MAINTENANCE

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Wanzek applies lean Kaizen approach to improving O&M

Services group eyes long-term improvement as turbines age and warranties expire

By Kate Nation

Photos courtesy of Wanzek

The wind industry rebounded in 2014. According to the American Wind Energy Association, the 4,854MW of wind capacity added during 2014 was more than four times the amount installed in 2013. As the wind industry continues to grow, it is also undergoing a significant evolution as turbines are coming out of warranty and maintenance costs shift to owner responsibility. Wind farm operators are increasingly interested in reducing the lifecycle costs of a project — shifting some focus from productivity to maintenance. A smart approach since equipment maintenance directly effects productivity.

Maintaining a wind plant is a complex undertaking. While the integral goal is continued turbine availability, there are many internal and external factors that can take a turbine offline. When blades aren't turning, money is being lost. While scheduled maintenance costs are reflected in budgets and downtime is anticipated, unscheduled maintenance can greatly impact revenue through unexpected equipment replacement or repair and loss of productivity. Owners and operators are beginning to understand the implication of an efficient approach to maintenance.

With this in mind, Wanzek Construction has developed a lean Kaizen process that addresses both scheduled and unscheduled maintenance issues. Kaizen, meaning "change for the better," refers to the practice of continuous improvement. It is a long-term approach that targets small, incremental changes in processes in order to improve efficiency and quality. Karen Naland, director of quality and development at Wanzek, began implementing a company-wide lean Kaizen approach in 2014 that has since been implemented by the company's Renewable Energy Services group through wind system maintenance. According to Eddy Grunenwald, who handles business development for Wanzek's O&M Services team, "Every operating wind site is under pressure to reduce cost and improve returns. At the same time, wind turbines are larger, more complex their numbers are expanding

quickly." Grunenwald believes that upping the resources for operations and maintenance requirements is not a sustainable solution. "The future belongs to owners and service providers who make continuous improvement a key factor in their service offerings," he said.

Grunenwald has put this to practice, earning a yellow belt in continuous improvement through Wanzek's Operational Excellence initiative. During a client visit, he was made aware of an excess in man-hours per turbine required for maintenance. Wanzek responded immediately with a proposal to conduct a lean event to identify waste in the maintenance process and implement change that would reduce the number of man-hours required. The event also served as a forum for the exchange of ideas and best practices across multiple, client-operated sites.

Preparation for the lean event included a review of the processes and procedures that were in place. Wanzek found that procedures overlapped and that task performance required technicians to move throughout the turbine without regard for the amount of time spent on a task. This led to a focus on the reorganization of crews and responsibilities. Special attention was paid to maintaining safety regulations; allowing the time needed to perform a job safely, while reducing time wasted. One example involved moving a crew from the nacelle into the turbine hub.

"Our crews have completed safety at heights and rescue training and this is not a task that can be hurried," Grunenwald said. "However, the old process had the crews moving into and out of the hub several times. We changed the process so that while a crew is in the hub, they perform as many tasks as is safe and practical."

With Wanzek's direction, the client developed a maintenance program made up of four crews, performing tasks directly related to the area in which they work. Wanzek followed-up with modifications to ensure standardization of the improvements. The result was a reduction of over 50 percent in man-hours per turbine.

"I knew we would obtain results," Grunenwald said. "These results really impressed me."

Given the positive results, Wanzek will continue its lean Kaizen approach, determining areas that waste can be eliminated. Defining a direct approach to efficiency and improvement requires the company to align its quality and development group with its safety program. Arnold Jelinek, vice president of Wanzek,

maintains the need for safety efforts to inform quality initiatives.

"Our interest in Kaizen is due to its focus on small changes to create big impact. This allows us to address our clients' need for a quick turn-around while promoting our strict safety policy," he said.

Wanzek has made a commitment to invest in continuous improvement as a way to deliver streamlined services that benefit the client's bottom line. Within the last year, 110 Wanzek corporate and field personnel have participated in Six Sigma yellow belt training, led by the company's Six Sigma Master Black Belt quality and development director. This has resulted in refined and value-added processes and procedures.

