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INDUSTRY AT LARGE

RECORD WIND PROJECT CONSTRUCTION HEATS UP IN A SUMMER SURGE

Texas continues to ride high on CREZ transmission expansion as the entire wind industry scrambles to install 13 GW in advance of PTC expiry

By Carl Levesque
American Wind Energy Association

Wind energy construction has a seasonal element to it. The summertime may be when many industries ease up on the gas pedal a bit, but not so with wind project installation. That's when things really start revving up, and in some years, they don't ease up until the holidays are concluding.

Historically, some of that has been policy driven, particularly the end-of-year push that happens during some years as the holiday season approaches. The summertime ramp up, meanwhile, mirrors other industries that involve construction. The seasons of favorable weather are when projects get built, and industry news always seems to become more active at this time.

A record wind energy construction boom is happening at the moment, with 13,000-plus MW under construction as of the end of the first quarter. So it's no surprise that this year is proving no different in terms of the summer buzzing with activity.

Underlying trends

During a surge in project activity, it's interesting to occasionally pause and look under the hood to identify some trends that go along with the boom. First, the obvious: Why all the construction?

The biggest reason is obvious: The Production Tax Credit (PTC) for wind energy, a policy mechanism notorious for its short-term extensions that create a boom-bust cycle in the industry. The tax credit expired at the end of 2013, and to qualify projects had to begin construction before it expired.

That's the obvious trend, one with which industry observers are all too familiar. Now let's zero in on a specific market. Texas is the No. 1 wind power state, and has been for years, thanks to its excellent wind resources and stable policies.

Around the beginning of this century, Texas instituted a renewable portfolio standard that catapulted the industry forward. And then in the mid-2000s, it tackled a major issue head-on, and it's bearing fruit today.

CREZ spurs activity

Texas isn't just the No. 1 wind state today; it will be for years to come. That's thanks in large part to the state's highly effective Competitive Renewable Energy Zone (CREZ) transmission lines and the policies that made them possible.

Back in the mid-2000s, when the CREZ policy was just being developed, the industry referred to the challenge as a quintessential chicken-or-the-egg problem: Transmission providers wouldn't build lines where there were no generators, and generators (i.e., wind farm developers) couldn't build projects with no transmission to get their product to market. The CREZ policy solved that by pro-actively planning transmission lines to connect wind resources to the grid and then broadly allocating the cost of those lines, consistent with how Texas has always paid for transmission for all energy sources. A lack of transmission, driven by a lack of effective policies to enable transmission development, persists in many parts of the country, though several regions have followed Texas's lead in solving the problem.

Reaping the rewards

In Texas, the foresight of the policy is paying dividends. The lines were completed earlier this year, spurring a wind boom in the state. More than 8,850 MW of proposed wind projects have signed

agreements to connect to the ERCOT grid, which if all completed would bring it to over 20,000 MW of installed wind capacity. This couldn't come at a better time for the state, which can use the new wind generation to comply with pending EPA regulations on carbon emissions and the new transmission to meet new reliability needs spurred by growing electricity demand.

The first part of July alone saw a flurry of news about wind energy projects that are taking advantage of the new CREZ lines. GE Energy Financinal Services and E.ON Climate & Renewables North America said they are forming an investment partnership to own and operate Grandview Phase 1, a 211-MW, GE-powered wind farm under construction in the Texas Panhandle. The wind farm, located 26 miles east of Amarillo, will feed electricity into the new CREZ lines.

Also in the early part of the month, EDF Renewable Energy's 161-MW Spinning Spur 2 Wind Project in Texas reached commercial operation, while the company also announced the close of structured equity financing from GE Energy Financial Services and MUFG Union Bank, N.A. Once again, the CREZ system is the conduit for the energy produced at the wind farm.

Finally, in the same time frame, Westerly Wind, LLC, sold 100 percent of the ownership interests in the South Plains Wind Project, a facility in the late stages of development, to First Wind so that it can bring the project across the finish line. The South Plains Wind Project is in Floyd County, northeast of Lubbock, Texas.

