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Wind Energy Manufacturing's Next Act

« Back

by Rachel Duran

The wind energy industry in America will continue to grow – the question is will it grow c

The greatest challenge to the industry's growth lies with the transmission infrastructure. lines will affect the development of wind farms,” says Ed McCallum, senior principal, Mc location firm based in Greenville, S.C. McCallum's firm has assisted in the site selection p manufacturers of nacelle generating units. McCallum also adds: “And, what type of techn power is regulated, it is clean, it is consistent, and can it be stored?”

One transmission infrastructure initiative is called the Mountain States Transmission Inter transmission highway that will export wind energy from Montana to the Southwest and W is spearheaded by NorthWestern Energy, an investor-owned utility that provides services portion of South Dakota; a portion of Nebraska; and Yellowstone National Park in Wyomin wind energy projects to be developed in Montana and will give the companies an opportu Rick Edwards, director of key accounts and economic development, NorthWestern Energy

Moving west to Adams County, Wash., located in the southeastern region of the state, ass helped the county attract wind farm developers, says Roger Krug, analyst, Adams County transmission line proposals in the talking stages.” County officials have been working wtl as it files for permits, intends to build a number of 1.8 megawatt wind turbines on the w number of wind farm developers are researching the county's business advantages.

In other transmission infrastructure activities, officials from the Southwest Power Pool ar superhighway for extra high-voltage lines. The lines would connect tens of thousands of r grid. The Southwest Power Pool, based in Little Rock, Ark., consists of members from nin transmission lines. In regard to wind energy, the Southwest Power Pool has almost 3,000 than 40,000 megawatts proposed and under study. A challenge comes in the fact that the for 2009 would be 50,000 megawatts.

Additional challenges to transmission infrastructure include those from property owners a energy farms can coexist with agriculture activities and wildlife.

And, don't forget the fact that the wind blows intermittently – it may be stronger on one may blow more strongly at night than during the day, when the energy demand would be

To counter such challenges, NorthWestern Energy is constructing the Mill Creek generatio located west of Butte, Mont., which will be primarily used as a regulating source so that something to take its place,” Edwards says.

The Present

The wind energy generation industry has grown at a rate of 25 percent to 30 percent per notes. In 2009, as of the third quarter, more than 5,800 megawatts of wind power capaci States, bringing the total installed capacity to more than 31,000 megawatts, according to in October by the American Wind Energy Association. More than 5,000 megawatts are unc completion this year or next year. While the wind energy sector can sometimes be viewe advanced and sophisticated industry, which has been driven by European companies. In A has been underway with manufacturing nacelles for 10 years to 15 years, McCallum notes nacelles in the country, even though its market share is falling, which demonstrates the g company has seen an increase in sales every year.

With industry growth, comes the increases in the size of the components required to generate more recently Chinese firms interested in the U.S. marketplace, sites located outside of the region are beginning to emerge. Traditionally, the Midwest has been a leading destination because of the energy potential so most manufacturers have located close to where the final wind farms

However, a different type of wind energy turbines are taking root in densely populated areas. Small-scale wind turbines (10-foot-to-12 feet high) on the top of tall buildings, five stories high, provide power to the buildings, whereas traditional wind turbines are designed to generate power. Commissioner of planning and economic development, Columbia County, N.Y. He is also the CEO of Economic Development Corp.

Columbia County is located two hours from New York City, "and there is no other place like it than New York City," Flood says. This proximity, along with the risk taking local economic development, was attractive to AeroCity Windpower. "We have provided incentives in exchange for when it starts manufacturing in a couple of years that it locates in our county design for the prototype wind turbines with the assistance of a \$1 million grant awarded by the Economic Development Authority.

AeroCity's turbines feature cylinder shaped blades that allow for continuous movement. The architects in regard to designing buildings that will accelerate the wind over them. "The design of the building accelerates the wind over it, it will power these wind turbines, has developed an inexpensive gauge to measure whether a tall building has the necessary conditions for the installation of rooftop turbines.

Where Wind Energy Is Headed

As the wind energy generation industry expands, opportunities open up for areas that do not have as many bearings and gears, don't have to be located in the Midwest," McCallum says. "That is about any state can benefit from a piece of this, not all of it, but a part of it."

And it is important that the supplier base for wind energy activities ramps up quickly to solve bottlenecks in the industry, in regard to OEMs, is with the bearings, gear boxes and the nacelles. "We can't seem to get them manufactured fast enough. Fifty percent to 60 percent of the nacelle components which creates a large opportunity."

Auto sector suppliers are making the transition to serve the wind energy industry's needs. It is apparent that the quality standards for the industries are quite different. For example, in the aerospace industry, while there are opportunities for auto suppliers in the industry, wind energy activities are different. "because if one of these gear boxes blows up, the entire nacelle blows up," says McCallum. "Defense firms are also looking at industry diversity because some defense contract amounts have

These opportunities are driving innovation. In regard to the next phase of development for wind energy, a compelling question arises: is there a new way to manufacture wind towers and nacelles? Larger nacelles are needed in order to achieve greater economies of scale. "The 1.6 megawatt units are relatively large, they are getting bigger," McCallum says. This creates a challenge for the industry in that transporting the components using the highway and rail systems. "Can they be made into smaller units?" McCallum asks

Another question is: where will the workforce come from? Compared to Europe, where through several decades, the training for workforce skills development in the United States is relatively slow. "putting up the sheer numbers of employees that are needed with these skills," McCallum says. "such as in Iowa, Texas and Arkansas. It has not caught on in other areas, but it is going to

In Duluth, Minn., the Duluth Seaway Port Authority provides wind energy companies with nacelle separation. A staff of highly skilled workers is also available to repair and service nacelles that very few ports do," says Adolph Ojard, executive director of the authority. "They are and several have been trained by manufacturers to perform certain duties."

This port authority owns the Clure Public Marine Terminal. Lake Superior Warehousing Co. The terminal is open to international navigation nine months out of the year. Its geographic location allows for wind farm developments in locations as far away as western Montana, as far south as Oklahoma. Canada, Ojard notes. International wind turbine manufacturers use the port for shipment of nacelles. Systems A/S, GE, Gamesa Technology Corp., and Acciona Energy, among others.

"One of the biggest challenges wind turbine shippers have is finding enough lay down area. They are fortunate to have more than 50 acres of lay down area, which is both truck and rail. The Port Authority has a cooperative relationship with Minnesota DOT, which allows for an exchange of components located on port property.

The ability to turn wind energy generation projects around quickly is important to this growing market. The key to establishing thriving operations will be the ability to

transmission lines that are prepared to handle the load. The required infrastructure or la grows.

For complete details about the organizations featured in this article, visit:

Adams County (Wash.), www.co.adams.wa.us

American Wind Energy Association, www.awea.org

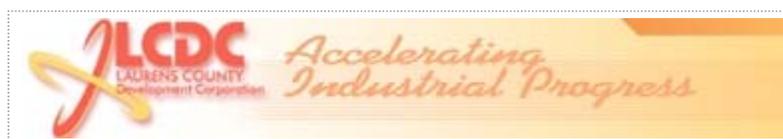
Duluth (Minn.) Seaway Port Authority, www.duluthport.com

Columbia (N.Y.) Hudson Partnership., www.chpartnership.com

McCallum Sweeney Consulting, Inc., www.mccallumsweeney.com

NorthWestern Energy, www.northwesternenergy.com

Southwest Power Pool, www.spp.org



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