



Big-Name Firms Signal 'Industrial' Revolution For Wind

Major corporations, such as Google and Walmart, are beginning to seek wind energy's economic and environmental benefits.

BY MARK DEL FRANCO

Although utilities make up the vast majority of wind energy off-takers, there is a growing trend among major corporations, such as Google and Walmart, to purchase wind energy directly from developers or to host wind turbines on company sites.

The American Wind Energy Association (AWEA) recently reported that new wind power purchasers included at least 18 industrial buyers, 11 schools and universities, and eight towns or cities. In addition to Google and Walmart, industrial purchasers of wind power include Anheuser-Busch, Nestle Corp. and Safeway.

According to AWEA, 174 MW of wind power was purchased by non-utility customers last year. While the overall amount is miniscule compared to the quantity purchased by utilities, there are a few reasons why this development is worth watching. For starters, it could open up another pool of potential buyers for which wind developers could negotiate power purchase agreements (PPAs). Further, it could present opportunities for procurement in states that may have abundant wind resources but not necessarily the regulatory trigger — such as a renewable portfolio standard — to procure wind.

So, what is behind the procurement push? For companies like Google, purchasing wind energy provides cost savings, reduces emissions and demonstrates environmental stewardship. The Mountain View, Calif.-based search-engine giant has been a pioneer among corporations seeking the cost and environmental benefits of using wind power. Google began purchasing wind energy in 2010 to power its Midwestern data centers and says wind energy procurement has helped the company achieve carbon neutrality.

Google says its data centers use only 50% of the energy that many other data centers consume, making them some of the most efficient in the world. This energy efficiency has saved the company more than a \$1 billion dollars while lessening its

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20 SHADY OAKS WIND FARM

Turbine supplier Goldwind USA used the 109.5 MW Shady Oaks wind project, located west of Chicago, to demonstrate the reliability and effectiveness of its parent company's permanent-magnet, direct-drive turbine technology. The wind farm (pictured at left) was sold to Algonquin Power Co. last year.

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Siemens Machine Receives Certification

GL Renewables Certification (GL RC) has awarded Siemens Wind Power offshore prototype certification for the testing of its new 6 MW offshore wind turbine at DONG Energy's Gunfleet Sands III demonstration project, located in the U.K.

This will be the first offshore test of this new wind turbine. The prototype certificate confirms the wind turbine design's compliance with the

requirements of the GL guideline for offshore wind turbines, edition 2005.

Siemens developed the SWT-6.0 turbine specifically for the demanding conditions in offshore locations. The first unit, which features a 120-meter rotor, was installed in 2011 at the Hovorsø test site in Denmark. The turbine has now operated for well over a year, setting new production records during testing, Siemens notes.

The second 6 MW prototype, which has a 154-meter rotor, was in-

stalled in 2012 at the new national test center in Osterild, Denmark. In January, Siemens installed two additional SWT-6.0 prototypes at DONG Energy's demonstration project Gunfleet Sands III. Both machines for this project are equipped with the 120-meter rotor.

GL RC has also been contracted to carry out the type certification of the offshore turbine and is currently involved in the design evaluation process. Type certification is required in many countries around the world and is often a condition necessary to apply

for international wind power plant tenders.

For more information, visit siemens.com.

Blade Product Gains Approval

Germanischer Lloyd (GL) has approved 3B's fiberglass company's HiPer-tex W2000 direct roving product, which is used for wind turbine blade applications.

This new certification complements the recent GL approval for SE2020 single-end reinforcements. Both products feature proprietary sizings developed for use with specific resin systems (epoxy), principally for the manufacture of non-crimped fabrics and FRP laminates for applications in, but not exclusively, wind turbine blades.

For more information, visit 3b-fiberglass.com.

New Testing System Released

SAKOR Technologies Inc., a manufacturer of automated test instrumentation systems, has released its AccuDyne AC dynamometer system for wind power testing applications.

The system can be used by multiple engineering groups to test and verify designs, as well as to perform quality-control testing after manufacturing.

According to SAKOR, the AccuDyne dynamometer system is capable of testing both active and passive wind power driveline components, and also can be used to test wind turbines and their associated blade pitch control motors, generators, wind-sensing devices and motors, and transmissions. In addition, the system can be used to test water coolant pumps and other ancillary components.

Another function of the system is its ability to test groups of components simultaneously to see how they work together. The AccuDyne can be used to simulate the generator itself during early design stages, before a physical generator or gearbox unit exists, SAKOR explains.

Other features of the system include the ability to simulate inertia to test a wide range of large and small loads; torque pulse simulation of components that exhibit cogging

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(such as permanent magnet generators); and noise, vibration and harshness testing.

The AccuDyne comes packaged with the DynoLab EM test cell control system and is capable of measuring all mechanical and electrical wind power system components and simulating real-world conditions. The system is available in sizes ranging from 3 kW to 10 MW.

For more information, visit sakot.com.

Romax Unveils Maintenance Plan

Romax Technology, a provider of engineering services and technology for the wind energy industry, has released its InSight wind turbine health management platform.

The company says the platform is designed to enable wind farm owners and operators to combine the data from wind turbine condition-monitoring systems and supervisory control and data acquisition systems onto a single system. InSight allows users to visualize the health of individual wind turbines and the entire fleet.

According to Romax, the product was designed to respond to the need for predictive maintenance as an increasing number of wind turbines come out of warranty.

For more information, visit romaxtech.com.

Turbine Design Software Updated

GI. Garrad Hassan has released Version 4.4 of Bladed, an integrated software package for the design and certification of onshore and offshore wind turbines.

Version 4.4 includes many new features, including a new pitch actuator model with additional functionality, a new external controller interface, improved moorings capability for floating turbines and several updates to the hardware test module.

The new pitch actuator model includes such features as set-point trajectory planning, limit switches, end stops and variable torque limits. A new interactive user interface screen also provides a clearer description of the model and options available.

In addition, Version 4.4 introduces a brand new interface between the simulation code and the external controller, making it more straightforward and clearer to write controllers that utilize a large number of variables and options, according to GI. Garrad Hassan.

The floating capability has also been enhanced with a tool that allows users to auto-populate the stiffness matrix that represents a catenary mooring line from some basic line properties.

For more information, visit g GarradHassan.com.

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