



The RUTE system is stronger than standard concrete, so wind farms can upgrade to larger towers without additional costs. (Courtesy: RUTE Foundations)

CONSTRUCTION

New foundation wins construction industry award

An Oregon cleantech company that developed a new concrete-saving, CO₂-reducing foundation system for wind-turbine towers has been awarded the 2019 Merit Award from the Post-Tensioning Institute (PTI), based on the first installation of the foundation technology.

The industry-first modular wind-turbine tower base, developed by RUTE Foundation Systems with early support from climate impact accelerator VertueLab, cuts the amount of concrete needed by 75 percent over the life cycle of a wind farm. Because concrete contains cement, a material that generates large amounts of CO₂ during production, the RUTE system

also reduces CO₂ emissions.

“Using our precast, segmental foundation at a single 60-tower wind farm would keep about 65 million pounds of CO₂ out of the atmosphere,” said Doug Krause, CEO of RUTE Foundations. “This CO₂ reduction is realized through lower concrete usage, a much longer lifecycle of our precast components and the fact new wind farms can come on line a month earlier because our foundations don’t have to cure.”

Traditional poured-in-place foundations require concrete footings that are 60 feet in diameter, weigh almost 2 million pounds and use 40 truckloads of concrete, or approximately 400 cubic yards. Curing that amount of concrete takes weeks before towers can be installed, and the life of the structure is less than half that of the RUTE foundation, which can last 60 years.

The precast, modular components in the RUTE system are made in beam manufacturing plants and use post-tensioning technology (a method

of strengthening concrete with high-strength steel strands common in bridge construction).

The RUTE technology is entering the marketplace just as the wind farm industry is upgrading from 1.5-MW turbines to 3.5-plus-MW turbines, which require taller towers. The RUTE system is stronger than standard concrete, so wind farms can upgrade to larger towers without additional costs.

“The PTI recognition is huge for us,” said Jeff Colwill, RUTE’s vice president of Operations, who accepted the award at the annual Post-Tensioning Institute convention in Seattle. “Because RUTE can also manufacture the foundations locally, near the wind farms, our technology will also help create local jobs.”

The first RUTE 30BX Foundation was installed at Palmers Creek Wind Farm in Granite Falls, Minnesota, last November and supports a GE 2.5 MW turbine on a 295-foot (90 meter) tower hub height. RUTE partnered on the project with a team of engineering

and construction firms, including Structural Technologies/VSL, RUTE's post-tensioning partner based in Maryland.

MORE INFO rutefoundations.com

CONSTRUCTION

RES starts construction on Kansas project

RES (Renewable Energy Systems), the world's largest independent renewable energy company, recently announced construction on Southern Power's 200 MW Reading Wind Facility in Osage and Lyon counties, Kansas. Once complete in 2020, the 200 MW project will generate roughly 760,000 megawatt hours of clean energy per year.

Southern Power, which announced it acquired the project from RES in October 2018, will operate and maintain the facility upon completion in the second quarter of 2020. The project consists of 62 Siemens Gamesa wind turbines, and the energy output will be sold to Royal Caribbean Cruises Ltd. under a 12-year PPA.

The Reading Wind project will generate significant benefits to the community, including creating about 125 full-time jobs during peak construction and up to eight permanent jobs once operational. During construction and operation, both Osage and Lyons counties will benefit from increased local spending on goods and services.

"This project will mark RES' first project in our joint development agreement with Southern Power, which has been a tremendous partner in bringing renewable energy to communities across the country," says Rick Ortiz, VP of Wind Construction. "We are excited to bring significant benefits to the local communities of Osage and Lyon counties."

MORE INFO www.res-group.com

MANUFACTURING

Siemens Gamesa secures two orders in the U.S.

Siemens Gamesa Renewable Energy was selected by EDF Renewables North America to supply turbines for the Coyote and Oso Grande projects in the United States. The deals further confirm the commercial success of the SG 4.5-145 and feature a service and maintenance agreement for Siemens Gamesa's premium maintenance program, offering the best in scale and flexibility to maximize energy asset returns.

