

MAINTENANCE

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SIEMENS SIGNS FIRST BALANCE OF PLANT WIND SERVICE AGREEMENT IN THE U.S.



Siemens recently signed a long-term contract extension for services and maintenance at the 152-MW Keenan II wind farm in Oklahoma that will also include balance of plant (BoP) to the scope and extend it for another 15 years. This marks Siemens' first long-term BoP wind service agreement in the United States. The customer is CPV Keenan II Renewable Energy Company (CPV

Siemens wind service technicians performing service and maintenance on an SWT-2.3-MW turbine

Keenan II), headquartered in Silver Spring, Maryland. Siemens will provide an additional 15 years of service and maintenance for the 66 SWT-2.3-101 turbines installed at the Keenan II wind farm located

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near Woodward, Oklahoma. The new agreements add BoP to the scope with Siemens performing or coordinating the performance by others of certain service and maintenance activities throughout the wind plant, including the collector system, substation, transformers, transmission lines, switchgear, equipment, machinery, fiber optic cables for the supervisory control and data acquisition (SCADA) system, control systems, communication systems, foundations, towers, and access roads.

“As the wind energy industry in the U.S. continues to mature, more and more of our customers are looking to Siemens for a fully integrated life cycle approach to support their long-term operational goals and to help reduce costs,” said Mark Albenze, CEO of Siemens Power Generation Services’ Wind Power and Renewables business unit. “This balance of plant agreement at Keenan II supports our goal to provide added value to customers such as CPV Keenan II through integrating our service offerings across the entire plant and tailoring them to meet their specific operational needs. As the original equipment manufacturer for select transmission and substation equipment, Siemens is in the unique position of being able to extend our service offerings beyond the wind turbines.”

The service and maintenance will be supported by Siemens Digital Services, including advanced remote monitoring and diagnostics services. Select data-driven services will utilize Sinalytics, the platform architecture and technology foundation for Siemens Digital Services, as well as tailored industry-specific applications. Siemens Digital Services for Energy incorporate advanced analytics based on market, operational, and contextual

know-how for a service and maintenance approach tailored specifically to a customer’s operating needs. This allows for a comprehensive plant-level asset optimization scenario enabling both predictive and prescriptive services.

“We are very pleased with this arrangement,” said Dave Magill, senior vice president of asset management at CPV. “The expansion of Siemens’ scope in a long-term contract will ensure the Keenan II wind farm continues to provide reliable low cost wind energy to Oklahomans for years to come.”

The Keenan II wind farm went into commercial operation in December 2010. Keenan II generates enough electricity to power approximately 45,000 average Oklahoma homes and avoid approximately 413,000 tons a year in greenhouse gas emissions — the equivalent of taking nearly 72,000 cars off the

road. The project has a 20-year power purchase agreement with Oklahoma Gas and Electric Company.

Siemens has been providing service and maintenance on the 66 SWT-2.3 wind turbines at the project since it began operations in 2010. In 2012, Siemens opened a 64,000-square-foot wind service distribution center in nearby Woodward, Oklahoma, citing the area’s proximity to wind projects throughout the wind belt.

Siemens currently provides service and maintenance for more than 4,000 installed wind turbines in the Americas region and more than 10,000 globally, with a combined generating capacity of approximately 24 GW. ↘

Source: Siemens

For more information, go to www.siemens.com.

