



WINDLETTER

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Wind + Good Policy = Jobs

In order for the economic power of wind to be unleashed, action is required.

By Jessica Isaacs

Small Wind Column —p. 4

The global nature of wind energy was illustrated last month in Washington, D.C., when senior representatives from some of the world's leading wind energy companies and trade associations gathered to discuss industry issues and held a press conference to highlight the power of wind energy to support economic growth and provide environmental benefits. Participants in the press event included Carlos Gasco of Spanish energy giant Iberdrola Renewables, Global Wind Energy Council (GWEC) Chairman Arthouros Zervos, GWEC Secretary General Steve Sawyer, European Wind Energy Association CEO Christian Kjaer, AWEA CEO Denise Bode, and Peter Brun, Senior Vice President of Danish company Vestas, the world's wind turbine sales leader.

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During the visit, Sawyer said that among GWEC members, a clear signal from government in the form of a renewable electricity standard (RES) is one of the key characteristics of a successful wind market. He noted that China, with its binding targets on renewable energy, will become the world leader in annual capacity additions of wind energy by the end of 2009, replacing the United States.

It's not coincidental that soon-to-be leader China has implemented some of the most aggressive renewable targets and policies in the world. China, in fact, is just one country that is part of a global trend toward implementing strong renewables policies. And as countries around the world are expanding their renewable portfolios, creating jobs and gaining technical ability, the U.S., which lags on the policy front, risks falling behind.

Active global scene

China and India are not the only countries taking action. In addition to a European Union-wide policy requiring varying percentages of renewable generation for each member country, countries in Asia, Oceania, the Middle East, Latin America, and even Africa have implemented some sort of renewable target. Notably absent from this list is North America, where the U.S. has failed to adopt a national renewable electricity standard (RES).

As recommended by India's National Action Plan on Climate Change, the country has

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plans to derive 5% of its electricity generation from renewables by 2010, increasing by 1% every year through 2020 to 15%. Final implementation plans based on the Action Plan should be released in December of this year.

Even more impressive than India's wind goals, however, are the national renewable targets recently adopted by its neighbor China. The Chinese government has begun an active campaign to promote the growth of wind energy domestically, earlier this year increasing its 2007 national target of 30 GW of wind by 2020 to the current target of 100 GW of wind by that year. The country also adopted a tiered feed-in tariff system for domestic wind farms this summer.

The Chinese wind industry is moving forward along with the progress in policy. This year China is expected to add around 10 GW of wind to its existing 12 GW, an even more impressive feat when considering that the country had less than 1 GW at the end of 2004. China is also investing in massive "wind bases" around the country, each with a minimum capacity of 10 GW. The wind goal is part of a larger energy plan to increase the use of renewables to 15% by 2020.

The action is not specific to Asia, either. In December 2008 the European Union agreed to the Renewable Energy Directive, which requires 20% of total energy consumption to be derived from renewable resources by 2020. In passing the targets, the European Commission wrote that "the main purpose of binding targets is to provide certainty for investors and to encourage continuous development of technologies which generate energy from all types of renewable sources."¹ According to GWEC, the 20% target for overall energy consumption translates into over one-third of total electricity consumption. The targets for the individual member states vary based on current renewable development, resource levels, and economic development status. Some countries, like Germany, have chosen to adopt even higher targets than those required by the Directive.

While the countries of the E.U., China and India are some the most high-profile examples, they are just some of the many countries that have adopted renewable capacity or generation targets. The nature of these renewable targets may vary from country to country, but they represent a national commitment to diversified, domestic energy. This is a commitment sorely lacking in the U.S.

The U.S. situation

Unlike countries such as China and the EU member states, the U.S. has no national renewable goals. In the absence of a target, the stability of the industry may be difficult for potential investors and manufacturers to gauge. With firm renewable targets in place, investments in the wind business by manufacturers, construction firms, and other companies are safer and thus more likely. Manufacturers, who need a long-term market to justify large investments in new facilities, will be more likely to invest in a U.S. market that is supported by a national RES.

While the U.S. did extend a multiple-year production tax credit (PTC) late in 2008, the country still lacks a long-term policy or national renewable target (not to mention once again having enacted a short-term PTC that expires quickly and fails to send the market a signal of stability). A long-term policy, such as a federal RES, would create the environment necessary for continued growth in all segments of the renewable industries, including manufacturing. In 2008 the U.S. wind industry employed around 20,000 workers at manufacturing facilities across the country. Major manufacturers opened and announced new facilities, and the supply chain grew as existing American companies entered the industry. The future of the American wind market is bright given the strong fundamentals of wind, but the size, scope, and timeframe for market growth remain unclear.