Coyote, located in Scurry County, Texas, will feature 48 SG 4.5-145 and 11 SWT-2.3-108 wind turbines. Project completion is expected for the summer of 2020.

The Oso Grande wind project will also use 48 SG 4.5-145 and 13 SWT-2.3-108 wind turbines, and is in New Mexico, about 43 miles southeast of Roswell. The commissioning of the wind farm is scheduled for the last quarter of 2020.

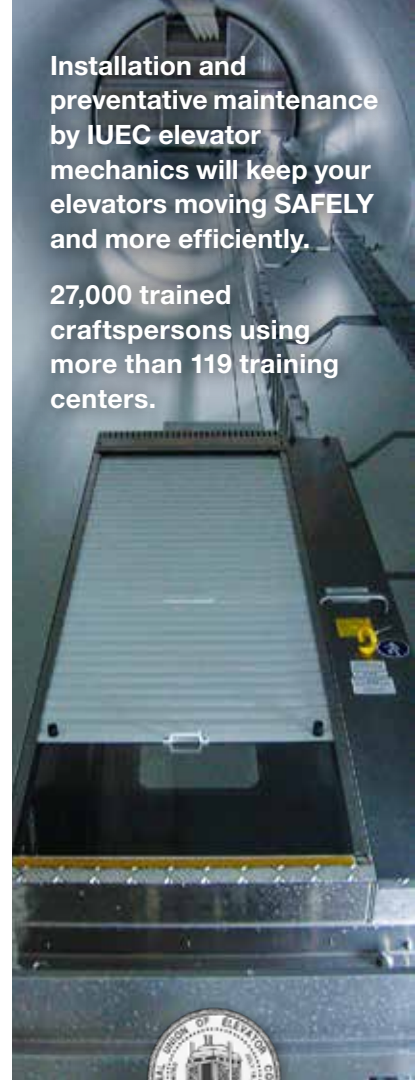
The SG 4.5-145 offers a flexible power rating from 4.2 MW to 4.8 MW depending on site conditions and has a rotor diameter of 145 meters. The 71-meter blade integrates aerodynamics and noise reduction features — including Siemens Gamesa DinoTails® Next Generation technology — to guarantee a high production of energy and reduced noise emission levels. This turbine model is optimized for medium wind onshore locations to maximize energy production.

"We are extremely proud to partner with EDF Renewables North America on these important orders for the SG 4.5-145 wind turbines in the U.S.," said José Antonio Miranda, CEO of Onshore Americas at Siemens Gamesa Renewable Energy. "This new generation turbine offers best-in-class LCOE based on proven technology and evidences our commitment to continued innovation."

DON'T BE LET DOWN BY AN ELEVATOR

Installation and preventative maintenance by IUEC elevator mechanics will keep your elevators moving SAFELY and more efficiently.

27,000 trained craftspersons using more than 119 training centers.



Contact Carisa Barrett at cbarrett@eiwpf.org or 253-561-4902

We represent more than 450 elevator companies ready to serve your Elevator Lift needs



Siemens Gamesa has provided turbines with an output capacity of more than 19 GW in the U.S. and has a strong U.S. footprint consisting of manufacturing, service, and offices. (Courtesy: Siemens Gamesa)

“The evolution of our partnership with Siemens Gamesa to include this new technology is a significant milestone for both companies as it contributes to our long-standing efforts to reduce LCOE,” said Art Del Rio, vice president, Wind Technology Strategy at EDF Renewables. “This new SG 4.5-145 turbine is the ideal fit for the Coyote and Oso Grande projects, helping EDF Renewables achieve the value necessary to build a competitive project.”

MORE INFO www.siemensgamesa.com

MANUFACTURING

Vestas secures order for 420 MW in the U.S.

Vestas has received an order for 420 MW of V120-2.2 MW turbines for a project in the U.S.

The order includes supply and commissioning of the turbines.

Deliveries are expected in the second quarter of 2020, with commissioning expected in the fourth quarter of 2020.

The project and customer are undisclosed at the customer’s request.