How will the energy be shipped off to load centers? You guessed it — the CREZ system.

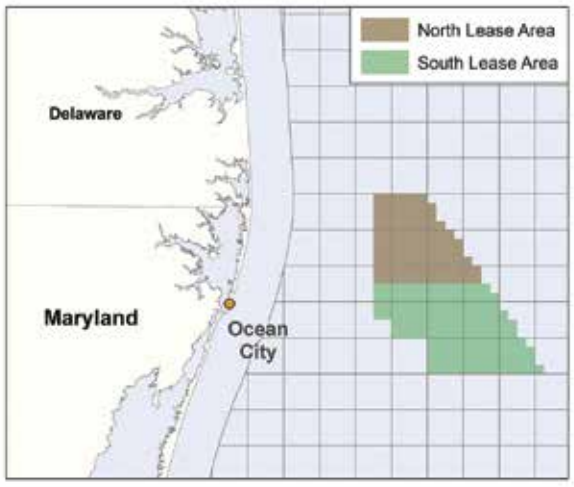
Department of the Interior sets auction for offshore Maryland Wind Energy Area

The Department of the Interior announced in early July that nearly 80,000 acres offshore Maryland will be offered for commercial wind energy development in an August 19, 2014 competitive lease sale.

"Maryland is a leading force for building a clean and sustainable energy future," said Jewell. "Thanks to Governor O'Malley's leadership and significant stakeholder involvement through BOEM's Maryland Intergovernmental Renewable Energy Task Force, we have reached another milestone as we strengthen our nation's foothold in the new energy frontier."

Sixteen companies have qualified to participate in the auction for the Maryland Wind Energy Area. According to analysis prepared by the Department of Energy's National Renewable Energy Laboratory, if fully developed, the Maryland Wind Energy Area could support between 850 and 1450 megawatts of commercial wind generation, enough electricity to power 300,000 homes.

Under the terms of the Final Sale Notice (FSN), which were published in the Federal Register on July 3, the Maryland Wind Energy Area will be auctioned as two leases, referred to as the North Lease Area (32,737 acres) and the South Lease Area (46,970 acres). The Wind Energy Area is located about 10 nautical miles off the coast of Ocean City, Maryland. The area available for auction is identical to the one announced in the Proposed Sale Notice that BOEM published in the Federal Register on Dec. 18, 2013, which was followed by a 60-day public comment period.



New Jersey offshore leases proposed

At 344,000 acres, site has the potential to support 3.4 GW of generation

Secretary of the Interior Sally Jewell and Bureau of Ocean Energy Management Acting Director Walter Cruickshank announced the proposed sale of leases for nearly 344,000 acres offshore New Jersey for commercial wind energy leasing.

"Responsible offshore wind energy development has the potential to create jobs, expand our domestic clean energy resources, and strengthen our nation's economic competitiveness," said Jewell. "Today's announcement is a testament to the true collaboration and commitment from New Jersey for harnessing clean energy, and it reflects extensive consultations with a number of local communities and stakeholders to minimize conflicts and bring clarity and certainty to potential wind energy developers. We are another important step closer to harnessing the enormous potential of wind energy off New Jersey's shores — a resource that could power more than one million homes."

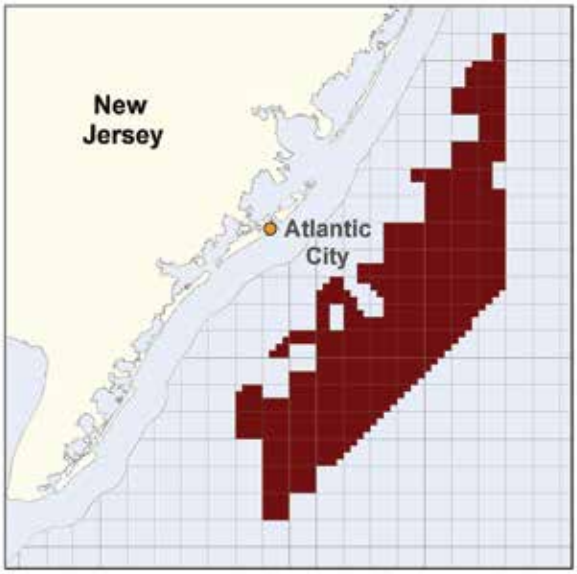
"New Jersey has the offshore wind resources to be a national leader in clean energy generation and this announcement is an important step in that direction," said U.S. Senator Robert Menendez (D-NJ). "A robust offshore wind industry in New Jersey will mean jobs and less pollution. This is truly welcome news."