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Window of opportunity

By developing its abundant wind, solar, biomass, and hydropower resources the nation can provide clean, domestic energy that creates jobs and increases investment. The wind industry, which installed over 8,500 MW of new capacity in 2008, supported 85,000 jobs in varied fields in that year. If the U.S. continues with year-over-year growth in installations through a sustained commitment to renewables, the number of Americans employed by wind and other renewables will continue to grow.

However, the wind industry and wind turbine market are global in nature. As countries around the world expand their renewable sectors, international competition will only increase, and manufacturers will locate in those countries with definite long-term markets. For American companies to compete, the U.S. must compete on the policy front, creating the kind of market stability and near-term certainty that already exists in other markets. The adoption of a national RES will allow that to happen, providing numerous economic and environmental benefits. Encouragingly, legislation being considered in both the House of Representatives and Senate includes an RES.

If the U.S. does not send a clear signal that it is committed to growing renewables, the wind energy industry, which could potentially employ many times more workers with an RES in place, could actually shrink while wind manufacturing grows in other countries. Thanks to short-term policies such as the PTC, the U.S. recently emerged as a leader in both wind manufacturing and installed capacity. However, without decisive action manufacturing jobs and, in the words of Energy Secretary Steven Chu, “the chance to lead in this next Industrial Revolution” could be lost.

Jessica Isaacs is policy analyst at AWEA.

¹http://ec.europa.eu/energy/strategies/2008/doc/2008_01_climate_action/2008_0609_en.pdf, accessed October 15, 2009. 

Small Wind Column

Back to the Basics: Turbulence 1.3

By Mick Sagrillo

The last Small Wind Column (www.awea.org/windletter/090818_AWEA_WL.pdf) explained the flow of water and air, both of which are fluids and therefore governed by the same laws of physics, known as “fluid dynamics.”

As fluids, both water and air are affected by the surfaces that they flow over or near, whether it be the bank of a river (in the case of water) or the surface of the Earth (in the case of the atmosphere). With respect to air masses that are moving, or what we call “wind,” friction between the fixed planet and the moving air is termed “ground drag.” Ground drag reduces the speed of the moving air available to a wind turbine, regardless of the turbine technology or rotor orientation. Ground drag essentially reduces the *quantity* of the fuel we are trying to capture and convert into electricity.

But there is another property of fluids other than quantity and velocity that affects how much energy we can extract from them. That second property is a fluid’s *quality*. The quality of the wind can be seriously compromised by something called “turbulence.”

Bobbing and weaving

Let’s go back to the river analogy that I used in the last column. Remember that we were sitting down by a river watching the water go by. We noticed that near the bank of the river, the water was quite sluggish due to the friction between it and the fixed river bank. As we moved away from the bank and further into the river, the effect of friction was diminished considerably, allowing for much faster flow of water. A faster flowing fluid has more kinetic energy in it—energy that, in the case of a wind turbine, we can extract to generate more electricity. The logical conclusion is that, in order to increase wind velocity, getting away from the surface of the Earth is a really good idea, just as getting away from the river bank results in faster water flow. This is precisely why wind farm turbines are on such tall towers—they’re located where higher wind speeds, or more quantity of fuel, are found.

The river analogy illustrates turbulence just as well. Sitting back at the river, besides observing that the twig we tossed into the water near the bank took its sweet old time moving downstream, we also notice that it spins around a lot as it moves, tumbling down river. As we toss the twig further into the river and away from the friction caused by the bank, this random spinning is considerably reduced. What we are seeing near the bank is the effect of turbulence on a moving fluid, a swirling mess of random and chaotic motion near the bank instead of the orderly progression of water down the river. The swirling essentially results from the water tumbling as it “trips” over obstacles in the river: rocks, tree stumps and branches, even the bank itself. While this water is still moving downstream, its progress is compromised, not only by friction with the bank which reduces its velocity, but also by turbulent flow which diminishes the quality of its forward progress.

The same phenomenon occurs when it comes to air masses. Turbulence, like ground drag, is the bane of moving air because it reduces the amount of work that the air mass can do. In a river, ground drag slows the forward progress of the water while the incessant tumbling due to turbulence reduces the amount of useful work it can do. This same thing happens with air masses as they flow over the earth. Said another way, the amount of kinetic energy in the wind that can be extracted to generate electricity is considerably reduced by turbulence.

