



Load-out at Kincardine Offshore Wind Farm. (Courtesy Mammoet)

CONSTRUCTION

Mammoet completes wind-farm load-out in Spain

Mammoet has completed the load-outs of five floating wind platforms at the Navantia Fene Shipyard in Spain. The platforms will form part of the largest floating offshore wind farm in the world, Kincardine Offshore Wind Farm.

“Having worked at this quay before doing similar complex operations, it was the key factor to deliver the floating wind platforms successfully on time,” said Javier De Pablo Arenzana, Mammoet Spain sales manager. “In

addition to our pool of resources and equipment, this meant we were able to offer our client a high degree of flexibility in terms of the project schedule. We believe these capabilities make us well-suited to supporting the growth of the offshore floating sector.”

Considering platform weights, the surface conditions on the quay were of paramount importance. To minimize operational risk, Mammoet prepared the quay by installing hundreds of steel plates to level the surface in places where it had previously been uneven.

Coordinating with various stakeholder groups flexibly was also required to execute each operation on schedule. This included organizing each operation to meet the appropri-

ate tide levels and weather conditions and marrying these with the availability of the specialist seagoing vessel contractor and Navantia Fene Shipyard.

Once the quay was prepared and the specialist seagoing vessel docked, Mammoet had only a short window in which it could execute each operation. Mobilizing 100 axle lines of SPMTs split between the three columns of the triangular footprint, the floating foundation was loaded onto the three sets of SPMTs, transferred 100 meters across the quay, and transversely loaded onto the vessel using 54 meters of RoRo ramps. Mammoet completed this operation five times over several months.

MORE INFO www.mammoet.com

CONSTRUCTION

Pattern Energy completes New Mexico energy project

Pattern Energy Group LP has completed construction and begun commercial operation of its suite of Western Spirit Wind power projects, comprised of four wind-power facilities totaling more than 1,050 MW in Guadalupe, Lincoln, and Torrance counties in central New Mexico.

The four wind-power facilities that comprise Western Spirit Wind use a total of 377 GE wind turbines ranging from 2.3 to 2.8 MW in size. The GE turbines use various tower heights to optimize the wind capture at each facility.

“The largest renewable energy project in American history is now up and running — right here in New Mexico,” said New Mexico Sen. Martin Heinrich. “Western Spirit encompasses four new utility-scale wind sites that connect rural communities in central New Mexico to local customers and other major energy markets beyond our state’s borders. This project literally changed the map of our state’s energy landscape, allowing New Mexico to help power our nation with clean electrons.”

“Western Spirit Wind is a groundbreaking megaproject that demonstrates large-scale renewables can be developed and built in the United States,” said Mike Garland, CEO of Pattern Energy. “These projects create significant job opportunities and local economic investments. Western Spirit brought over 1,100 construction jobs to New Mexico, generated local spending, tax revenue, and landowner payments in a remote area of New Mexico, and is now delivering enough renewable energy to meet the electricity needs of more than 900,000 Americans. Pattern Energy has committed to \$6 billion in upcoming wind energy and related infrastructure projects in the state over the next decade. Together, we are building a cleaner and more



The four wind-power facilities that comprise Western Spirit Wind use a total of 377 GE wind turbines ranging from 2.3 to 2.8 MW in size. (Courtesy: Pattern Energy)

sustainable future in New Mexico.”

The wind project and accompanying transmission line involved more than 1,100 workers on-site during the 15-month construction period, including heavy equipment operators, electricians, laborers, and others. More than 50 workers will operate and maintain the Western Spirit Wind facilities in New Mexico.

Western Spirit Wind is projected to provide an estimated \$3 million per year for the three counties and two school districts in the project area.

Western Spirit Wind will provide clean, renewable energy to California and New Mexico through long-term power purchase agreements with the Los Angeles Department of Water and Power, San José Clean Energy, East Bay Community Energy, California Choice Energy Authority and member cities, and international energy company Uniper Global Commodities. Western Spirit Wind will also provide power to New Mexico municipalities, including Los Alamos Department of Public Utilities, through the Uniper Global Commodities power purchase agreement.