BOEM identified the New Jersey Wind Energy Area in consultation with members of its New Jersey Intergovernmental Renewable Energy Task Force, which includes federal, state, tribal, and local government partners. BOEM proposes to auction the Wind Energy Area as two leases: the South Lease Area (160,480 acres) and the North Lease Area (183,353 acres).

The Wind Energy Area begins about seven nautical miles off the coast from Atlantic City. Based on an analysis prepared for BOEM by the Department of Energy's National Renewable Energy Laboratory, the New Jersey Wind Energy Area as currently delineated, if fully developed, may be able to support up to 3,400 MW of commercial wind generation, enough to power about 1.2 million homes.

To date, BOEM has awarded five commercial wind energy leases off the Atlantic coast: two non-competitive leases (Cape Wind in Nantucket Sound off Massachusetts and an area off Delaware) and three competitive leases (two offshore Massachusetts-Rhode Island and another offshore Virginia).

Competitive lease sales have generated about $5.4 million in high bids for about 277,550 acres in federal waters. BOEM expects to hold additional competitive auctions for wind energy areas offshore Maryland in August and Massachusetts in the coming year.



The Proposed Sale Notice will include a 60-day public comment period ending on September 19, 2014. Comments received or postmarked by that date will be made available to the public and considered before the publication of the Final Sale Notice, which will announce the time and date of the lease sale.

The Proposed Sale Notice also provides detailed information concerning the areas available for leasing, the proposed lease provisions and conditions, auction details (e.g., criteria for evaluating competing bids and award procedures) and lease execution.

The end of the comment period also serves as the deadline for any companies wishing to participate in the lease sale to submit their qualification package, if they have not already done so. To be eligible to participate in the lease sale, each bidder must have been notified by BOEM that it is legally, technically and financially qualified by the time the Final Sale Notice is published. The Proposed Sale Notice provides additional information about qualification requirements.

Companies planning to submit a qualification package are strongly encouraged to submit as early as possible during the comment period to ensure adequate time for processing.

Microsoft signs 20-year power purchase agreement with EDF-RE for 175 MW Pilot Hill project in Illinois

Software and technology giant to power Chigaco datacenter with wind energy

EDF Renewable Energy has secured a 96 percent stake in the 175 MW Pilot Hill Wind Project (formerly known as K4) from Orion Energy Group LLC (Orion) and Vision Energy LLC. The project benefits from a 20-year Power Purchase Agreement (PPA) with Microsoft Corporation.

Pilot Hill Wind Project, located 60 miles southwest of Chicago, Illinois, in Kankakee and Iroquois counties, will consist of wind turbines supplied by GE and Vestas. The wind project is situated on the same electric grid that powers Microsoft's Chicago area datacenter. Physical construction on site is to commence shortly with commercial operation anticipated during the first quarter of 2015.

"EDF Renewable Energy is pleased to have the opportunity to partner with Microsoft on the Pilot Hill Wind Project, as well as to have closed our first transaction with Orion Energy Group and Vision Energy," commented Ryan Pfaff, Executive Vice President for EDF Renewable Energy.

He further added, "The participation of companies like Microsoft in renewable energy generation projects points to a growing trend of 'blue chip' organizations taking charge of their energy destiny by procuring directly, with a focus on both reducing their carbon footprint and controlling long-term energy costs. It is encouraging to see leading corporations investing in the US wind sector based not only on their desire to positively impact the environment, but also because it simply makes good business sense, as the cost of wind energy continues to decline, and with the support provided by the Production Tax Credit."