Turbulence at work

This is not a new idea or understanding. Indeed, humans as well as non-humans have put turbulence to good use for millennia. During a winter storm, for example, cows and other animals will hunker down behind a barn, a line of



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trees, or a shelter, using these as obstacles to block the flow of the wind. In rural locations, snow fencing is put up every fall along roads and driveways to prevent the wind from doing the work it is set on doing, which at our house is to relocate all of the snow from the surrounding farm fields right into our driveway (or so it seems). A snow fence, placed an optimal distance up wind of a road or driveway, acts as a trip line, causing the wind to tumble and reducing the work the wind can do. This intentionally induced turbulence created by the snow fence causes the wind to drop its load of snow before it has the opportunity to deposit it onto the road or driveway, considerably reducing “blowing and drifting.”

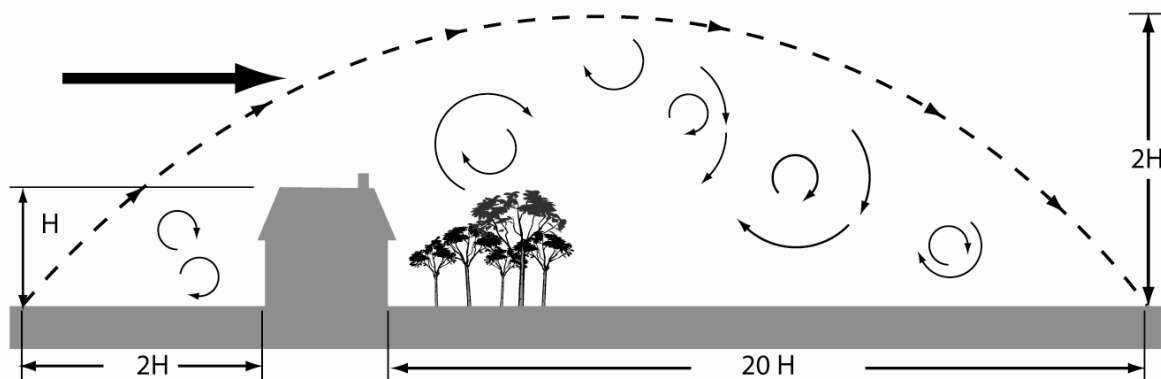
Also commonly seen in rural areas are fence rows, or lines of trees on the perimeter of agricultural fields. Like a snow fence, the purpose of a fence row is to break the flow of the wind, lessening the wind’s ability to pick up top-soil and blow it away and thereby reducing wind-blown soil erosion.

Wind shelters, snow fences, and fence rows are well understood in their design and application to create a trip line for the wind, intentionally put in the wind’s path to block its flow and reduce the work that it can do. Whether to protect livestock from blustery winds, reduce “blowing and drifting,” or prevent soil erosion, the idea is to intentionally cause turbulence to disrupt the flow of the wind.

Turbulence is trouble

There are other objects on the landscape that inadvertently do the same thing. These include the buildings we dwell in and the trees we plant around those structures; in other words, they include many of the accoutrements and necessities of our lifestyle. Regardless of intent, they also compromise the wind’s forward motion, changing it from smooth laminar flow with lots of kinetic energy to turbulent flow, devoid of much of its original energy content. This is a well understood problem when siting wind farms. Calculated as turbulence intensity, turbulent wind flow can reduce the amount of kilowatt-hours that a wind turbine can generate by 15-35% or more, depending on its severity. The more turbulence due to surface obstacles and ground clutter, the greater the turbulence intensity of the wind and the less electricity the wind turbine will generate.

As the diagram from Dan Chiras’ book *Power from the Wind* (© Dan Chiras) below shows, the bubble of turbulence around a home site extends quite a ways above and around obstacles: twice the height upwind and above the house or trees, and 20 times downwind (in the diagram, H equals the house’s height).



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So keep in mind that turbulence affects the quality of the fuel, regardless of the technology used to extract energy from it. That's because turbulence is reducing the fuel's—that is, the wind's—kinetic energy. Installing a wind turbine within this turbulence bubble will result in a compromised wind resource, reduced energy generation, greater wear and tear on the wind turbine, and a reduced life for the turbine. Installing beyond the turbulence bubble makes the difference between a smart installation and an ill-advised one.

Copyright Mick Sagrillo

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Editor's note: The opinions expressed in this column are the author's and may not reflect those of AWEA's staff or board.



UPCOMING AWEA EVENTS

AWEA Wind Power Supply Chain Workshop

November 3 - 5, 2009

Detroit, MI

Small and Community Wind Conference & Exhibition

November 3 - 5, 2009

Detroit, MI

AWEA Wind Energy Fall Symposium

November 18 - 20, 2009

Orlando, FL

AWEA Offshore Wind Project Workshop

December 2 - 3, 2009

Boston, MA

For more information visit www.awea.org/events.

