Mortenson to build $140M wind projects in Illinois in 2018

Work also is underway in Lee County at the 15-year-old Mendota Hills Wind Farm for Leeward Renewable Energy, LLC. (Courtesy: Mortenson)

Already the largest alternative energy builder in Illinois, Mortenson recently added three new Illinois wind farm projects that will contribute an additional 289 MW of electricity to the state by the end of 2018 and an additional 194 MW in 2019.

"Illinois is an ideal state for wind energy, both because of its geography and its need for power due to major manufacturing centers and large population," said Tim Maag, vice president and general manager of Mortenson's Wind Energy Group. "Despite ranking sixth in the nation for wind energy, though, Illinois has to really ramp up energy from renewables very quickly to meet its goals."

"According to the American Wind Energy Association, as of 2016, wind power contributed less than 6 percent of all electricity in Illinois," he said. "Yet renewable portfolio standards require Illinois electric companies to generate 25 percent of electricity from renewable sources by 2025."

The new wind projects will help toward that goal. Mortenson is building the Walnut Ridge Wind Project

in Bureau and Whiteside counties for BHE Renewables, a unit of Berkshire Hathaway Energy. The project includes engineering and construction of roads to the site and the foundations and installation of 106 Vestas V110 turbines. Mortenson also is building transmission lines, met towers, interconnect facility, and collection substation that links into the Commonwealth Edison electrical grid. Started in August 2017, the wind farm will be completed in late 2018 and begin generating 212 MW, enough to power the equivalent of 63,600 homes.

Work also is underway in Lee County at the 15-year-old Mendota Hills Wind Farm for Leeward Renewable Energy, LLC. Mortenson is replacing 63 wind turbines with 29 more powerful SG 2.6-126 wind turbines. The repowering project, which will be completed in December 2018, will increase total capacity to 76 MW from roughly 50 MW.

"We are pleased to have an experienced construction firm like Mortenson as our partner on the Mendota Hills repowering," said Greg Wolf, CEO of Leeward Renewable Energy. "Together, we will focus on safely bringing today's modern technology to this proven wind project."

With 23 years of alternative energy construction, Mortenson has built more than 220 U.S. wind farms in North America contributing more than 24,000 MW of energy. The two Illinois projects are Mortenson's ninth and 10th wind projects in the state. Illinois wind power produces 4,332 MW each year, according to the U.S. Wind Energy 4th Quarter 2017 Market Report from the American Wind Energy Association.

Source: Mortenson

For more information,
go to www.mortenson.com

Flurry of U.S. offshore vessel deals prepares market for huge turbines

Vessel suppliers and wind installation experts are collaborating to build new vessels and convert existing assets to bring rising turbine capacities to the booming U.S. offshore wind market, offshore experts told New Energy Update.

Surging growth in U.S. offshore wind activity has spurred a range of new vessel supply offerings and collaborations within the marine sector. Larger, higher-efficiency turbines and growing installation experience have dramatically reduced offshore wind costs, producing record-low tender prices in Europe and raising U.S. growth outlooks.

About 28 U.S. offshore wind projects totaling 23.7 GW were planned or under development by mid-2017, with most near-term projects planned in the North Atlantic region, figures from the U.S. Department of Energy (DOE) show.

The U.S. federal Bureau of Ocean Energy Management (BOEM) has awarded 13 commercial wind-energy leases off the Atlantic coast, and

Two Falcon Global feeders leave port with offshore wind components. (Courtesy: Falcon Global)

in April, it launched a lease sale proposal for two offshore wind sites offshore Massachusetts. BOEM also recently called for information on nominations to develop wind farms in New York State waters and launched an assessment of Atlantic coast waters for potential future offshore wind lease areas.

Also in April, Florida-based Aeolus Energy Group announced it plans to build a U.S.-flagged vessel fleet to serve the offshore wind sector, expecting to generate 4,000 jobs in the next couple of years.

"We are confident that offshore wind at scale has finally arrived in the U.S.," said Elia Golfin, CEO of Aeolus Energy.