"The Pilot Hill Wind Project is important to Microsoft because it helps solidify our commitment to taking significant action to shape our energy future by developing clean, low-cost sources to meet our energy needs," said Brian Janous, Director of Energy Strategy for Microsoft. "Microsoft is focused on transforming the energy supply chain for cloud services from the power plant to the chip. Long term commitments like Pilot Hill help ensure a cleaner grid to supply energy to our datacenters."

"Orion's partnership with Microsoft and EDF Renewable Energy is a tremendous step forward for the entire project team that has worked tirelessly to make the first phase of the Pilot Hill Wind project a reality," said Ryan McGraw, President of Orion Energy Group LLC.

Report: Global wind power capacity expected to reach 678 GW by 2020, more than double capacity in 2013

Despite an overall slump in installations in 2013, the global cumulative wind power capacity will more than double from 319.6 GW at the end of 2013 to 678.5 GW by 2020, according to a report by GlobalData.

This latest report states that China, the largest single wind power market responsible for 45 percent of total global annual capacity additions in 2013, is expected to have a cumulative wind capacity of 239.7 GW by 2020. China overtook the U.S. as the leading market for installations in 2010, when it added a massive 18.9 GW of wind capacity.

"China doubled its cumulative wind capacity every year from 2006 to 2009 and has continued to grow significantly since then," said GlobalData alternative energy analyst Harshavardhan Reddy Nagatham.

Supportive government policies, such as an attractive concessional program and the availability of low-cost financing from banks, have been fundamental to China's success. "While China will continue to be the largest global wind power market through to 2020, growth for the forecast period will be slow due to a large installation base," Nagatham said.

The report also states that the U.S. will remain the second largest global wind power market in terms of cumulative installed capacity, increasing from 68.9 GW in 2014 to 104.1 GW in 2020. This will largely be driven by renewable energy targets in several states, such as Alaska's aim to reach 50 percent renewable power generation and Texas' mandate to achieve 10 GW of renewable capacity, both by 2025.

Nagatham concludes: "The slump in 2013 was largely a product of a decrease in installations in the US and Spain. While there are likely to be further slight falls in annual capacity additions in 2015 and 2016, overall industry growth will not be affected as global annual capacity additions are expected to exceed 60 GW by 2020."

GlobalData's report "Wind Power, Update 2014 – Global Market Size, Average Price, Competitive Landscape, and Key Country Analysis to 2020," provides detailed insights into the global wind power market.

— Source: GlobalData

GE to supply 94 MW for wind farm in the Scottish Highlands

Further advancing the growth of renewable energy throughout the United Kingdom, GE will supply SSE Renewables with 33 GE 2.85-100 wind turbines for the Dunmaglass Wind Farm, located near Inverness, Scotland.

GE specially designed these wind turbines for the project with a 70-meter tower so they meet the associated planning conditions that require a maximum tip height of 120 meters.

The 33 wind turbines on the Dunmaglass Wind Farm will result in an installed capacity of 94 MW, which will contribute to Scotland meeting its renewable energy targets.

SSE acquired the Dunmaglass Wind Farm from Renewable Energy Systems Group in May 2013. The wind farm is located on Dunmaglass Estate, near Loch Mhor, in the Monadhliath Mountains.

The Scottish government's target for renewable electricity generation is for renewables to generate the equivalent of 100 percent of gross annual consumption by 2020, with a new interim target of 50 percent by 2015.