Wind Energy News Recap

Wind Turbine Company Nordex Breaks Ground on Arkansas Plant

Nordex USA, Inc., held a groundbreaking celebration at the construction site of its \$100 million manufacturing facility in Jonesboro, Ark. At the event, the firm's management provided the latest details on plans to hire 700 people by 2014. Leaders from government, business and the community attended the celebration, expressing hope for the revitalization of American manufacturing and the birth of a new industry in Arkansas.

"I am pleased that Nordex has chosen Arkansas for its manufacturing center," said Governor Mike Beebe (D). "Our success in the clean-energy economy is exciting, and having a global wind energy company like Nordex in the Natural State helps to promote sustainability, alternative energy development, and environmentally friendly practices."

The first phase of construction began at the 187-acre site in Craighead Technology Park in late July, and production at the plant is scheduled to begin in mid-2010. In spite of the economic downturn, Nordex has been undeterred in its plans to build and hire, the company noted.

Iberdrola Issues \$2 Billion in Bonds for U. S. Expansion

Stating it will use the capital to further grow its U. S. business, Iberdrola placed a \$2 billion bond issue in two \$1 billion tranches of five and 10 years in the U. S. market. The issuance—which met \$6.6 billion in demand, more than triple the initial offering—was placed with 180 new qualified institutional investors, thus expanding Iberdrola's investor base, the company noted. Citigroup coordinated the issuance, and lead managers were Barclays Capital, Bank of America, Citi, Merrill Lynch, and Goldman, Sachs & Co. In addition to strengthening the company's finances and increasing liquidity, the issuance diversifies its sources of funding, accessing a market which Iberdrola said currently offers more depth and liquidity than in Europe, as well as more attractive conditions, while reducing the weighting of its debt with banks. The bond issuance comes a week after Iberdrola Renewables, one of the largest U. S. developers, received Treasury Department approval of five grants totaling nearly \$295 million for new wind projects in four states under the American Recovery and Reinvestment Act program to address economic conditions affecting the renewables industries.

AEP Resource Plan Calls for 2,350 MW of Wind by 2013

An integrated resource plan (IRP) filed recently by American Electric Power (AEP) with state regulators envisions wind power additions of 2,351 MW by 2013. AEP utility Appalachian Power Co. filed the IRP with the Virginia Corporation Commission, but the document encompasses broader AEP plans because the utility is located in the "AEP System-East Zone," which is operated on an integrated basis. Therefore, the IRP considers the entire AEP System-East Zone, which includes customers in Indiana, Kentucky, Michigan, Ohio, Tennessee, Virginia, and West Virginia.

The IRP, which also relies heavily on energy efficiency and demand response measures through the next decade and beyond, calls for 200 MW of wind to be added in 2009, followed by 350 MW in 2010, 601 MW in 2011, 700 MW in 2012, and 500 MW in 2013. Rounding out the next decade would be a 100-MW addition in 2016. Another 550 MW would be added between 2020 and 2023 for a total of 3,001 MW. Under the plan, demand response measures total over 1,000 MW by 2015. The plan does not include the addition of any baseload coal resources.

Wisconsin Legislature Passes Key Siting Legislation

In a major victory for wind power on an issue that has been holding the industry back in the state, the Wisconsin legislature passed a bill paving the way for statewide wind energy project siting standards. Governor Jim Doyle (D) subsequently signed the bill. SB 185/AB 256 directs the Public Service Commission of Wisconsin (PSCW) to initiate an administrative rulemaking process to establish statewide siting standards for wind energy projects. The bipartisan bill requires the PSCW to establish an advisory committee of diverse interests to advise it on the rules.

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Wind Energy News Recap (cont.)

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Renewables advocates have long pointed out that Wisconsin's siting regulatory framework was a major hindrance to wind energy development and therefore was costing the state jobs, both on the project development side of the industry as well as in its ability to attract wind energy supply chain manufacturers. Up until now, developers have had to deal with counties that have been establishing their own siting regulations, thus creating a patchwork regulatory framework under which developers were forced to operate. The situation has been holding up more than 500 MW of wind projects in the state, according to advocacy group Clean Wisconsin.