Aeolus will make "a considerable billion dollar" investment, Golfin said. The company plans to build jack-up vessels capable of installing 10- to 12-MW turbines, as well as cable ships to install medium- and high-voltage marine cables, service operations vessels to provide large-scale accommodation at sea, a fleet of crew transfer assets of vessels and helicopters, and port facilities in Massachusetts and Maryland.

The company will also invest in training facilities.

"During the construction season for offshore wind, we have a 24-hour work cycle," Golfin said. "Staffing all of those jobs around the clock for months on end with qualified Americans is a significant challenge."

Aeolus plans to have its first vessels ready for operation between the end of 2021 and early 2022.

INSTALLATION SPEED

In March, Seacor subsidiary Falcon Global and Norway's Fred Olsen Wind Carrier agreed to jointly supply vessels and marine installation crews to the U.S. offshore wind market. Fred Olsen Windcarrier is one of Europe's most experienced offshore wind installation groups and has installed more than 300 turbines to date.

The two companies have already combined to install the Block Island windfarm, the U.S.'s first utility-scale offshore wind farm, in 2016.

The new partnership will combine Fred Olsen Windcarrier's fleet of wind-turbine installation vessels with Falcon Global feeder vessels. The Falcon Global fleet consists of one of the largest existing U.S.-flag and Jones-Act compliant lift boats.

The Jones Act requires that vessels transporting cargo between offshore wind farms and U.S. ports must be built in the U.S.

By using a Fred Olsen installation vessel at the Block Island site and smaller U.S. flagged feeder vessels to move wind-farm components such as towers and blades, the proj-

ect partners were able to complete the installation 25 percent faster than expected.

This accelerated installation process offset extra costs of using feeder vessels and reduced the risk of weather affecting project schedules and staff safety, according to Joseph Orgeron, special projects manager at Falcon Global.

"It is more expensive to do the feedering, but this (extra cost) is very negligible in the overall expenses of the installation process," Orgeron said.

LARGER TURBINES

By the end of 2019, offshore engineering group Zentech and Renewable Resources International plan to launch the first Jonas Act-compliant offshore wind jack-up installation vessel, said Andy Geissbuehler, managing director at Renewables Resources International.

The partners will convert an existing Jonas Act-compliant vessel into a jack-up offshore wind installation vessel at about half the cost of a new vessel, Geissbuehler said. The converted vessel will be able to navigate the New Bedford Hurricane Barrier in Massachusetts, an area that most of the larger existing vessels cannot access.

The launch date for the vessel was delayed after GE announced in March it planned to launch a 12-MW offshore turbine, the world's largest, by 2021.

GE's Haliade X turbine will be 250 meters tall and represents a significant advancement in offshore turbine capacity. Last year, Denmark's Orsted installed the world's first 8-MW turbines in the U.K., and the average capacity of newly installed turbines was 5.9 GW.

"We are in the process to upgrade several aspects of the vessel including an even bigger crane," Geissbuehler said. "We are making some critical design changes, and this vessel is going to be much more powerful than initially planned."

The vessel will be able to transport equipment from onshore to the offshore wind-farm site and perform installation, a process used in Europe.

"As wind farms get bigger, the feeder barge solution is becoming less and less attractive, except if you build very fast and very large feeder barges, which would be really expensive," Geissbuehler said.

According to Orgeron, Falcon Global and Norway's Fred Olsen Wind Carrier's fleet can handle the vast majority of turbines available for installation, and no extra investment is planned in the short term.

"For the GE 12-MW turbine that was recently announced ... we are currently still working through the optimizations for those types of next-generation turbines, and whether they can be done with our existing assets," Orgeron said.

Source: New Energy Update

For more information, go to www.newenergyupdate.com

Siemens Gamesa to refurbish turbine gearboxes for Eneco

Eneco, owner of the Princess Amalia Wind Farm, has selected Siemens Gamesa as the supplier for gearbox refurbishment. For the next five years, the company will maintain and refurbish the gearboxes of 60 Vestas V80-2.0MW wind turbines. The Princess Amalia Wind Farm was commissioned in 2008 and offers a total capacity of 120 MW. This contract is part of a number of new management and maintenance contracts for the Dutch offshore wind power plant.

