



Photo courtesy of Dennis Schwartz/enXco

Despite Uncertainty, Foreign Investors Eye U.S. Market

Although federal policy remains in flux, the U.S. wind energy market will likely prove too big for international investors to ignore.

BY ALAN CLAUS ANDERSON & J. BRITTON GIBSON

The U.S. has sizable wind resources; however, only 2% of the nation's total electricity generation came from wind energy sources in 2010, according to the U.S. Energy Information Administration. There is great potential for additional growth in the U.S. wind energy market, and many international investors continue to evaluate and make investments in the country.

New investments in renewable generating capacity in the U.S. have been growing in recent years, and investments in U.S. wind power are leading this growth. In 2011, the U.S. saw a total of 6.8 GW of new wind power capacity installed, bringing the cumulative total to almost 47 GW.

According to the American Wind Energy Association, the U.S. wind industry added over 35% of new wind capacity over the past four years, which was more than nuclear and coal plants combined and second only to natural-gas-fired plants. Currently, there are 38 states in the U.S. with utility-scale wind installations and 14 states with more than 1 GW of installed wind capacity.

The European country with the most installed wind generation is Germany, which has approximately 29 GW of installed capacity. According to the German Association of Energy and Water Industries, wind energy accounts for more than 7.5% of Germany's electricity portfolio.

In 2011, 9.6 GW of new wind energy capacity was installed in Europe, bringing the region's total installed wind capacity to 93 GW – enough to supply 6.3% of the continent's electricity needs.

However, excluding Germany and Spain, which are the two largest contributors to Europe's wind totals, the U.S. has more installed wind capacity than the remaining European countries combined, according to the Global Wind Energy Council's 2011 statistics. If the U.S. achieves the goal of 20% wind energy by 2030, the opportunities for investment and

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During wind farm construction, most crews learn to expect the unexpected from Mother Nature. That sentiment certainly holds true for Mortenson Construction, the engineering, procurement and construction contractor on the Lakefield Wind Project, enXco's 205.5 MW wind farm located in southern Minnesota (pictured at left). Not only did the construction workers endure swamp-like conditions, but they also braved frigid temperatures that made the mercury plunge below zero.

Industry At Large: Transportation

crepancies, with some carriers better equipped than others. Carriers are also more likely to factor in added challenges and unforeseen variables with longer blades.

Major cost deviations can occur when longer blades are subjected to police escorts and more costly state permits. In California, for example, the California Highway Patrol (CHP) is regularly required to staff large-blade transport operations with officers. This can add substantial cost not just for added labor, but also for potential delays incurred when a carrier may need to cope with limited availability of CHP officers who cannot be reserved ahead of time. Wind turbine OEMs generally pay for transport. Delays in predetermined delivery dates may result in penalties within the turbine supply agreement that must be borne by the turbine OEM.

The higher shipping costs for 55-meter blades can be rationalized when taking into account the use of larger wind turbines and adjusting for a fixed wind power plant size. Assuming a 90 MW wind plant has 2 MW

units (135 blades x 45 meters) or 3 MW units (90 blades x 55 meters), the logistics cost drops to a 27% premium because of fewer turbines.

Fewer turbine sites means lower balance-of-plant expenditure, which will result in further savings in overall project costs. However, the 27% delta suggests shipping costs for larger blades will remain a significant concern for the U.S. wind market if blades above 50 meters enter the market faster than trucking fleets can cost-effectively ramp up their equipment.

Turbine OEMs are cognizant of the issue and are moving toward the deployment of segmented blades, such as Gamesa's G10x turbine model, or even more novel approaches, such as Modular Wind's sectional blade applying aerospace-style stepped lap truss joints. **SNP**

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growth in the nation's wind market are enormous.

Lessons learned

The U.S. renewable energy market is large and growing, and it has significant room for new investment opportunities, even with the current uncertainties regarding whether the production tax credit (PTC) will be extended. Because of this, many international investors continue to view the U.S. renewable energy market as fertile ground for market entry or business expansion.

In recent years, many of Europe's largest electric utilities have made significant investments in the U.S. market. When Iberdrola acquired ScottishPower in 2007, among the companies in ScottishPower's portfolio was U.S. utility PPM Energy.

Also in 2007, Germany's E.ON purchased Airtricity's North American wind assets in a \$1.4 billion deal, and Portugal's Energias de Portugal SA (EDP) purchased Horizon Wind Energy from Goldman Sachs in a

deal worth \$2.2 billion, giving EDP a strong position in the U.S. wind market. Enel North America, a subsidiary of Italy's Enel SpA, has been very active in the U.S. market and has a presence in many states, developing and operating a portfolio of renewable energy assets. In recent years, enXco, a subsidiary of France's EDF Group, has developed, constructed, owned and operated wind projects throughout the U.S.

A lot can be learned about the U.S. wind market by looking at what happened to European developers and manufacturers when they entered the U.S. market. Although each of the segments within the wind industry has its nuances and each company has its own experience, there is common ground.

However, many European wind developers have found that there are numerous challenging, and sometimes unexpected, differences between the U.S. wind energy market and the wind energy markets in Europe. For example, in European countries with a feed-in tariff (FIT), the acquisition and development strategies for wind

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projects are generally centered on the search for the best wind resource.