Maryland Summons Offshore Wind Companies

Maryland officially joined other Eastern states in pursuing the possibility of offshore wind development, reaching out to wind power companies to gauge interest and start the dialogue on developing a long-term offshore strategy for the state. As a central piece of the offshore initiative that it announced, the Maryland Energy Administration (MEA) issued a request for expression of information and interest to engage industry members having expertise in offshore development. The initiative will include a technical evaluation of the wind resources off the coast of Maryland as well as engagement with local communities. MEA noted that the U.S. Department of Energy estimates that Maryland has "outstanding" offshore wind resources.

Administration Releases Another Half-Billion in Renewable Energy Grants

AWEA welcomed the announcement from the U.S. Treasury and Energy departments of the second round of renewable energy grants (in lieu of tax credits) that are being paid out under a program included in the economic recovery package enacted by Congress earlier this year. The latest announcement included payments of \$550 million total, with \$464 million going to five wind projects. A provision within the American Recovery and Reinvestment Act, the non-discretionary grants are designed to temporarily replace the production tax credit (PTC), which has been a major factor in the continued growth in wind and other renewable energy projects. The recession and the freeze in the credit markets that began late last year rendered the PTC much less useful as an investment incentive.

Shades of Difference in Senate Climate Bill as Compared to House Legislation

AWEA congratulated Senators Barbara Boxer (D-Calif.) and John Kerry (D-Mass.) for unveiling comprehensive climate change legislation, which includes slightly more aggressive emissions reduction targets than the bill passed by the U.S. House of Representatives earlier this year. While similar in many respects, the Senate legislation departs from the House bill, which was introduced by Representatives Henry Waxman (D-Calif.) and Rep. Edward Markey (D-Mass.), in that it would call for a tighter emissions cap by 2020—20% below 2005 levels rather than the Waxman-Markey bill's 17%. Like the House bill, the Boxer-Kerry bill would cap greenhouse gas emissions beginning in 2012 with a cut of 3% below 2005 levels for that year. One notable difference is what the Senate bill leaves out for further debate. The House legislation would give emissions allowances at no cost to utilities and certain other industries during the initial years of implementation. The Boxer-Kerry legislation does not address many specifics concerning allowance allocations. While welcoming the inclusion of a program to directly distribute allowances to renewable energy generators, AWEA said that the bill's impact on wind energy development is largely dependent on how the details unfold.

"In the coming weeks and months, we look forward to working with Senator Boxer's committee, other committees, and Majority Leader Harry Reid to ensure a comprehensive bill is brought to the Senate floor which successfully achieves the near-term emission reduction goals through immediate deployment of currently available and large-scale solutions like wind power," AWEA said in a statement.

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Wind Energy News Recap (cont.)

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DOE unveils loan guarantees for commercial projects

The U.S. Department of Energy (DOE) released long-awaited rules governing the Section 1705 loan guarantee program for commercial renewable technologies. Section 1705 was included in the American Recovery and Reinvestment Act (ARRA) to help finance renewable energy generation projects and expand manufacturing. Construction on a project must begin by September 30, 2011, for it to be eligible for the loans. The DOE program will provide \$750 million to support a loan volume of roughly \$4 billion to \$8 billion. This funding level is lower than expected because Congress transferred \$2 billion from the loan guarantee program to extend the “cash-for-clunkers” program this summer and those funds have not yet been restored, despite commitments to do so from Congressional leadership and the President.

Pilot wind turbines coming in NC’s Pamlico Sound

The University of North Carolina at Chapel Hill and Duke Energy have signed a contract to place up to three demonstration wind turbines in North Carolina’s Pamlico Sound. The pilot project builds on a nine-month University study, completed this past June, which said the state is “well positioned to develop utility-scale wind energy production.” The pilot turbine installation will facilitate utility-scale wind energy development by enabling studies to optimize measuring and predicting the wind resource, quantifying ecological impacts, and demonstrating turbine performance in tropical storm conditions. Duke Energy will pay for the turbines and their installation. UNC will continue its research throughout the project. 

Project Recap

E.ON Sets New Wind Farm Mark with 781.5-MW Facility

Besting a previous record that has stood for three years, E.ON Climate and Renewables (EC&R) announced the completion of the world's largest wind farm, a 781.5-MW facility located near Roscoe, Texas. The project's 627 wind turbines from Mitsubishi, General Electric, and Siemens are deployed across parts of four Texas counties, covering nearly 100,000 acres. Those turbines generate enough electricity for more than 230,000 homes, according to the company. The Roscoe facility edges out NextEra Energy's 735-MW Horse Hollow wind farm, also in Texas, for bragging rights as the world's largest wind farm. NextEra Energy (at the time called FPL Energy) completed Horse Hollow in the third quarter of 2006 and has held the record ever since.