The wind power generated by Western Spirit Wind has a complementary generation profile to solar and typically delivers power around the clock. Western Spirit’s wind power will

provide resource diversification to western energy markets to help meet customer demand during the crucial early evening hours when demand is high but otherwise available renewable energy supply is typically low.

MORE INFO patternenergynewmexico.com

CONSTRUCTION

Mammoet transports offshore wind jackets for assembly

The Mammoet-Giant Taiwan joint venture has supported construction of The Greater Changhua 1 and 2a Offshore Wind Farms by providing a range of engineering and design services, as well as assisting with the transport and integration of the jackets, ready for load-out.

The farms are about 35 to 60 kilometers off the coast of Taiwan’s Changhua County. They are being constructed as part of Taiwan’s transition toward renewable energy use.

Jacket foundations for the Greater Changhua 1 & 2a Offshore Wind Farms are comprised of upper and lower jackets. Mammoet-Giant designed



Upper and lower jackets were sat on top of the custom support saddles that were used on the self-propelled modular transporters to transport both pieces between assembly stations. (Courtesy: Mammoet)

temporary lifting lugs fitted to both the upper and lower jacket sections as they rolled off the production line.

These upper and lower jackets were sat on top of the custom support saddles — also designed by Mammoet-Giant engineers — that were used on the self-propelled modular transporters (SPMTs) to transport both upper and lower pieces between assembly stations. This method ensured a more efficient transportation process compared to other methods by reducing the time needed.

As part of this project, Mammoet's PTC210-DS ring crane was deployed for the first time to Taiwan.

The upper jackets weighed 270 tons and were transported in turn about 100 meters from the storage area to the PTC crane, where they were erected so the transition pieces could be fitted. A 750-ton crawler crane was used for the upending operation.

The lifting capacity of the PTC210-DS ring crane allowed up to four jackets to be assembled at once at the same location, fast tracking the assembly work.

Transports of the jackets were

conducted using the 96 axle-lines of SPMT in two 4-file 24 configuration, with two transport beams. The beams, measuring up to 24 meters in length, were designed to bear the pile stoppers, allowing the transporters to lift the full jackets using the SPMTs' integral hydraulic suspension.

During the fabrication peak time, Mammoet tapped into its global network to make sure lifting equipment was available to meet short-term demands.

The PTC 210-DS ring crane's high lifting capacity, together with the engineering expertise and solutions shown by the Mammoet-Giant team have provided both time and cost efficiency for the operations, according to the Sing Da Marine Structure Corporation.

The Greater Changhua 1 and 2a Offshore Wind Farms will have an installed capacity of 900 MW once completed, enough to provide clean energy to 1 million households in Taiwan. They are also Taiwan's first large-scale far shore wind farms.

MORE INFO www.mammoet.com

INNOVATION

ONYX Insight to monitor one of first U.K. wind farms

ONYX Insight is partnering with Windcluster, a U.K. wind energy pioneer, to support the life extension of aging assets of one of the U.K.'s oldest wind projects.

ONYX has installed ecoCMS, its condition monitoring system, to monitor the four 850kW V52 wind turbines at Windcluster Haverigg III, at Haverigg airfield in Cumbria.

The system will help to extend the lifetime of the Haverigg III turbines through 2040.

"We chose ONYX Insight because we wanted a credible and innovative partner," said Windcluster founder Colin Palmer. "ONYX has offered a flexible approach to enable us to maximize our investment and has already shown great value. Digitalizing our turbines during this next phase of their operational life is going to be key in ensuring they generate power at full capacity. We will be using the vibration and oil monitoring data analysis and reporting by ONYX to ensure we can extend the life of our assets to 2040. We look forward to ONYX Insight's continued support in this endeavor."

"We are incredibly proud to be working with the team at Windcluster to extend the life of these veteran wind turbines and to keep them producing clean renewable energy for another 19 years," said Keiran Knowles, ONYX Insight's U.K. and Northern Europe business development manager.

Digitalization is set to be key to wind-farm owners and operators seeking to extend the life of aging assets and develop lifetime extension strategies. Understanding a turbine's remaining life, as well as continuously monitoring the condition of turbines in which the lifespan has been extended, so that interventions when faults occur can be made quickly, will be essential in maximizing the return

and effectiveness of the continued operation of aging assets.