In the U.S., however, there are many other factors that often play a more important role in whether a wind project will be successful. These factors include power prices, the existence of state renewable portfolio standards (RPS) and transmission availability.

After analyzing the various key market drivers – and because most U.S. wind projects require being selected by a utility in a competitive request for proposals process – European developers have found that it is very important to establish and maintain strong relationships with the utilities that will likely buy the wind power produced by their projects.

Many developers build out their development team with members that are experienced with U.S. utilities in order to help build relationships and trust for a successful project. Upon entry into the U.S. market, many European developers have been surprised to learn that there are more than 3,000 electric utilities throughout the U.S. and a variety of types, including investor-owned utilities, cooperative utilities, federal utilities, and many other entities such as retail power marketers.

Evaluating this variety and extensive number of electric utilities in the U.S., as well as determining which of them are likely to purchase wind power, presents challenges to wind developers when compared to countries such as Germany, which has four main electric utilities and access to the electrical grid through a FIT.

Furthermore, in comparison to the development of wind projects in Europe, the general consensus among European developers and investors is that project development costs for wind projects are significantly higher in the U.S. This is generally due to the fact that more development work – including market analysis, transmission, environmental and interconnection studies – must be completed before the project is ready to compete for a power purchase agreement through a competitive process.

Many European developers also have found that the structure and key issues of turbine supply agreements (even for turbines produced by European manufacturers) in the U.S. are quite different from Europe and that it can be difficult to compare prices because the manufacturers offer different scopes of supply and service in the U.S.

Because the wind energy market

in Europe is more mature than in the U.S., many purchasers of wind turbines in Europe do not require the same level of service and maintenance as is required in the U.S. or are able to obtain better terms and more competitive pricing from a broader supply chain that exists abroad. Also, due to long development times in the U.S. and the need to secure turbine supply at very early stages of development,

new turbine technologies are sometimes slower to reach the U.S.

Long-term policy

The U.S. does not have a national energy policy, nor does it have a federal renewable energy standard, and neither is expected any time soon. Other than federal tax incentives, most of the policies that support renewable energy development in the

U.S. are found at the state level in the form of RPS mandates.

The U.S. wind market is also currently facing a significant challenge in Congress. Many wind energy developers have put their development projects on hold as they await to see whether Congress will extend the PTC, which is set to expire at the end of this year for wind energy projects. The general sentiment among wind

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developers in the U.S. is that most wind projects will be stalled until or unless the PTC is extended.

Given that the construction period for most utility-scale wind projects in the U.S. is nine to 12 months, the current delay in extending the PTC will likely impact projects into 2013 and possibly beyond. This interruption in development not only affects wind developers, but also has a significant impact on all industry participants, both in the U.S. and abroad, including turbine manufacturers, component manufacturers, structural steel suppliers, construction companies and other service providers.

Unfortunately, this wait-and-see approach is not new for the U.S. wind energy market, and delays in extending the PTC have impacted wind development since the incentive was first enacted in 1992. In the years following previous expirations of the PTC, new wind energy installations had dropped between 73% and 93%. However, in each case where the PTC had expired or was on the brink of expiration, the incentive was later extended and the level of wind energy development and

investment in the U.S. was restored and eventually strengthened.

The wind market in the U.S. has been later to develop than in many other areas of the world, particularly Europe. Because of this, the U.S. has achieved only a fraction of its wind energy potential, but the country's wind energy market remains well positioned for further growth and investment opportunities.

Although it is likely that international investment in the U.S. wind market will slow down as a result of the possible expiration of the PTC, the U.S. market remains one of the most important in the world, with hundreds of thousands of megawatts of new wind energy generation likely coming to fruition in the years to come.

Judging by recent events, the next wave of foreign investment may already be forming. Large European players, such as RWE Innogy GmbH, the renewable development subsidiary of German utility giant RWE AG, are looking at the U.S. wind market.

RWE Innogy has approximately 1.6 GW of installed onshore wind projects in Europe and has announced plans

to invest approximately €6 billion in renewable projects over the next four years. Although RWE Innogy has expressed a clear intention that its investments in new wind projects will continue in Europe, it intends to closely follow the U.S. market.

And Chinese companies are also continuing to look to take advantage of investment opportunities in the U.S. wind market. Chinese investment likely will be a key factor in the continued growth of the wind industry in the U.S. For example, Goldwind USA, a subsidiary of Xinjiang Goldwind Science & Technology Co. Ltd., recently purchased a 109.5 MW wind project in Illinois from Irish developer Mainstream Renewable Power. This project will utilize Goldwind's 1.5 MW direct-drive turbines.

In February, the State Grid Corporation of China (SGCC) was reportedly in talks with AES Corp. to acquire a controlling stake in the company's U.S. wind power business. The deal would give the SGCC an 80% interest in AES' U.S. wind power business, including wind energy assets totaling around 1.1 GW. These assets are estimated to

total approximately \$1.65 billion.

How international investors position themselves during this likely downturn in U.S. wind installations will be a major factor in determining the level of success that these companies will achieve when the fast pace of U.S. wind installations resumes. Those investors that wait to invest or retrench and decrease their investments in the U.S. wind market during these times likely will find themselves behind and will have to spend more money to try to catch up with opportunistic investors that continue their development of U.S. projects.

Due to its great potential for growth, the U.S. wind energy market is simply too big for international investors to ignore. **SNP**

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