OG&E Signs on Developers for 200 MW of Wind

Oklahoma Gas & Electric (OG&E) continued its aggressive wind power push with the announcement that it has entered agreements with developers to build two new wind farms in northwestern Oklahoma as part of a plan under which the utility will more than triple its current wind power capacity by the end of 2010. The agreements and resulting construction of the new wind farms, which would total 280 MW, are contingent on Oklahoma Corporation Commission approval.

OG&E currently has 170 MW of wind capacity in production at its Centennial and Sooner wind farms, both near Woodward. The new 100-MW O.U. Spirit wind farm, now under construction near Woodward, is expected to be in production by year-end. While the amount of wind on its wires is still relatively modest, OG&E has recently come to the forefront among utilities in its incorporation of wind into its strategy going forward. In testimony and other public venues, the utility has underscored the importance of the link between wind power and the need for transmission. It has also openly highlighted the positive effect that wind power has had on its fossil-fuel costs. In March OG&E submitted filings to the Oklahoma Corporation Commission outlining plans that call for the utility to use wind power as part of a strategy to defer all new fossil-fired generation facilities until 2020.

EverPower to Develop Wind Farm on Weyerhaeuser Timberlands

EverPower Wind Holdings Co. plans to develop a 120-MW wind power project on timberlands leased from Weyerhaeuser Co. in Washington State. According to the developer, the Coyote Crest facility would be the first utility-scale wind farm built in a coastal mountain range of the Pacific Northwest. The project, which would be the first in the Northwest for EverPower, would include up to 50 turbines. The wind farm is expected to come online within 18 months of EverPower securing all permits. Coyote Crest is to be developed on a 3,755-acre lease area of Weyerhaeuser's McDonald tree farm in the Willapa Hills of Lewis and Pacific counties. Electricity would flow onto the Bonneville Power Administration's system.

NextEra to do Fifth Wind Project for Basin Electric

Basin Electric Power Cooperative and NextEra Energy Resources signed an agreement to develop another wind farm. The latest project, a 99-MW facility, will be located in Day County near Groton, S. D. The agreement is the fifth under which NextEra Energy (formerly FPL Energy) builds, owns, and operates a large wind farm and Basin Electric purchases the electricity coming from the facility. The other four projects are located near Wilton and Edgeley, N. D. , and Highmore, S. D. Construction on the Day County Wind Farm, which will feature 66 1.5-MW turbines, will begin as soon as all permits and approvals are received. The project is expected to be ready for commercial operation by mid-2010, Basin Electric said. For the first three years of commercial operation, Basin Electric has agreed to sell the output to the Western Area Power Administration (WAPA), a federal power marketing agency.

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Project Recap (cont.)

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Acciona's 100-MW Illinois Wind Farm Now Open

Acciona Energy North America celebrated the opening of its 100.5-MW EcoGrove Wind Farm, located in Stephenson County, Ill. EcoGrove is the first renewable energy project in Illinois for Acciona Energy North America, which is based in Chicago. The vertically integrated developer-turbine manufacturer used 67 of its 1.5-MW turbines for the project. Each turbine occupies less than one acre, with the unused land within the facility continuing to be dominated by farming. The wind plant is able to offset approximately 176,000 tons of carbon dioxide emissions annually, according to the company. The turbines used at EcoGrove came from neighboring Iowa, where they were manufactured in Acciona's West Branch turbine manufacturing facility. The project itself was constructed by 125 local tradespeople and numerous local and regional suppliers and service providers. Nine of the 10 service technicians filling the project's newly created jobs are from the local area and include volunteer firemen, retired military personnel, welders, machinists, and a racecar driver, Acciona said.

Michigan PSC OK's PPA for Fowler Ridge Wind Going to Indiana Michigan Power

The Michigan Public Service Commission (MPSC) approved two contracts related to utilities meeting the state's renewable electricity standard. The MPSC approved a 20-year renewable energy purchase agreement (REPA) for Indiana Michigan Power Co. (IMP) to purchase 50 MW from BP's 200-MW Fowler Ridge 2 wind farm in Indiana. American Electric Power, the parent company of IMP, already purchases power from Fowler Ridge 2 for other of its subsidiaries. The MPSC also approved a 20-year agreement for Alpena Power Co. to buy renewable energy credits from Consumers Energy Co. as required by Public Act 295, the state's 10%-by-2015 renewable electricity standard passed in 2008.