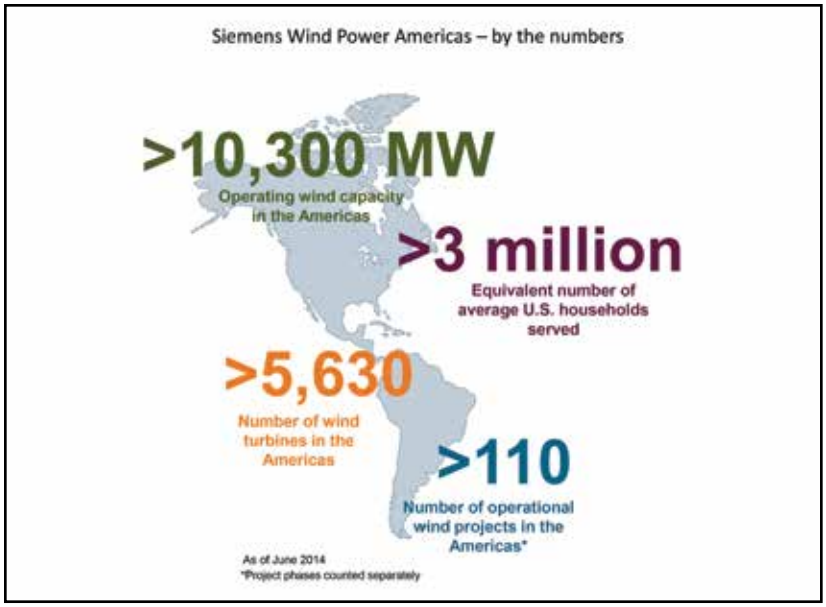
The Dunmaglass Wind Farm, with the support of GE, aims to help the Scottish government achieve its challenging renewable energy targets.

"For the Dunmaglass Wind Farm, we worked with SSE to create turbines specifically designed to meet the strict parameters set forth by the local planning authority, which restricted the maximum tip height to 120 meters. We developed a 70-meter tower solution to meet these requirements," said Cliff Harris, general manager of GE's renewable energy business in Europe. "As wind energy continues its rapid growth in Scotland, we too are growing our business throughout the United Kingdom, and we are pleased to work again with SSE to help bring Scotland a cleaner power source."

SSE is the largest generator of electricity from renewable sources across the U.K. and Ireland and has around 3,300 MW of renewable energy capacity. To date, SSE currently is operating 139 GE wind turbines and an additional 43 are due to be commissioned by the end of 2015.

— *Source: GE*

Siemens eclipses 10 GW milestone of wind turbine installations in the Americas



Siemens Energy has reached the significant milestone of 10 GW of installed wind power capacity in the Americas. Siemens has installed more than 5,600 wind turbines in Canada, the U.S. and in South America, including Peru, Chile and Brazil. This capacity is enough to supply clean, renewable power to approximately three million average households – corresponding to a city larger than New York City.

Siemens reached the 10-GW installation milestone with the commissioning of the 38th wind turbine at the South Kent wind power project in Ontario, Canada, a few weeks ago. With a rating of 270 megawatts, South Kent is one of the largest wind projects in Canada.

"The Americas wind markets have been our major growth engine in the last years," says Jan Kjaersgaard, CEO Onshore of Siemens Wind Power. "The U.S., Canada and Latin America have represented up to 50 percent of our yearly installation numbers over the last 10 years. This has allowed us to invest significantly in the Americas in order to serve those key wind markets."

Siemens' wind power business has grown significantly since the company opened its Americas headquarters for Wind Power in Orlando, Florida, in 2005. In 2006, the company started producing wind turbine blades at the Siemens Blade Facility in Fort Madison, Iowa. Siemens then opened a nacelle assembly facility in Hutchinson, Kansas, in 2010, which was followed by another blade factory in Tillsonburg, Ontario, Canada in 2011.

Additionally, Siemens has invested in Wind Power Service in several locations in the region, including both its Americas headquarters and the new, state-of-the-art wind service training center located in Orlando, Florida, as well as wind service locations in Houston, Texas; Goldendale, Washington; Woodward, Oklahoma; and Chatham, Ontario, Canada.

In other turbine supply contract announcements from Siemens:

Siemens receives its first order from Belgium

Siemens Energy has secured its first wind power contract in Belgium with an order for the first phase of the Wind aan de Stroom project on the left bank of the Schelde River in Antwerp harbor. This first phase consists of 11 direct-drive wind turbines of the Siemens D3-platform; the project can however be extended to 17 wind turbines. Component deliveries will start in early 2015 and installation of the turbines is scheduled for summer 2015. The contract includes a service and maintenance agreement for a period of 15 years.