By retrofitting both vibration and oil monitoring systems to the wind turbines at Haverigg III, a complete picture of the condition of each wind turbine and its oil health will be provided. The combination of vibration and oil provides better analytics and a more complete condition of the machine health and oil health.

WindEurope estimates that across Europe, more than 34,000 turbines – representing 36 GW of capacity – are now more than 15 years old, with the designed operational lifetime of turbines generally being between 20 and 25 years, at which point repowering, life extension, or decommissioning become the choice of options for owners.

MORE INFO www.onyxinsight.com



Rex Hospital's SCADA system allows it to expand while maintaining reliability, redundancy, and flexibility of its emergency power systems. (Courtesy: Russelectric)

INNOVATION

Russelectric offers customized SCADA systems

Russelectric, a manufacturer of power-control systems and automatic transfer switches, recently announced the availability of customized Russelectric supervisory control and data acquisition (SCADA) systems, enabling users to monitor system operation, acknowledge alarms, and review PLC set-points and alarm history.

All screens are custom-designed for each power control system.

The basic SCADA system includes a dynamic one-line display with changing color codes to indicate real-time power switching device status and power source connection to the loads. Event logging, alarm logging, and help screens are also included.

Optional enhancements are available, including graphic displays of the physical arrangement of equipment, control panel close-ups, instrument displays indicating actual values, and the ability to initiate control functions.

Also available is an optional simulation system, based on SCADA system graphics, to enable off-line operator training without affecting operating system parameters.

Founded in 1955, Russelectric maintains manufacturing facilities in Massachusetts and Oklahoma, where it designs and builds automatic transfer switches, switchgear, and controls.

MORE INFO www.russelectric.com

INNOVATION

DNV provides Hexicon project with first step to certification

Assurance provider DNV has provided Hexicon with a Statement of Feasibility for its TwinWay demonstrator, which will be installed and operated at Metcentre, off the coast of Norway. With achieving this first step in the certification process, DNV considers the TwinWay concept feasible for further development toward a full-scale demonstrator.

The intention of the TwinWay project is to show proof of concept for Hexicon's floating wind foundation TwinWind.

This design allows for the deployment of more turbines per sea area, increasing the energy yield per acreage. Floating wind platforms also enable installation in greater water depth,

Machinists Inc.

From single parts to complete manufacturing systems

MI cuts gears to 250 inches in diameter and grinds gears to 102 inches in diameter.

MI provides full service gearbox repair & testing for dependable overhaul and enhancement of gear drives.



Call us about your project



MACHINISTS INC. ISO 9001 certified

800 / 244.4130

www.machinistsinc.com



DNV considers the TwinWay concept feasible for further development toward a full-scale demonstrator. (Courtesy: DNV)

allowing higher average wind speed and lower visual impact.

“In DNV’s latest ETO, we forecast Norway’s future installed offshore wind capacity to be 3GW in 2030, 10 G Win 2040, and 14GW in 2050,” said Kim Sandgaard-Mørk, executive vice president for Renewables Certification. “To achieve this growth in a safe, reliable, and sustainable manner, Norwegian wind-energy projects need access to robust and trusted risk management measures such as certification. Mitigating risks via certification is particularly valuable for floating offshore wind projects in securing project finance and demonstrating operational application.”

“The Statement of Feasibility from DNV is a valued milestone in our TwinWay demonstrator project,” said Marcus Thor, chief executive officer of Hexicon.

“After years of development, we are now progressing through the next project phase, aiming to deploy the full-scale version of our patented design for the first time.”

“Certification of innovative projects like TwinWay helps to demonstrate the performance, reliability and commercial viability of technological advances which push the boundaries of current technical and engineering knowledge,” said Sille Grjotheim, director and Norway’s country manager for renewables certification at DNV.

MORE INFO www.dnv.com

► MAINTENANCE

Seocat Weatherly secures Moray wind farm charter

Offshore energy support vessel operator Seocat Services has signed a long-term charter for catamaran Seocat Weatherly to support operations and maintenance activity for the Moray Offshore Windfarm (East) Limited.