As Duke Wind Projects Go Online, Company Snaps Up More Turbines

Duke Energy recently brought online two wind power projects in Pennsylvania and Wyoming and announced a 40-turbine supply agreement with Siemens Energy for another project near Casper, Wyo. The 70-MW North Allegheny wind farm, a project located in Blair and Cambria (Pa.) counties that Duke bought from Gamesa Energy USA prior to completion earlier this year, is now producing electricity for FirstEnergy under a long-term power purchase agreement (PPA). North Allegheny is Duke Energy's first commercial wind farm in the eastern U.S. Duke Energy also recently brought its 42-MW Silver Sage Windpower Project in Cheyenne, Wyo., online. Silver Sage is the company's second wind farm in the area; the nearby 29-MW Happy Jack Windpower Project entered commercial operation in September 2008. Under the terms of two long-term PPAs, Duke Energy will sell all of the electricity generated at Silver Sage to Cheyenne Light Fuel & Power, a utility subsidiary of Black Hills Corp., and Colorado-based Platte River Power Authority.

Meanwhile, with a deal now in place for 44 Siemens 2.3-MW units, the developer-owner has secured all the turbines needed for its 200-MW Top of the World project, which is scheduled for construction in Converse County, Wyo., in 2010. General Electric is supplying 66 1.5-MW turbines for the project as well.

Construction work at the Top of the World site is expected to begin in early 2010 upon receipt of all necessary permits from the state. PacifiCorp signed a long-term PPA with Duke Energy in late August to buy all of the renewable power that will be generated by the Top of the World project.

NextEra Buys 185 MW of Wind Farms from Babcock & Brown

FPL Group subsidiary NextEra Energy Resources, LLC, entered into an agreement with Babcock and Brown to purchase three operating wind farms with a combined capacity of 184.5 MW for \$352 million. Various assets of Babcock & Brown, an Australian infrastructure investment company, are being sold off after the company was hit hard

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Project Recap (cont.)

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by the financial crisis that began at the end of last year. The projects include the 79.5-MW Majestic Wind Energy Center in Carson County, Texas, northeast of Amarillo; the 54-MW Butler Ridge Wind Energy Center in Dodge County, Wis., northwest of Milwaukee; and the 51-MW Wessington Springs Wind Energy Center in Jerauld County, S.D., south of Wessington Springs.

Output from the Majestic facility is sold to Southwestern Electric Power Co., while a portion of the electricity from Butler Ridge goes to Wisconsin Public Power. Heartland Consumer Power District takes all power from the Wessington Springs facility.

Wisconsin Power and Light Gets Approval for 200-MW Wind Farm

Clearing its final regulatory hurdle before construction can start, Alliant Energy subsidiary Wisconsin Power and Light Co. received approval from the Minnesota Public Utilities Commission to build phase one of the Bent Tree Wind Farm in Freeborn County, Minn. Commercial operation for the 200-MW project is expected to begin in 2011.

Developer Idaho Winds Signs 21-MW PPA with Idaho Power

PowerWorks affiliate Idaho Winds, LLC, recently signed a 20-year power purchase agreement with Idaho Power Co. for the output from the 21-MW Sawtooth Wind Project, which is to be located 60 miles east of Boise, near Glens Ferry, Idaho. Idaho Winds is a subsidiary of Pacific Winds, LLC. Once financing is completed, construction is expected to begin as early as next summer. Upon completion, the Sawtooth Wind Project will provide the average energy supply for about 10,000 homes within Idaho Power's service territory.

Platte River starts receiving power from Wyoming project

Platte River Power Authority began receiving wind power generated at the Duke Energy's Silver Sage Windpower Project located near Cheyenne, Wyo., on October 1. As part of its ongoing plan to acquire new renewable energy, Platte River, which provides wholesale electricity to four Colorado municipal systems, contracted in March with Duke Energy to purchase 12 MW from the project. Delivery of the wind energy came earlier than originally planned.

SED installs turbine at Mountain View resort

Sustainable Energy Developments, Inc. (SED), based in Ontario, N.Y., has installed the first community-scale wind project in New Hampshire at the Mountain View Grand Resort and Spa in Whitefield. The installation of the Northwind 100-kW wind turbine, manufactured by Northern Power Systems in nearby Barre, Vt., is the fourth Northwind 100 that SED has installed in the Northeast, with a fifth installation already in progress. SED is the leading installer of Northwind 100 wind turbines in the lower 48 states.

High Plains and McFadden Ridge generating 127.5 MW

PacifiCorp announced that its High Plains Wind and McFadden Ridge I wind projects in Albany County and Carbon County, Wyo., are in service. The High Plains wind project comprises 66 1.5-MW GE turbines, with a total generating capability of 99 MW. The McFadden Ridge I wind project has 19 1.5-MW GE turbines, with a total generating capability of 28.5 MW. High Plains began commercial operations September 13 and McFadden Ridge I began operations September 29, the company said.



