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Remote Operations Control Center Monitors Apex's Wind Facilities



The team uses the video wall to monitor wind-farm performance data, energy market prices, forecasting models, weather patterns, and live camera feeds from the wind farms. (Courtesy: CineMassive)

In 2014, the leadership at Apex Clean energy decided to implement a Remote Operations Team to provide additional monitoring and control for Apex's managed wind-power facilities. The Remote Operations Team would perform a number of critical, 24/7 operations — including wind-farm performance monitoring, SCADA system monitoring, downtime categorization reporting, generation forecasting, and more. A new, high-tech facility called the Remote Operations Control Center (ROCC) would be built at Apex's Charlottesville, Virginia, headquarters to house the new team.

Apex leadership recognized that to monitor the data produced by their many informational systems, the Remote Operations Team would need a user-friendly visualization solution. The company decided to equip the Remote Operations Control Center with a video wall:

a high-resolution display system where the team could monitor real-time video and data from various platforms.

Apex Clean Energy is an independent renewable energy company that builds, owns, and operates utility-scale wind and solar power facilities. With a team of more than 200 professionals and the nation's largest wind-energy project pipeline, Apex is a leader in the transition to a clean energy future.

SELECTING A SOLUTION

David Grant, director of Remote Operations and SCADA Technology at Apex, led the effort to select a video wall solution for the new ROCC. Having successfully implemented a video wall system in a previous leadership role, Grant had valuable insights into the features

that would be most important for the Remote Operations Team.

“I knew that the functionality and ease-of-use of the video wall controller would be critical,” he said.

After evaluating offerings from a number of providers, Grant and his colleagues chose CineMassive to deliver a turn-key video wall system for the ROCC. The solution would include an LCD display system, a video wall controller, and software. Grant cited the capabilities of CineMassive’s Alpha video wall controller as a major factor in the decision.

“Other companies’ controllers just didn’t offer the content flexibility and control that the Alpha provided,” he said.

INTEGRAL ROLE

Apex’s new Remote Operations Control Center and CineMassive video wall system were completed in August 2014. Since its installation, the CineMassive system has played an integral role in the Remote Operations Team’s 24/7 workflow, providing operators with real-time situational awareness of Apex’s management portfolio.

Inside the ROCC, operators sit at workstations facing their CineView LCD video wall. The bright, 5x2 array of ultra-narrow-bezel screens displays an assortment of live video, maps, television news, and active data feeds.

The team uses the video wall to monitor wind-farm performance data, energy-market prices, forecasting models, weather patterns, and live camera feeds from the wind farms. An Alpha video wall controller enables all of these applications to be displayed simultaneously, allowing the team to create a real-time operating dashboard on the displays.

“The Alpha lets us display whatever we want, whenever we want, however we want, so we’re able to visualize multiple data systems on the video wall simultaneously,” Grant said.

SOFTWARE INTERFACE

Operators interact with the system through the Alpha’s CineNet software interface — a multi-user platform accessible from their workstations. With CineNet, they can arrange content sources anywhere on the displays and freely scale, crop, and zoom into content sources in real-time. This functionality lets them adjust their view on the fly and investigate areas of interest in live data and camera feeds.

“One of our responsibilities is to monitor the safety of the employees working at our substation control yards,”

Grant said. “With CineNet, we can display live video feeds from those locations and actually zoom in on individuals to ensure their safety remotely.”

The team also leverages CineNet’s Layouts feature, which allows it to build and save arrangements of content sources to be displayed on the video wall during specific situations. Operators can create layouts on the live video wall or use CineNet’s Preview Canvas to build them “offline.” Once saved, their purpose-built layouts can be pushed instantly to the displays when needed.

“When executive management and asset managers walk into the operations center, we can give them an immediate overview of their portfolios on the video wall,” Grant said. “Or, if we have a customer coming in and we want to show them data and video that pertains to their assets, then we can pull up a layout that shows those specific content sources.”

The video wall system also plays an important role in alerting operators to critical alarms. If an event triggers Apex’s centralized alarming program, an alert not only displays on the alarm application itself, but also pops up on the video wall, ensuring that it cannot be missed.

When an alarm is received, operators can quickly push relevant video and data feeds to the video wall, where they can continue monitoring the situation in real-time as they coordinate their response.