The 100-turbine, 950MW capacity wind farm is off the coast of Fraser-

burgh, Scotland.

“The North Sea is a key location for the U.K.’s offshore wind industry; capitalizing on the region’s strong wind speeds is vital as the government pursues its target for all electricity to be green by 2035,” said Mark Drew, Seocat Services managing director.

“At Seocat, we’ve tailored our fleet to support the build out of key offshore wind markets and are proud to be offering our best-in-class support to such important clean energy projects as those in development in Scottish waters.”

“We secured Seocat for this charter due to the reputation of its fleet for safety, reliability, and maneuverability,” said Paul Cavanaugh, Moray Offshore Windfarm (East) Limited asset director. “Seocat’s fleet of Chartwell 24s routinely proves its salt across offshore sites in Scotland and the U.K.; to have a domestic provider with such a track record for delivering high quality performance in the North Sea brings clear advantages to the Moray East project. We look forward to working with them throughout the development and maintenance of the wind farm.”

Building wind farms in deeper waters farther from shore enables operators to harness greater wind speeds with fewer obstructions than on land, but trades its increased power production potential for more complex logistics.

Conducting offshore technicians safely and comfortably to sites such as Moray East is critical for the continuous provision of renewable power to Scotland and the United Kingdom.

Seocat Weatherly accommodates 24 passengers and a total of 11 tons of cargo at a service speed of 26 knots.

Seocat Services operates internationally out of Cowes, U.K., with a fleet of 14 IACS classified multi-purpose offshore energy support vessels.

Each vessel is purpose designed and constructed to conduct safe, fast, comfortable transport and transfer of personnel and equipment in the toughest of marine environments.

MORE INFO www.seocat-services.co.uk



Blade bearings got you down?

Call Malloy to get replacement bearings quickly.



PITCH ON THE SAFE SIDE

- Solve failures at the root cause
- Reduced torque requirement



800-366-3693

**Wind@MalloyElectric.com
MalloyWind.com**



The contracts cover the service of 1,963 wind turbines with outputs of between 660 kW and 3.465 MW of unit power. (Courtesy: Siemens Gamesa)

MAINTENANCE

Siemens, Iberdrola partner on Spain, Portugal wind farms

Siemens Gamesa and Iberdrola have signed maintenance contracts totaling 1,928 MW at 69 of the energy group's wind farms in Spain and Portugal for a period of between three and five years.

The contracts cover the service of 1,963 wind turbines with outputs of between 660 kW and 3.465 MW of unit power. With these new contracts, Siemens Gamesa consolidates its position as the main provider of operation and maintenance services for Iberdrola in the region. The agreements include new and renewed contracts.

The contracts account for about 160 employees to maintain the wind farms. Technicians are primarily based in the rural areas where the wind farms are located, so the maintenance activity helps support economic activity and employment there.

The maintenance services for these types of turbines, the oldest in Iberdrola's fleet, are expected to significantly maximize their level of efficiency, as well as extend their useful life in the mid to long term.

"It's a real pleasure to have reached such an important agreement with

Iberdrola, not only because of the size of the deal, but also because it allows us to strengthen our partnership with one of our main customers," said John Paul Larrañeta, CEO of Siemens Gamesa Service for Southern Europe and Africa. "With these agreements, we will go beyond the usual maintenance tasks and offer solutions that the market is increasingly demanding, such as upgrading existing turbines to increase energy production while optimizing the cost of operations and maintenance."

Siemens Gamesa, in addition to offering operation and maintenance services, provides programs to maximize energy production, improve availability and optimize operation and maintenance (O&M) costs over the turbine lifetime.

In this regard, the agreement reached between Siemens Gamesa and Iberdrola also includes design modifications and improvements to the installed fleet during the term of the maintenance contracts, with the aim of modernizing the fleet and safely improving the energy production of the wind turbines.

After this deal, Siemens Gamesa will have 14 GW under maintenance for more than 340 customers in 12 countries in southern Europe and Africa.