News from AWEA

Utilities and Wind Power Seminar Speakers and Program Announced

Designed specifically for attendees to learn the critical issues facing electric companies as they bring more wind power online, the [Utilities and Wind Power Seminar](#) joins utilities like AEP, Xcel Energy, Great River Energy, Puget Sound Energy and others to discuss their strategies for wind power acquisition and delivery.

See a [detailed agenda](#) for the seminar.

The Utilities and Wind Power Seminar is part of AWEA's Wind Energy Fall Symposium taking place November 18 – 20 in Orlando, Florida. To learn more about this event and the many wonderful networking and educational opportunities it offers, [click here](#).

[Register](#) for this event.

Get Involved in AWEA Committees and Working Groups

Side meeting schedules for both AWEA's Small and Community Wind Conference and AWEA's Fall Symposium have been listed online.

In addition to having a highly educational detailed program agenda, AWEA's [Small and Community Wind Conference & Exhibition](#) and [Wind Energy Fall Symposium](#) host many Committee and Working Group meetings. If, as a member, you are not yet involved or would like to really see what these groups are all about before deciding to join, this could be a great opportunity for you to attend a meeting.

For a full listing of Small and Community Wind side meetings, please [click here](#).

For a full listing of Fall Symposium side meetings, please [click here](#).

Offshore Wind Project Workshop Poster Presenters Announced

Over twenty [poster presentations](#) have been selected for AWEA's [Offshore Wind Project Workshop](#). There will be a Poster Reception held December 2nd, from 5:30pm -6:30pm where attendees will have the opportunity to discuss poster content with the authors.

View a [detailed program agenda](#) for the Offshore Wind Project Workshop taking place December 2 – 3 in Boston, MA.



New Business Members

Corporate 2

<p>Evance Unit 6 Weldon Road Derby Rd Ind Estate Loughborough LE11 5RN UNITED KINGDOM Contact: Alexandra Parkinson alexparkinson@evancewind.com</p>	<p>TUV SUD America Inc 10 Centennial Drive Peabody, MA 01960 Contact: Carmen Hopwood chopwood@tuvam.com www.tuvamerica.com</p>	<p>United Rentals 5 Greenwich Office Park Greenwich, CT 06831 Contact: Richard Carolan rcarolan@ur.com www.unitedrentals.com</p>
<p>Wondra Construction Inc. W2874 Graylog Rd Iron Ridge, WI 53035 Contact: Roger Thimm roger@wondraconstruction.com www.wondraconstruction.com</p>		

Corporate 1

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<p>Corp. for Interest Rate Management 175 N Franklin St Suite 205 Chicago, IL 60606 Contact: Robert S Keith rsk@cirm.com www.cirm.com</p>	<p>COWI USA, Inc. 35 Corporate Drive Suite 1200 Trumbull, CT 06611 Contact: Stanley White stwh@ocean-coastal.com www.cowi.com</p>	<p>Dongkuk S&C 15303 S Raymond Ave Apt 8 Gardena, CA 90247-3466 Contact: Hun Wook Joo joohunwook@gmail.com www.dongkuksnc.co.kr</p>

Corporate 1

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<p>Kronos Energy Solutions 5443 Oak Park Drive Memphis, TN 38134 Contact: John Bogensberger jbogensberger@kronosenergysolutions.com</p>	<p>MH&W International 14 Leighton Place Mahwah, NJ 07430 Contact: Bill Wilson bwilson@mhw-intl.com www.mhw-intl.com</p>	<p>Molycorp Minerals LLC 5619 DTC Parkway Suite 1000 Greenwood Village, CO 80111 Contact: Robert Noll robert.noll@molycorp.com www.molycorp.com</p>
<p>Nello Corp. 211 W. Washington St. Suite 2000 South Bend, IN 46601 Contact: Matt Gustafson mgustafson@nelloinc.com www.nelloinc.com</p>	<p>Pegasus Steel, LLC 1 Alliance Drive Goose Creek, SC 29445 Contact: Debra Cayette debra@pegasussteel.com www.pegasussteel.com</p>	<p>Phoenix Tank 182 S. County Road 900 East Avon, IN 46123 Contact: Robert Clouse robert@phoenixtank.com www.phoenixtank.com</p>
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**The AMERICAN WIND
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power growth through
communication, education, and
advocacy.**