The Kaizen approach requires employees to contemplate procedures and processes and determine the outcome. The same is true for Wanzek's safety program. The company has an established observation program, R4, which provides the opportunity for employees to be engaged in the company's safety processes through active participation in safety systems and through an employee observation and feedback process.

Jelinek believes this results in sharper employees and better business practices. "Both our quality initiatives and our safety program encourage our employees to stop and think," he said.

Applied to wind maintenance service, Wanzek's approach resulted in renewed turbine performance, reduced time resources, substantial procedural improvements and improved daily output. Fueled by his success, Grunenwald is turning his attention to project start-up. Since much of the project pace is determined in the planning stage, Grunenwald sees an opportunity to apply lean initiatives at the onset.

Jelinek is excited that this innovation is coming from within the company.

"The results achieved by our wind O&M team have been outstanding. Jelinek said. We want each of our employees to be trained in the Kaizen method and to apply it, guided by our director of quality and development, in instances that could result in safe project efficiencies,"

Given AWEA's release in April that the U.S. now has installed over 48,000 turbines, there should be plenty of opportunity.

For more information, visit them online at www.wanzek.com.

Deepwater Wind selects local firm for crew transfer

R.I. ferry company awarded 20-year deal to operate nation's first offshore wind service vessel

Photos courtesy of Seacat Services, Ltd.

Rhode Island Fast Ferry recently signed a 20-year contract with Deepwater Wind for the transfer of maintenance and service crews at the Block Island wind farm off the coast of Rhode Island.

This long-term charter services agreement is the first deal of its kind to be signed in the U.S. and marks another significant milestone in the successful development and deployment of U.S. offshore wind. Expectations within the North American offshore wind market have escalated in recent months and this exclusive first charter services deal provides further tangible proof of the benefits and commercial potential that the wind sector can deliver.

The agreement enables the high-speed catamaran ferry company to commission the first U.S.-built crew transfer vessel to be built by Blount Boats and to launch Atlantic Wind Transfers—its commercial wind support services division.

"We are very excited to be a part of this offshore wind farm project and to work with Deepwater Wind," said Charles A. Donadio, Jr., president of Rhode Island Fast Ferry. "Launching Atlantic Wind Transfers and building the first crew transfer vessel in the Unites States with local company Blount Boats is not only good for the State of Rhode Island, but it will also provide for future growth and enhance the

capabilities of our company in the U.S. offshore energy sector."

As part of the charter agreement with Deepwater Wind Block Island, LLC, a subsidiary of Deepwater Wind, Rhode Island Fast Ferry will build a dedicated wind turbine transfer vessel and develop an extensive training program for its transfer services crew. Rhode Island Fast Ferry will be investing over $4 million to build the vessel and provide training to meet the needs of the Block Island Wind Farm. The construction of the transfer vessel is being undertaken by local Rhode Island shipyard, Blount Boats, where the contract will secure employment for 70 workers throughout the 12-month build.

"We are honored to be

chosen to build the first U.S.-flagged wind farm vessel in the United States," said Marcia Blount, president of Blount Boats. "The vessel is designed specifically for turbine transfer service. We enthusiastically joined an all Rhode Island team of wind farm, operator, and boat builder."

As Rhode Island Fast Ferry's subsidiary brand, Atlantic Wind Transfers will provide crew and equipment support during the construction phase of the Block Island Wind Farm beginning in Spring 2016. Following completion of the 30MW five-turbine site, work will move into operations and maintenance support to encompass a scheduled maintenance program as well as any additional crew transfer support required throughout the 20-year lifecycle of the first U.S. offshore wind farm project.

Thanks in part to the long-term nature of the charter agreement and the strong working relationship that has already been built between Deepwater Wind and Rhode Island Fast Ferry, this deal will create long-term, local Rhode Island jobs. Each workboat that is chartered to an offshore wind farm typically requires a crew of five to six full-time, skilled employees working year round.

Rhode Island Fast Ferry was awarded the inaugural charter agreement thanks in part to its offshore operating experience, its impeccable safety record, and its catamaran water jet experience. In addition, the firm's established location and dockage facility at Quonset Point will provide Atlantic Wind Transfers and Deepwater Wind quick and convenient access to the Block Island Wind Farm site using the new crew transfer vessel.