MORE INFO www.vestas.com

MANUFACTURING

Siemens Gamesa gets order for 43 turbines in Canada

Siemens Gamesa Renewable Energy recently announced it has signed a contract to supply and commission 43 SG 4.5-145 wind turbines, with flexible rating up to 4.8 MW, for a wind project in Canada with an undisclosed customer. The order is for a nominal

capacity of 194 MW.

The SG 4.5-145 will be the most powerful turbine with the largest rotor size to date in Canada. The 71-meter blade integrates aerodynamics and noise reduction features — including Siemens Gamesa DinoTails® Next Generation technology — to guarantee a high production of energy and reduced noise emission levels.

“We’re proud that our partners chose Siemens Gamesa and our SG 4.5-145 turbine for this project,” said David Hickey, head of the Siemens Gamesa business in Canada. “The new SG 4.5-145 turbine will provide extremely cost competitive and clean energy to the consumers and communities of Canada.”

With more than 3,000 MW installed in Canada, Siemens Gamesa Renewable Energy is the market leader by cumulative installed capacity. The team of employees provides technical expertise, service, products, and ongoing support to all of its customers. Canada is eighth in the world for total onshore installed wind capacity with 12.8 GW as of December 2018, with a 20 percent annual growth rate for the last 10 years.

MORE INFO www.siemensgamesa.com



With more than 3,000 MW installed in Canada, Siemens Gamesa Renewable Energy is the market leader by cumulative installed capacity. (Courtesy: Siemens Gamesa)

MANUFACTURING

Siemens Gamesa gets investment grade rating

Siemens Gamesa Renewable Energy (SGRE) has become the first wind turbine manufacturer to attain an investment grade rating. The company obtained a BBB-long-term credit rating, with positive outlook, from Standard & Poor's (S&P), and a Baa3 outlook stable rating from Moody's. Siemens Gamesa has debuted in the public rating arena within investment grade.

S&P highlighted Siemens Gamesa's leading position in the competitive and consolidating onshore and offshore wind markets with an improved scale, installed base and technology, which should help the group to increase market share and lead market consolidation. The rating agency also underlined the company's conservative financial management and transparent financial policy, with a strong balance sheet, which enable it to preserve strong credit metrics and liquidity.

Moody's also said the rating is primarily supported by Siemens Gamesa's leading market position, its high revenue visibility, as evidenced in the order book, its technological edge over its competitors, as well as the related and growing service activities, good regional diversification and moderate financial leverage.

MORE INFO: www.siemensgamesa.com

INNOVATION

Emerson, Vayu to optimize wind farms with machine learning

Emerson has formed an alliance with Vayu, a Ystrategies Corp. company, to provide automation technology solutions for wind-farm energy optimization in the Americas, Caribbean, and

Europe. The three-year collaboration combines the advanced power applications and networking capabilities of Emerson's Ovation™ automation platform with Vayu's cloud-computing wind-energy optimization technology. Using this approach, Vayu has identified more than \$500 million in revenue opportunities from just a fraction of the approximately 450 wind farms in the United States.

"Combining the respective strengths of Emerson and Vayu creates a first-of-its-kind, intelligent solution for wind-farm optimization," said Bob Yeager, president of Emerson's power and water business. "This initiative will help wind-energy producers maximize their aggregate power output, achieve their financial objectives, and deliver more clean power to their communities."

The wind-power market continues to grow: 53.9 GW were added in 2018, bringing the overall capacity of all wind turbines installed worldwide

to 600 GW, according to the World Wind Energy Association. The United States — the second-largest wind power market — added 7.6 GW of capacity last year.

MORE INFO emerson.com

INNOVATION

Vaisala fortifies comprehensive wind-industry product range

Vaisala, a global leader in weather, environmental, and industrial measurements, recently introduced Leosphere's industry-leading Lidar (Light Detection and Ranging) technology into its portfolio of offerings in North American markets, broadening Vaisala's extensive range of weather and environmental measurement solutions. With the Leosphere acquisition,



Wind Turbine Services Company

Airway Services is an international full-service provider of on-demand technical staffing, project management and operations, and maintenance for utility-scale wind energy projects. Our team of knowledgeable and experienced technicians are committed to providing the highest standard of service to the growing wind industry. Airway Services is proficient in delivering complete service and expert solutions to a wide array of issues unique to wind energy projects.