The scope of the work includes the initial supply of up to four gearboxes of the type ZF- EH804, fully equipped with all auxiliaries. After the first exchange campaign, which is expected during Q2 2018, the removed gearboxes will be handed over to Siemens Gamesa facilities to be

The gearbox facility of Siemens Gamesa includes five manufacturing sites in Spain. (Courtesy: Siemens Gamesa)

> We are very pleased to expand our multi-brand wind service solutions also to offshore wind projects.

fully refurbished. The overhauled set of gearboxes will be supplied for exchange in the next step of the campaign. A dedicated repair team for the project contributes a repair capacity of up to four gearboxes within 10 weeks. All of the work will be done in Spain.

The gearbox facility of Siemens Gamesa includes five manufacturing sites in Spain. The company has a long-term track record in design, manufacturing, and service of gearboxes for heavy-duty industries such as wind turbines. With more than 400 repair units per year, the facility is the largest of its kind globally. For Siemens Gamesa's service business unit, it offers an efficient competence center for the repair of main shafts and transmissions of various types.

"We are very pleased to expand our multi-brand wind service solutions also to offshore wind projects," said Mark Albenze, CEO, Service at Siemens Gamesa Renewable Energy. "For the repair work at Princess Amalia Wind Farm, we rely on the expertise of our colleagues in our Spanish facilities, who add their extensive experience in the professional refurbishment of wind gearboxes to this project."

The 120-MW Princess Amalia Wind Farm, operational since 2008, is 23 kilometers off the coast of Ijmuiden, the Netherlands. This wind farm supplies electricity to 125,000 households, and it is the first Dutch wind farm built at this water depth and at such a large distance from the coast, outside the 12-mile zone.

Source: Siemens Gamesa

For more information, go to ww.siemensgamesa.com

Higher hub heights eyed for North American wind

Many wind turbines in the United States consist of a steel tower with an average hub height of less than 100 meters. Yet higher wind turbines are proven to produce higher yields. Max Bögl Wind AG is the market leader for hub heights above 130 meters and recently built the world's tallest wind turbine with a hub height of 178 meters. At AWEA WINDPOWER, the company presented its Hybrid Tower system and showcased its activities in the North American market.

The Hybrid Towers of Max Bögl Wind AG offer an advantage — an efficient combination of concrete and steel that allows for the cost-effective implementation of hub heights of up to 180 meters. Less wind turbulence and thus significantly better wind yield means that each additional meter of hub height increases the annual energy yield of the turbine by 0.5 percent to 1 percent. This ensures a faster ROI for the entire project.

KNOWLEDGE TRANSFER

Max Bögl Wind AG has been deploying its modular hybrid tower system in Germany with great success over the years and is now the market leader for hub heights above 130 meters. The world's tallest wind turbine — with a hub height of 178 meters — began operating near Stuttgart at the end of last year. The family company from Bavaria said it believes hybrid towers can be a huge success in the North American market as well. Ever rising steel prices make it difficult to accurately calculate the costs for steel-tower turbines.

Concrete prices, on the other hand, are stable and make cost calculations for hybrid towers much more reliable. The hybrid towers of Max Bögl Wind AG are constructed in mobile factories using local workers and local resources.

Hybrid towers achieve great heights and more yield. (Courtesy: Max Bögl Wind AG, Reinhard Mederer)

This ensures added value on the local level.

COMBINING STEEL AND CONCRETE

The secret to achieving such great heights lies in the unique combination of precast concrete parts and steel elements. The concrete component is completely maintenance-free and especially durable. Consisting of a rigid concrete tower section and a more flexible steel tip, hybrid tower systems also offer better static and dynamic response behavior and higher fatigue strength and longevity than pure concrete or steel towers. The modular design and simple "stacking" of rings allow fast construction of the concrete tower within a week, and this under any weather conditions.

With the water battery, Max Bögl Wind AG has also developed a completely new large-scale storage facility, which sets new standards in a technologically innovative way. For the first time, power generation from renewable energies such as wind, solar, or biomass is combined with a modern pumped-storage power plant. The water battery can store surplus power from the grid and then release it when needed. The tower foundations of wind turbines also can serve as storage reservoirs that are higher than the pumped storage power plant and the lower reservoir.

Source: Max Bögl Wind AG

For more information, go to www.mbrenewables.com/en