"We're excited to partner with two veteran Rhode Island companies that will bring their decades of experience to supporting our Block Island Wind Farm," said Jeffrey Grybowski, Deepwater Wind CEO. "Most importantly, this will mean more jobs in the marine trades for Rhode Islanders and another way that the Ocean State will lead the growth of this new American offshore wind industry."

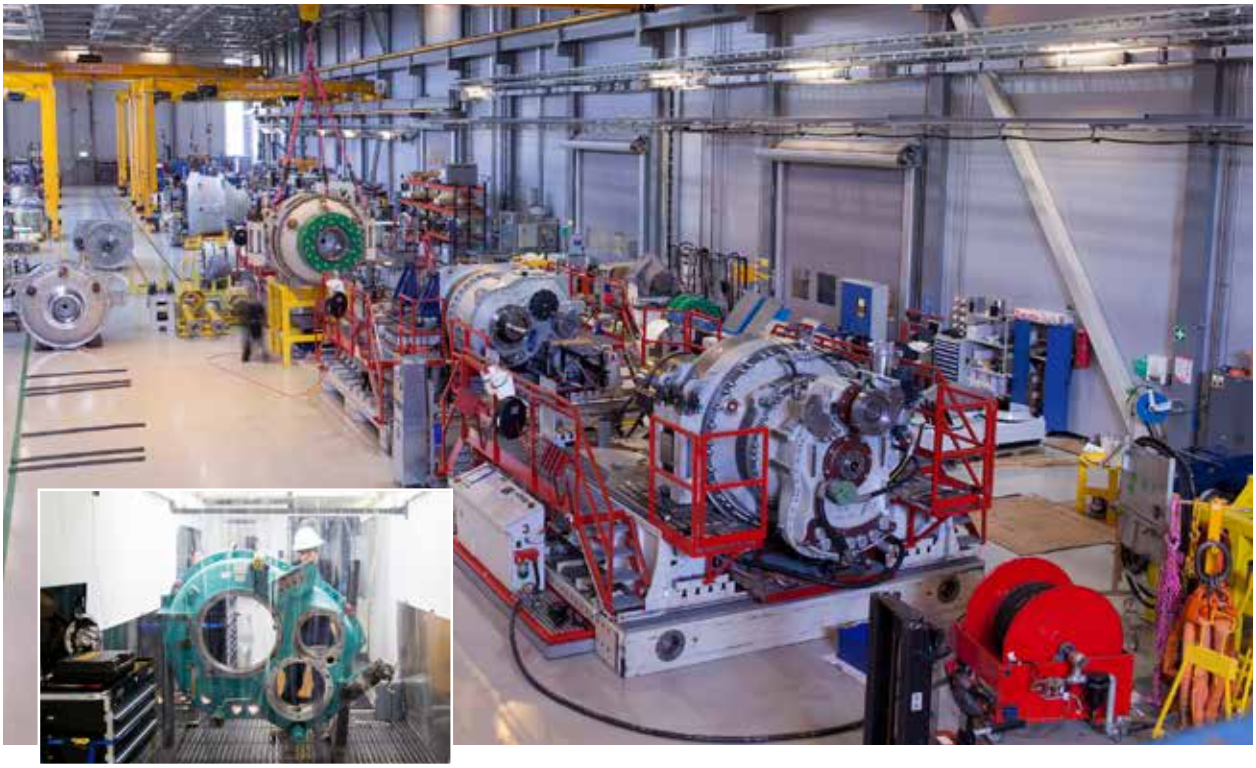
"I'm delighted to support Deepwater Wind's efforts throughout the wind farm's offshore construction and operation and to demonstrate our own personal commitment to the offshore wind sector through the launch of our subsidiary brand, Atlantic Wind Transfers," Donadio said.

An official keel laying ceremony at Blount Boats in Rhode Island, where the workboat will be officially inaugurated is planned for later this summer.