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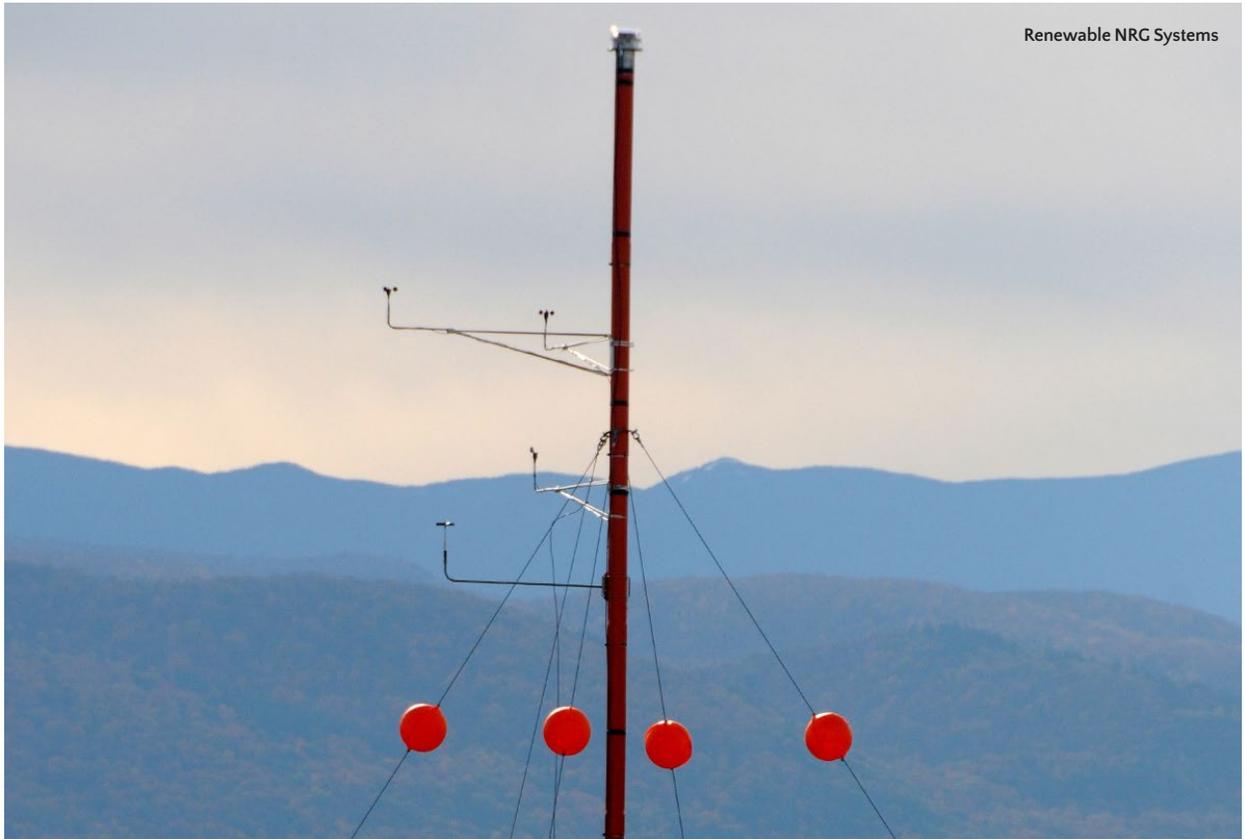




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DEVELOPERS TURN TO RNRG'S 80M TILT-UP TOWERS TO IMPROVE POWER PERFORMANCE TESTING



Renewable NRG Systems (RNRG), a designer and manufacturer of decision support tools for the global renewable energy industry, recently announced the sale of 20 of its 80-meter tilt-up towers to high-profile developers and consultants to support their power performance testing (PTT) activities. This departure from the traditional use of higher lattice towers for PTT purposes represents a notable strategy change by key players in the wind sector.

“Companies are beginning to use our 80-meter XHD TallTower tilt-ups instead of the typical higher lattice towers for power curve verification purposes due to its advantageous price and functionality,” said Greg Erdmann, vice president of global sales at RNRG. “This was

unheard of in the wind industry only a year ago. Unlike higher lattice towers, they can be redeployed to other sites after the IEC test is completed. What’s more, site assessment costs and decommissioning costs are significantly lower. They are faster to set up and easier to decommission. Once developers grasped the extent of the opportunity offered by tilt-ups, opportunities naturally began to present themselves.”

Higher lattice towers are able to acquire hub measurements, and they can be climbed instead of tilted down, which reduces the cost for sensor maintenance. However, they are more expensive to purchase, install, transport, and decommission. They also present the added liability of requiring people to climb the

towers, and these towers come with longer delivery times and need significantly more time to be installed and to qualify the site.

“Consultants and developers have finally come to understand the true value of temporary tilt-up towers,” Erdmann said. “Our tilt-up towers fit the temporary requirement of a PPT and once the test has been completed, they can be moved to other sites, which allows more tests to be supported within constrained budgets. Thanks to our 80 XHD TallTowers, we are allowing more developers to perform PPT, which allows consultants to secure more service-related business.”

Source: Renewable NRG Systems
For more information, go to www.renewablenrgsystems.com.

DNV GL TO PROVIDE PROJECT CERTIFICATION FOR E.ON'S ARKONA OFFSHORE WIND FARM

E.ON recently awarded the project certification contract for the new Arkona offshore wind farm to DNV GL. The project covers the inspection phases from manufacturing, transport, installation, and commissioning to take the wind farm into operation.

The Arkona offshore wind farm is a 385-MW offshore wind farm that is currently being developed by E.ON. The wind farm will be located 35 kilometers northeast of Rügen Island in the Baltic Sea off the coast of Germany. The energy company Statoil has a 50 percent stake and has been involved in the project from the start. E.ON is responsible for building and operating the wind farm. Upon planned completion in 2019, the project will supply renewable energy for approximately 400,000 households and offset 1.2 million tons of carbon dioxide emissions a year.

Having worked on the project since 2014, DNV GL was initially appointed by E.ON for the full design assessment of the wind farm's turbines and the offshore substations. During the design assessment, DNV GL ensured timely delivery of the conformity statements for the basic design of the wind turbines and support structure.

DNV GL and E.ON are collaborating to finalize the detailed design of both the offshore transformer station and turbine as well as the support structures. Building on the successful partnership, DNV GL is continuing its work with E.ON into the operational phase of the wind farm.

Arkona marks the 14th offshore wind farm in Germany alone that DNV GL is supporting with its certification services, out of a total of 16 German wind farms currently in operation or under construction.