THE BENEFITS

By using their CineMassive video wall system to visualize and manage their critical data, the Remote Operations Team is able to work efficiently and effectively to support Apex’s clean-energy assets.

Pleased with the outcome of the project, Grant said the video wall system is not just visually impressive, but also genuinely useful to the team.

“The data you see on the screens is a truly functional view,” he said. “Every single thing on the video wall adds value.”

Looking to the future, Grant said he is also happy to have implemented a visualization system that can scale and develop along with the organization itself.

“As Apex continues to acquire new assets and grow as an organization, the CineMassive system gives us the flexibility to evolve and expand the information we’re visualizing,” he said. ↵

Source: CineMassive

For more information, go to www.cinemassive.com

Altenex Revolutionizes Renewable Energy Purchasing with PowerBlok

Altenex, an Edison Energy company, announced the availability of PowerBlok™ — a first-of-its-kind renewable energy power purchase agreement (PPA) structure for commercial, industrial, and institutional electricity users.

PowerBlok is specifically designed to meet the needs of large and mid-size energy users by providing smaller and shorter duration renewable capacity offtake. The result is a fundamental shift in the way renewable energy is purchased and a potentially dramatic expansion of the United States' renewable energy market.

“Many organizations are attracted to wind and solar energy to decrease energy costs, reduce risk, and meet organizational sustainability goals, but until now, options for renewable energy purchasing have been limited to only the very largest energy users given the size and duration of the power purchase agreements,” said Allan Schurr, president of Edison Energy. “Through PowerBlok, Edison Energy is taking the next step in helping organizations with smaller energy demands benefit from purchasing off-site renewables. It’s a key product in our Energy-as-a-Service model, where we offer tailored solutions to meet each client’s unique needs.”

PowerBlok enables organizations of all sizes to purchase smaller blocks of power that are matched more closely to localized demand and have the flexibility to contract for power on the customer’s timeline,



PowerBlok is specifically designed to meet the needs of large and mid-size energy users by providing smaller and shorter duration renewable capacity offtake.

as opposed to being dependent on the renewable project’s construction and commercial operation schedule. Whereas a traditional corporate PPA might require a purchasing commitment of 100 MW and a 15-20 year contract term, PowerBlok are available in 5-10 MW increments and 10 year terms.

“We believe PowerBlok is an appealing solution for a much wider range of commercial and industrial companies and institutions such as universities, local governments, and healthcare systems, many of which have smaller energy loads than would readily align with a traditional PPA,” said Duncan McIntyre, president of Altenex. “Many of these organizations have

been unable to participate in the renewable energy market because they can’t meet the requirements of a traditional PPA. And the current site aggregation strategies have been challenging. PowerBlok changes that.”

“We’ve also seen interest from larger corporate customers that are attracted to the flexible offtake sizing and 10-year terms,” McIntyre said. “We think that this structure will bring new participants to the renewables market and give current participants another strategic option for this cost effective supply.” ↴

Source: Edison Energy

For more information, go to www.edisonenergy.com/c/blog

Fraunhofer IWES Develops Test Field for Offshore Wind Turbines

In early 2017, Fraunhofer IWES is set to receive its own test field right in front of its doors in Bremerhaven thanks to funding from the Federal Ministry for Economic Affairs and Energy (BMWi).

The centerpiece will be Adwen’s prototype of the AD 8-180, currently the largest wind turbine in the world with a rotor diameter of 180 meters. Construction work is already underway, and the first measurements and

tests will begin in spring. Comparison of field survey results with the data obtained on the large-scale test rigs will significantly expand the opportunities for further optimization of measuring and testing

methods as well as risk mitigation for new turbine designs.

Fraunhofer IWES's research project has a total budget of about 18.5 million euros and will make a considerable contribution to both quality assurance and cost savings in the wind-energy industry.

NEAR TEST RIG

The first prototype of Adwen's AD 8-180 offshore turbine won't be getting its feet wet at its new home on the quay following the industry's practices. The research wind turbine at the former airfield in Bremerhaven is just a stone's throw away from the Fraunhofer nacelle test rig — a stroke of luck for the Fraunhofer scientists, as Adwen's 8 MW turbine can be connected to the existing IWES infrastructure without any major complications.

