wind

Ulstein and SeaOwls have launched a pioneering heavy-lift jack-up vessel design. The cruciform structural layout makes the solution more than 10 percent lighter than conventional designs. The concept aims to install the next generation 10-12 MW wind turbines in the same time frame as used today for installing 6-8 MW units.

SeaOwls and Ulstein launched Soul at the Offshore Wind Journal Conference in February. In combination with a high capacity crane, Soul enables operators to take the next step in developing offshore wind farms.

“The development of this novel jack-up vessel is the logical next step in our strategy to widen our portfolio and become a leading company in supporting the offshore wind industry with more efficient assets,” said Tore Ulstein, deputy CEO at Ulstein Group.


“Combining the vast track record in heavy-lift vessel designs from our Dutch Ulstein branch with

SeaOwls' experience in jack-up technology, resulted in an innovative jack-up vessel concept based on proven technologies."

Scaling-up conventional heavy-lift jack-up vessel designs proves challenging due to the disproportional weight increase compared to gain in variable deck load (VDL).

"We noticed this created uncertainty with turbine manufacturers, wind-farm operators, and installation contractors on how to install the future generation wind turbines, as floating vessels are not a viable alternative," said Erik Snijders, founder and managing director at Rotterdam-based SeaOwls. "So we went back to the optimal jack-up design, a square platform with the legs spaced out as much as possible. Rotating the platform by 45 degrees provided a natural bow shape with two legs and the crane on vessel center line."

"This seemingly simple twist in the design allowed to make a huge improvement in operational aspects as well," said Bram Lambregts, deputy managing director at Ulstein Design & Solutions BV. "With the main crane around the stern leg, optimal main deck reach and over-the-side lifting capabilities are created. And as the hull now houses much larger leg footings, bearing pressures on the seabed are reduced, while the wake of the spud cans does not interfere with the inflow to the propulsion thrusters."

The Soul series will come in various sizes, allowing the transport of three to six of the 10-12 MW wind turbines. Still, all loading and installation operations can be performed without the need of ballast water. 

Source: Ulstein Group

For more information,  
go to [ulstein.com](http://ulstein.com)

## Two Sites Announced for Iowa's Wind XI Project

MidAmerican Energy plans to build new wind farms in Boone, Greene, and Mahaska counties in Iowa. The two new wind farms will be the first Wind XI project sites selected for construction.

MidAmerican Energy plans to begin construction in April on the Beaver Creek wind project in Boone and Greene counties and the Prairie wind project in Mahaska County, with completion scheduled for the end of 2017.

The wind farms are part of MidAmerican Energy's Wind XI project and will add 338 MW of new wind generation capacity in Iowa: the Beaver Creek wind project will consist of 85 turbines, which will add 170 MW of wind generation capacity and the Prairie wind project will have 84 turbines and add

168 MW of wind generation capacity.

MidAmerican Energy announced plans in April 2016 to invest \$3.6 billion for the Wind XI project. It is the largest economic development investment in Iowa's history.

The project calls for the construction of 1,000 wind turbines that will add 2,000 MW of wind-generation capacity in Iowa.

The company is working with developers, county officials, and landowners at potential wind-farm sites in other Iowa counties for the balance of the Wind XI project. Construction on these projects would start in 2018 and 2019, and sites will be announced at a later date.

Construction on the entire

When precision, reliability and  
quality are your expectations...  
**TURN TO SOTEK/BELRIX**



A leader in the manufacturing of precision metal stampings. We supply custom stamped laminations and assemblies to a variety of customers - large and small.

Whether your need is for immediate turn around or delivery of production quantities on a regular basis, we are equipped to meet your needs.

- Stator, Rotor, and Pole Laminations
- Stator, Rotor, and Pole Assemblies
- Vent and Finger Plates
- Stamping and Laser Capabilities
- Complete In-House Tooling Capabilities



Sotek, Inc. and Belrix Industries, Inc. • 3590 Jeffrey Boulevard • Buffalo, NY 14219  
716-821-5961 • fax: 716-821-5965 • [www.sotek.com](http://www.sotek.com) • [info@sotek.com](mailto:info@sotek.com) • ISO REGISTERED

SERVING MEDIUM TO HEAVY INDUSTRIAL MOTOR AND POWER GENERATION INDUSTRIES



“We believe the best way to meet the energy needs of our customers is to provide safe, reliable, affordable, and environmentally responsible energy.”

Wind XI project is expected to be complete by December 2019.

“MidAmerican Energy is not asking for an increase in customer rates or financial assistance from the state to pay for the Wind XI project,” said Bill Fehrman, president and CEO of MidAmerican Energy. “For our customers, the benefits of Wind XI are very clear: clean energy produced right here in Iowa, using an abundant natural resource. We believe the best way to meet the energy needs of our customers is to provide safe, reliable, affordable, and environmentally responsible energy.”

The Wind XI project is expected to produce \$1.2 billion in economic benefits for Iowa communities as a result of landowner easements and property tax pay-

ments over the next 40 years.

Additionally, during construction, thousands of jobs are expected to be added to Iowa's economy, and hundreds of new permanent jobs will be added when the expansion is complete.

With its investment in the Wind XI project, MidAmerican Energy's wind generation each year will be equal to 85 percent of the energy used by its retail customers in Iowa, bringing it within striking distance of its 100 percent renewable energy vision. ↘

*Source: MidAmerican Energy Company*

For more information, go to [www.midamericanenergy.com](http://www.midamericanenergy.com)

**SEEKING OPPORTUNITY?**

Giving Wind Direction  
**WIND SYSTEMS**

**Scan *Wind Systems* website to enjoy a host of features, including:**

- Our new jobs listing, for employers and jobs seekers alike
- Events calendar to keep you informed
- A searchable articles archive, downloadable individually
- View the digital magazine, or download entire issues
- Vendor listings, along with our annual Buyer's Guide
- Company profiles and Q&As
- Connect to the wind industry through social media
- Wind industry news from around the world

Visit [windssystemsmag.com](http://windssystemsmag.com) today and get connected!