MORE INFO www.siemensgamesa.com



Gwynt-y-Môr is a 576-MW offshore wind farm off the coast of Wales. (Courtesy: Fisher Renewables)

MAINTENANCE

James Fisher announces new contracts

James Fisher Renewables, a technical and operations solutions provider to the offshore renewables industry, has won three new multi-million pound contracts supplying specialist operations and maintenance (O&M) services to support informed decision-making for offshore transmission asset owners at Thanet, Gwynt-y-Môr, and Humber.

The contracts will be performed by JF Renewables' high voltage business EDS HV Group (EDS) for BBEC (Balfour Beatty Equitix Consortium), investors and long-term fund managers of core infrastructure assets.

"The combination of EDS and JF Renewables enables us to offer a much broader suite of services bolstered by our multi-skilled team," said Wayne Mulhall, JF Renewables managing director. "Paired with the introduction of remote technology, such as condition monitoring tools that offset in-person requirements, we can op-

erate leaner without compromising on safety or cost. This win represents the next step in our journey to being a complete end-to-end O&M service provider, and we are excited to be continuing our relationship with Equitix, through this contract with BBEC."

Transmission infrastructure owners can find that unaddressed underlying problems can often result in an unplanned outage that reduces transmission capacity necessitating an emergency response at short notice with commercial consequences. EDS' unique approach allows it to focus the annual operating charge and focus on critical assets that require attention, allowing it to flex in-line with the natural deterioration that occurs in all assets over time.

The agreement will see EDS provide enhanced O&M services for the offshore assets, ensuring safety of the system in-line with HV safety rules and the maintenance of HV transmission assets, alongside the integration of provisions for heating and ventilation systems, fire suppression, lifesaving equipment, and corrosion inspections. Building on its honest, transparent maintenance philosophy, this partnership represents the next

step toward full turnkey O&M solutions, delivered to fortify the safe and sustainable growth of the offshore wind industry.

MORE INFO www.jamesfisherrenewables.com

MANUFACTURING

Vestas introduces V162-6.8 MW wind turbine

Vestas has introduced the V162-6.8 MW, expanding the EnVentus platform's power output and market applicability.

Renewables are already a critical part in energy systems across the globe with continued scaling and technology development playing a key role in making renewables a dominant energy source.

"We take another step forward with the introduction of the V162-6.8 MW, reaching the next level in applicability and scalability," said Anders Nielsen, Vestas' chief technology officer. "The V162-6.8 MW demonstrates how our modular product development enhances our ability to continuously innovate and lead the industry in developing customizable and sustainable energy solutions that meet our customers' needs. "Today, we are proud to introduce a wind turbine that underlines Vestas' continued leadership within high-quality sustainable energy solutions, optimized for all project-specific conditions."

The V162-6.8 MW is globally applicable and combines an increased power rating and operational flexibility to deliver up to 7 percent annual energy production (AEP) depending on project-specific conditions. The V162-6.8 MW features flexible power ratings of 6.5 MW, 6.8 MW, and 7.2 MW and expanded site applicability through an optional larger CoolerTop. The performance improvements are achieved through enhanced EnVentus powertrain and power conversion systems.

The V162-6.8 MW will benefit from enhanced transportability, as it will be based on Vestas' new modular nacelle concept, where the nacelle structure is divided into the main nacelle house containing the powertrain and the side compartment with the power system including converter and transformer. Both nacelle compartments are dimensionally designed to correspond to general industry logistics standards for road, rail, and ocean transportation with less need for special handling.

The EnVentus platform is the next generation of Vestas technology, building on proven technology from the 2-MW, 4-MW, and 9-MW platforms to meet customization needs more efficiently. Since the launch of the EnVentus platform in 2019, Vestas has secured orders for more than 5 GW across 13 different markets on four continents. ↙

MORE INFO www.vestas.com/en



The V162-6.8 MW combines an increased power rating and operational flexibility to deliver up to 7 percent annual energy production (AEP) depending on project-specific conditions. (Courtesy: Vestas)

Giving Wind Direction

WIND SYSTEMS

GET CONNECTED

WindSystemsmag.com is your online authority for information about the wind energy industry. You'll find topical articles, company profiles and interviews with industry insiders, and timely wind energy news.

Get your **FREE** subscription, plus our online content, at www.windssystemsmag.com