- Torque and tensioning services
- Major component change-outs
- Up tower gearbox and generator repairs
- Scheduled maintenances
- Troubleshooting
- Operational technician support
- Blade repairs
- QA/QC
- Construction support

Airway Services is now an ISO 9001:2015 registered company through QAS International.

Airway Services

Office: 325.617.5813 | Fax: 325.617.5818



www.airwayservicesinc.com

Vaisala now provides end-to-end sales and support services for the Windcube portfolio of Lidar systems to customers in the U.S. and the rest of the world.

“According to the American Wind Energy Association, a record number of wind farms were under construction in the U.S. in 2018. Vaisala can now provide this burgeoning industry with the most complete suite of environmental sensing devices available,” said Matt Jones, vice president, Weather and Environment Americas, Vaisala.

Lidar is a remote sensing method that leverages pulsed laser to measure wind to the height required by modern wind turbines — a key capability of the Windcube Lidars now available through Vaisala. Leosphere Lidars offer a wide range of solutions to track wind speed and direction required for new wind farm planning and construction. To date, there are more than 1,400 Leosphere Lidars installed worldwide.

By redefining the use of Lidar within the renewable energy space, the Leosphere Windcube suite of systems is discreet, mobile, and capable of remotely reaching greater heights to aggregate superior data for wind prospecting. The Windcube systems empower owners to increase efficiency in long-term wind-energy production by enabling the potential for full rotor sweep measurement.

Vaisala offers four distinct Leosphere Windcube Lidar systems:

► **Windcube Vertical Profiler:** An ultra-portable Lidar providing accurate wind measurements up to 200 meters, validated onshore and offshore by international standards and guidelines.

► **Windcube Scanning Wind Doppler Lidar:** Offers wind measurement up to 10 kilometers as well as multiple scanning patterns. Used for leading edge applications in wind energy, meteorology, severe weather research, vortex measurements, and real-time wind shear detection at airports.

► **Wind Iris:** Mounted on wind turbine nacelles for power performance data to measure and optimize wind turbine performance.

► **Wind Iris TC (Turbine Control):**



The drive for vessel-performance transparency comes in response to rising demand from offshore wind project owners for CTV operational and performance data. (Courtesy: Reygar)

Integrated in wind turbines on and offshore. Provides real-time characterization of wind, enabling turbine manufacturers to improve wind turbine design and efficiency.

MORE INFO www.vaisala.com

► MAINTENANCE

CTV operators driving transparent approach to offshore operations

Leading CTV operators are driving for more transparency around vessel performance as the market seeks to “level the playing field” in offshore wind support. While historically project owners have led demands for greater transparency around operational and performance data, a number of CTV vessel operators have identified a clear market opportunity in being ahead of the curve.

That is, at least, according to Reygar, a leading provider of innovative remote monitoring and reporting platforms to the marine industry, whose BareFLEET system continues to be rolled out by many offshore wind CTV operators.

The drive for transparency has been a long time in the making, coming in response to rising demand from

offshore wind project owners for CTV operational and performance data. This data, which includes motion, engine performance, weather conditions, and fuel consumption, has a strong influence on procurement decisions as owners look to increase “time on turbine” for their technicians, as well as the overall safety and cost-efficiency of their projects.

To date however, supplying this data has been seen as a “check-box” requirement. Initiatives such as “p-plot,” supported by wind-farm owners, have provided a strong model for increasing clarity by looking to formulate a standard to measure the relative operational performance of CTVs in different sea states.

However, this top-down approach to shared data has received a mixed reception from vessel operators, given the perceived commercial risk of opening their data to the market and the cost of gathering and processing the necessary operational data.

In contrast, leading operators including Seacat Services, CWind, Tidal Transit, High Speed Transfers, and Maritime Craft Services have found that taking data monitoring into their own hands through the installation of the BareFLEET system is an opportunity for commercial development, rather than a hurdle.