Publicly operated German wind farm contracts Siemens for 12 direct-drive turbines

Siemens Energy has secured an order for a total capacity of 36 MW in Nordfriesland, in Germany. Siemens is to supply twelve direct-drive wind turbines, eleven model SWT-3.0-113 and one model SWT-3.0-101 turbine, for the Süderlügum publicly-operated wind farm. The installation of Süderlügum onshore wind power plant is scheduled for late 2014. The owner has contracted Siemens for service and maintenance for a period of 20 years to ensure the long-term economical operation of the wind farm.

The Süderlügum wind farm is located around 20km from the North Sea coast. Compared to conventional, geared units, these turbines have half as many parts and considerably less moving components, enhancing efficiency and reducing operating costs.

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DAN FLANNERY
Sr. Engineer II
BorgWarner

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RES exercises 166 MW of U.S. supply agreement with Vestas for project in Minnesota

Vestas has received a 166 MW order for 83 V100-2.0 MW turbines for RES Americas' 200 MW Pleasant Valley Wind Project in Minnesota. The initial 34 MWs were announced in connection with signing the master supply agreement in September 2013.

The order is the final call-off on the September 2013 MSA for multiple U.S. projects, the potential of which totaled 610 MW. With today's order, Vestas has secured 350 MW directly with RES Americas, with the remaining 260 MW from other parties that purchased the RES Americas projects prior to placing a firm and unconditional order with Vestas.

Pleasant Valley will utilize the V100-2.0 MW turbine, which was launched to the market in 2013 and features an improved drive train and generates approximately 13 percent more annual energy production (AEP) than the V90-1.8 MW at medium wind speeds. In addition, the order includes a three-year Active Output Management (AOM) 5000 service agreement. AOM 5000 is an energy-based availability guarantee that ensures the turbines are operational when the wind is blowing.

"Vestas is extremely pleased that RES Americas has now finalized the MSA, either through orders placed directly with Vestas or via projects transferred to other customers," says Chris Brown, President of Vestas sales and service division in the United States and Canada. He continues: "Vestas' track record and technology means we can offer our customers a strong business case for their wind power plants, and this order further confirms RES Americas' confidence in Vestas and the investment certainty we can offer."

"Pleasant Valley will deploy efficient, cutting edge technology to generate carbon-free electricity while providing meaningful cost savings to Xcel Energy's customers in south-eastern Minnesota," said Rob Morgan, Chief Development Officer of RES Americas. "We are committed to delivering competitively priced renewable energy, and the technological advances made by leading companies like Vestas, is essential to the wind industry's ability to continue driving down costs while increasing clean energy production."

NORDEX SELLS TWO WIND FARMS IN FRANCE

Nordex has sold the French wind farm projects, Aubigeon and Les Touches to the investment company GN Renewable Investments.

"We are pleased to finalize the sale of two further projects in France developed by our own organization," said Nordex management board member Lars Bondo Krogsgaard.

The projects have been developed by Nordex in cooperation with development partners and are sold on a turn-key basis.

Construction work on the two projects has already started. Aubigeon and Les Touches will deliver first power in the summer 2015. The "Les Touches" site is located near Nantes in the Departement Loire Atlantique and comprises six turbines N100/2500 turbines. The project will yield around 36 GWh annually. "Aubigeon" is located in the Departement Indre and comprises five N100/2500 turbines and will produce 32 GWh annually; GN Renewable Investments has the option to purchase one further turbine for this project. In sum the two projects will supply up to 20,000 French households with clean energy.

GN Renewable Investments has signed 10 year service contracts with Nordex for both projects. Krogsgaard: "Financial investors are particularly interested in long-term technical support for their turbines to ensure a high availability of the machines and thus safeguard their investments. This is one reason why we are continuously extending our service network and expanding our offering in this field."