"Research and development are key for further reducing the costs involved in expanding offshore wind energy," said Uwe Beckmeyer, Parliamentary State Secretary at the Federal Ministry for Economic Affairs and Energy. "The Federal Ministry for Economic Affairs and Energy is therefore providing funding worth 18.5 million euros for the testing ground for offshore installations in Bremerhaven. The aim is to test the operation of the

installations under real-life conditions and gather important data that can be used to set up the installations on an industrial scale. We are thus making a contribution to strengthening the role of offshore wind energy as an important pillar of the energy transition by handing over the official grant notification."

INFRASTRUCTURE SCHEME

Following the successful operation of the test rigs for rotor blades and nacelles, the turbine serving as a test platform represents a further important piece of the puzzle in the research institute's infrastructure scheme. The results of the test benches can now be compared systematically with the measurements taken in the field and the test methods optimized accordingly.

In particular, this makes it possible to develop and validate new methods for the performance of fault ride through (FRT) tests via coupling of the 44 MVA medium-voltage grid emulator already integrated in the nacelle test rig as well as to conduct high-resolution 3D wind field measurements for optimization of future offshore wind-farm layouts.

"The test field with the research turbine is the highly valuable completion of our unique testing infrastructure," said



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Andreas Reuter, managing director of Fraunhofer IWES. “It empowers us to find solutions for fundamental aspects concerning reliability and grid integration and contributes essentially to the future improvement of very large turbines.”

Certification tests in the field require the operation of the wind turbine at the whole spectrum of wind conditions. The conditions can, however, be reproduced exactly in the lab, making it possible to conduct certification measurements with a high degree of accuracy and reducing the time needed for the field-test campaign. The development risks for new turbine generations are minimized, and ultimately the energy production costs for wind energy are reduced by means of optimized and absolutely reliable design.

ADWEN COOPERATION

Fraunhofer IWES will develop its research on testing procedures in close cooperation with Adwen GmbH.

“We are very pleased to collaborate with the Fraunhofer IWES in our field tests of our prototype of the AD 8-180,” said Luis Álvarez, general manager of Adwen GmbH. “Already, the Fraunhofer IWES DyNaLab has allowed us to exhaustively validate our technology, resulting in great confidence about the optimal performance and reliability of the turbine. In this way, we can develop cutting edge technology with minimum risk. That is crucial to continue reducing the cost of offshore wind energy.”

Source: Fraunhofer IWES

For more information, go to www.windenergie.iwes.fraunhofer.de



Adwen's AD 8-180 is currently the largest wind turbine in the world with a rotor diameter of 180 meters. (Courtesy: Adwen GmbH)

New Thermal Imaging Camera Has Better Resolution, Expanded Lens Options

LumaSense Technologies Inc. introduces the MCL640 thermal imaging camera, the next generation in LumaSense's long line of infrared

thermal imagers designed specifically for industrial process control and monitoring. The MCL640 camera offers 640 x 480 resolution imaging

for long-wave infrared applications, producing superior images and temperature measurement (± 2 degrees C). The MCL640 thermal imager

resolution is four times greater than the camera it replaces, and it offers expanded lens options. These new features combine to provide users with better and more accurate temperature measurement accuracy to improve process control.

“With the improvements to the new camera, users can detect problems sooner and, when paired with the telephoto lens, at greater distances,” said Lenny Shaver, senior director of Product Management.

In addition to the new lenses, the MCL640 camera can be ordered with a number of environmental enclosures enabling accurate and safe operation in the harshest environments.

The new Vortex Cooled (VC) enclosure is a heavy-duty housing that can be used in a wide range of industrial applications including steel and paper mills, refineries, and automo-



The MCL640 thermal imaging camera. (Courtesy: LumaSense Technologies)

otive parts production. The enclosure accommodates an air purge for use in classified hazardous areas in petrochemical applications.

The MCL640 camera is also the imager used in the latest generation of ThermalSpection 724 cameras.

The ThermalSpection 724 system includes an IP66 enclosure with integrated cooling and heating for

operation outdoors, providing on-line monitoring of electric utility equipment and critical industrial infrastructure.

With an array of protective accessories, the MCL640 demonstrates LumaSense’s commitment to long-term trouble-free process monitoring in harsh, industrial applications.

The next generation MCL640 thermal imager is compatible with process control solutions offered by LumaSense, including systems for precisely controlling the temperature of metals during processing, remote petrochemical equipment monitoring, and on-line high-voltage electrical equipment monitoring. ✎

Source: LumaSense Technologies Inc.

For more information, go to www.lumasense.com

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