MORE INFO www.reygar.co.uk

MAINTENANCE

PSI surpasses 40,000 repaired parts milestone

PSI Repair Services, Inc., a subsidiary of Phillips Service Industries and leading independent service provider (ISP) to the wind-energy industry, recently announced it surpassed 40,000 repaired wind turbine parts for the wind-energy market, following a busy 2018.

PSI offers component repair and engineering services for GE, Vestas, Gamesa, Siemens, RePower, Acciona, Suzlon, Nordex, Mitsubishi, and Clipper wind turbines. PSI covers the critical electronic, hydraulic, and precision mechanical components that drive the turbines' pitch and yaw systems and down-tower electronics. Commonly repaired components include printed circuit boards, pitch drive systems, inverters, IGBTs, PLCs, VRCC units, AEBIs, proportional valves, hydraulic pumps, pitch and yaw motors, encoders, slip rings, transducers, yaw modules, 3-phase bridge rectifiers, blade bearing automatic grease dispensers, active crowbars, line reactors, oil level sensors, battery chargers, cold climate converters, anemometers, and more.

PSI's engineering services include custom tests, root cause analysis, product upgrades, remanufacturing, and new product manufacturing services. The custom test program uses advanced diagnostic equipment, allowing PSI to detect hard part failures, as well as parts degraded due to stress, down to the microchip level.

The root-cause analysis service allows PSI to get a comprehensive view into a customer's production environment to identify all the elements connected to recurring problems so the appropriate corrective actions eliminate the problem. The product upgrade service allows PSI to improve upon legacy design with newer, more reliable technology.

MORE INFO www.psi-repair.com

MAINTENANCE

EdgeData welcomes new director of operations

EdgeData, LLC recently added Lorie Hines as director of operations. In this role, Hines will manage operations of BladeEdge, EdgeData's artificial intelligence (AI)-driven image analysis engine for the wind industry.

"Lorie brings valuable insight and experience to the BladeEdge team during a time of rapid growth," said Chris Shroyer, president and co-founder of EdgeData. "She possesses a combination of technical knowledge and project management expertise that will enable BladeEdge's capacity for growth. We're delighted to add her capabilities to our leadership team."



Lorie Hines
(Courtesy: BladeEdge)

As director of operations, Hines will draw on her experience in technology, risk management, and problem solving to oversee the technical architecture that supports all BladeEdge applications. BladeEdge is powered by EDDIE, the company's AI analytics engine designed specifically for the wind industry. EDDIE enables automated condition assessment of blade inspection images, data analytic processing, and report generation.

The BladeEdge application suite includes the BladeEdge Controller Application (BE-APPSM), the BladeEdge Capture Assurance Tool (BE-CATSM), BladeEdge Analytics, and the BladeEdge User Dashboard. Together, these applications streamline wind-farm management, from data capture to data management, and ultimately artificial intelligence and analytics.

Hines also will manage the BladeEdge application development team to ensure the regular and timely

release and integration of innovative operations solutions.

MORE INFO bladeedge.net

MAINTENANCE

Pure Safety Group introduces Checkmate Tr3 Tripod

Pure Safety Group (PSG), the largest company dedicated solely to fall protection, has introduced the Checkmate TR3 Tripod, used as Personal Protective Equipment to access workers and provide fall protection in confined space environments.

The tripod features an innovative new crown and foot design that makes it stronger yet more lightweight than other tripods. The design is representative of the new advancements in height safety that are being created by the innovation team at Checkmate.

The TR3 is one of 20 new fall protection products PSG is launching in 2019 into the construction, oil and gas, energy, utilities, telecom, mining, and transportation industries. It is the first Checkmate product to be launched in North America. Checkmate is a U.K.-based company that was acquired by PSG in 2018. Checkmate products are made of superior materials and designed for companies who want the latest high-performance products for their workers at height.

The TR3 tripod legs lock in the open position automatically during use, easily disengage for folding, and are adjusted for proper height with captive pins. Detent pins secure them to the tripod using PVC-coated keeper wires.

The tripod's pivoting spiked feet and rubber soles allow for its use on soft or hard surfaces. Its anti-splay webbing, which prevents the tripod legs from splaying under a load, can be neatly tucked into its own housing slot for storage. ↵

MORE INFO www.checkmateuk.com