— Source: Rhode Island Fast Ferry

MOVENTAS MAKES SIGNIFICANT UPDATES TO REPAIR PROGRAM

Streamlined exchange program reduces customer costs and downtime



Moventas recently announced improvements to its Gearbox Pooling Program. With the improvements which include faster delivery, upgraded boxes, leading warranties, and new gearbox availability the program far exceeds competitive offers in the market. In the program, customers receive a refurbished or brand-new replacement gearbox in exchange for their damaged gearbox, which is returned to the pool for refurbishment. Customers only pay the cost of the repair. Downtime and crane usage are minimized.

As the customer notifies Moventas of the type of gearbox, location, and scope of failure, a gearbox or a mainshaft from a secured FIFO inventory is selected and serial numbers are reported to the customer. Next Moventas contacts the site to arrange shipping and installation, and a refurbished or new unit is delivered to the site and installed in the turbine with Moventas coordinating all crane and site work if desired.

"Repairs are much less expensive than new gearbox costs, and, with this program, there is complete visibility of refurbished and new unit inventory," said Steve Casey, head of Moventas operations. "The traditional repair cycle is virtually eliminated. It's a win-win for the customer. Availability goes way up and downtime is reduced,"

Moventas stores gearboxes fully accessorized, thus minimizing turbine downtime and exchange costs, and, in many cases, replacement gearboxes are on-site within days. As the damaged gearbox is removed, the replacement gearbox is installed using the same crane and service team, reducing costs for customers.

"Why settle for participating in a pool that only services half of your fleet," said Mike Grunow, vice president of sales and marketing at Moventas Americas.

"We've spoken to the majority of wind farm owners and the message is clear. Wind farm owners want to participate in a gearbox repair-pooling program that meets the needs of their entire fleet and offers new gearbox options to make up for catastrophic failures. Moventas is the only company that can do that," cMainshafts can be repaired and pooled with the gearboxes under the same terms and extended warranty options. Should a broken gearbox be deemed unusable, Moventas will credit customers for the usable parts and sell them a brand-new unit that contains industry-leading case-carburized ring gears, that enable maximum life and ensure the feasibility of less expensive uptower repairs.

As a global multi-brand service partner, Moventas also accepts and has successfully reverse-engineered, repaired, overhauled, upgraded, and supplied many popular gearboxes from other manufacturers.

— Source: Moventas

SymphoniePRO™ data logger boasts advanced features and a user-friendly design

Renewable NRG Systems, a designer and manufacturer of decision support tools for the global renewable energy industry, has launched today a new data logger that is specifically engineered to improve the performance of wind and solar measurement campaigns.

Building on RNRG's well-known Symphonie series of user-friendly loggers, the SymphoniePRO logger brings significant upgrades in terms of capability and flexibility.

"This is the data logger our wind and solar energy customers have been asking for," said Michael Fisher, product manager. "It's powerful, versatile, and, as always, it comes with the great support and ease-of-use expected from a Symphonie logger."

SymphoniePRO is a low-power, industrial-grade data logging system that is specifically designed for conducting resource assessments for the renewable energy industry. Each of the 26 channels' statistical values are calculated from continuous 1-second data samples and averaged over a user-selectable interval (10-minute default). Collected data are stored efficiently as binary .RLD files on internal Flash memory with a redundant copy on an external SD card, if installed.

Data are communicated and the system is powered via Symphonie iPackGPS communications devices, which only require a firmware upgrade for compatibility with the new data logger. In addition to SMTP email data delivery, SymphoniePRO allows remote, real-time connection capability over RNRG's MetLink protocol for tasks like automated or manual data download, firmware upgrades, live data viewing, or configuration changes.

Also included is the SymphoniePRO Desktop Application, a new PC software package used to process raw data files as well as configure and communicate with the SymphoniePRO logger and iPack. SymphoniePRO Desktop Application keeps track of site data and produces versatile tab-delimited text files (ASCII) compatible with industry-leading software. Additionally, the software allows the user to view "live" data, apply firmware updates to loggers and iPacks, and preview data files in time series format.

SymphoniePRO is backed by RNRG's two-year warranty and lifetime technical support.

For more information about SymphoniePRO, visit www.renewablenrgsystems.com/symphoniepro.