"As the pressure to produce clean energy at a cost-competitive price is growing, ensuring that the objectives of new wind energy projects are being met at each stage in the run-up to their operation is vital," said Steffen Haupt, global head of business development and sales at DNV GL energy and renewables certification. "Supporting this venture from start to finish enables us to contribute best to the success of this important offshore project, and we are excited to work side-by-side with E.ON to get Arkona implemented."

The stringent inspections of the project certification phase are designed to ensure that the assumptions made

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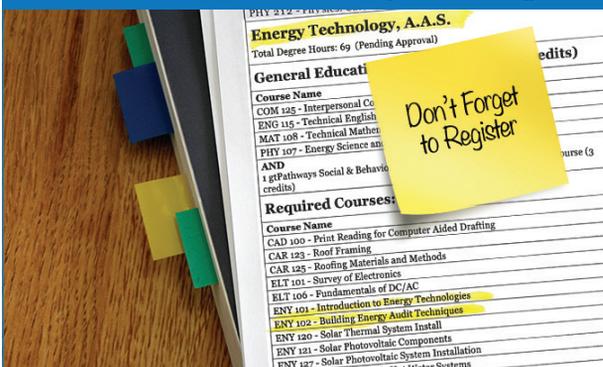
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Course Name	Credits
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MAT 108 - Technical Mathematics	
PHY 107 - Energy Science and Technology	
AND 118 Pathways Social and Behavioral Sciences (3 credits)	

Required Courses:

Course Name	Credits
CAD 100 - Print Reading for Computer Aided Drafting	
CAR 123 - Roof Framing	
CAR 125 - Roofing Materials and Methods	
ELT 101 - Survey of Electronics	
ELT 105 - Fundamentals of DC/AC	
ENY 101 - Fundamentals of Energy Technologies	
ENY 102 - Building Energy Audit Techniques	
ENY 120 - Solar Thermal System Install	
ENY 121 - Solar Photovoltaic Components	
ENY 127 - Solar Photovoltaic System Installation	
ENY 202 - Solar Domestic Hot Water Systems	

A small, rural college on the southeastern plains of Colorado, Lamar Community College (LCC) offers a variety of two-year degrees and certificates through on-site and online courses.

Renewable Energy Technology, A.A.S.

- ENY 101 - Introduction to Energy Technologies
- ENY 102 - Building Energy Audit Techniques
- OSH 126 - 30 Hour Construction Industry Standards
- WTG 100 - Introduction to Wind Industry
- WTG 110 - Wind Turbine Generator Power Distribution & Control Systems



www.lamarcc.edu



in the design assessment phase are validated and support the goal to provide optimal reliability for the entirety of the project lifetime.

Having type-certified both the Siemens SWT-6.0-154 turbine, which will be supplied to the project, as well as other manufacturers providing components to the Arkona wind farm, DNV GL's experts provide a unique knowledge of the wind farm assets.

Working with DNV GL, the world's largest certification body, enables E.ON to tap into a global workforce of highly technical experts, ensuring that the entire project certification process will be delivered by one supplier. ↪

Source: DNV GL

For more information, go to www.dnvgl.com.

BASF'S LEADING-EDGE PROTECTION FOR ROTOR BLADES PASSES 50-HOUR RAIN TEST

BASF, which supports the wind energy sector with special systems and products, announced that it has launched Relest® Wind LEP S, an innovative coatings solution for rotor blades that has recently passed an external 50 hours rain erosion test by a renowned Danish institute, thus outperforming other well-known rain erosion resistant coatings.

The stress loads to which rotor blades are exposed during the operation are enormous. At top speeds of up to 300 kilometers per hour at the blade tips, gigantic forces act upon the blades. Moreover, weather influences such as rain, snow, hail, sand, heat, and ultraviolet (UV) radiation wear out the blades and lead to more frequent repair and maintenance intervals.

To prevent the material from damages caused by these influences, the coatings division of BASF has developed a solution for long-lasting protection. The system consists of a gel coat, a filler, an edge protection, and a topcoat. It is based entirely on solvent-free, two-component polyurethane compounds, thus complying with present VOC directives. Within BASF's coatings portfolio for the wind energy sector, Relest Wind LEP S stands for excellent sustainable and efficient leading-edge protection.

Relest Wind LEP S provides rotor blades with the optimum protection due to its excellent rain-erosion resistance. The recent test showed that with a speed of up to 160 meters per second (approximately 570 kilometers per hour), the rain did not cause any significant damage on

the coating. The material is virtually solvent-free as well as being exceptionally durable and UV-stable.

Ideally suited for OEMs, the material can be applied directly on the rotor blade. Relest Wind LEP S improves the efficiency of the wind turbine operation by providing an effective erosion protection, thus reducing potential maintenance costs. With its low film thickness and easy application, it is the ideal material matching the customers' requirements.

BASF supplies the matching coating system for all components under the trade name Relest, from the base of the wind power plant to the rotor blade edge, and provides innovative products for the energy of the future. ↙

Source: BASF

For more information, go to www.basf.com.



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