

Catching Wind

A Newsletter of RENEW Wisconsin

Vol. 2 No. 2 · May 2010



PSC Sets Hearings for Turbine Siting Rules

With some 1,000 MW of potential windpower capacity now in abeyance, the Public Service Commission of Wisconsin (PSCW) approved in mid-May proposed rules that establish statewide standards for permitting commercial and small wind generators. The Commission's action paves the way for a series of public hearings and a public comment period running until July 7, 2010.

The notice of hearings and draft rules can be downloaded from the Commission's web site (<http://psc.wi.gov>) under Docket No. 1-AC-231.

The draft rules were developed by Commission staff in consultation with the Wind Siting Council, a 15-member panel that has been meeting regularly since late March to provide advice and input to the agency during this process, as required under 2009 Act 40, the wind siting law passed last September.

The Siting Council spans a broad cross-section of interests and opinions on wind generation. Members were chosen to represent constituencies identified in Act 40, including windpower developers, realtors, counties, towns, landowners living within or near windpower projects, and the public at large. As prescribed by the law, one of the members is also a University of Wisconsin faculty member with expertise in evaluating the health impacts of wind turbines.

Wind Farm Tour

In early May, Council members traveled to Fond du Lac County, the heart of wind development activity in Wisconsin. Near the 86-turbine Forward Energy Center owned by Invenergy, council members gathered at the home of Larry Wunsch, also a Siting Council member, to gauge the impacts of the project on his property in the Town of Byron. One of Forward's GE 1.5 MW turbines is located on adjacent property about 1,100 feet from his house. That turbine is a source of sound when the blades are spinning, and, depending on the time of year and the weather, can send shadows rotating across his house and property.

Though no representative from Invenergy was present to discuss complaint procedures or mitigation measures, a representative from We Energies, which owns and operates the 88-turbine Blue Sky Green Field installation nearby, addressed those points. She described the company's approach to correcting radio and TV signal interference, as well as muting the impact of shadow flicker inside a house.

The Siting Council then visited Blue Sky Green Field's operations center 20 miles away. After listening to a presentation on the development of that installation, Council members walked up to turbine closest to the operations center, about 1,100 feet from the building entrance, and took in the sights and sounds.

Overview of Proposed Rule

At the meeting discussing the proposed rule, the PSCW decided for now to stay with the sound limits specified for the Glacier Hills windpower facility, which was approved in January. The agency approved a base limit of 50 dBA and a summer nighttime limit of 45 dBA, which is enforceable on individual turbines that generate noise complaints from neighbors.

One area where the PSCW departed from previous rulings was in setback distances from nonparticipating neighbors and occupied community buildings. In the Glacier Hills decision, the PSCW specified a minimum setback distance of 1,250 feet, which required project owner We Energies to relocate 15 of the project's 90 turbines. In this docket, the agency proposes graduated setback distances based on the total blade tip height of the turbines using a multiple of 3.1.

For a 397-foot Vestas V-82 turbine (the model at Blue Sky Green Field and Cedar Ridge), the minimum distance from project neighbors would be 1,231 feet. If that standard were applied to a 410-foot Vestas V-90 turbine (the model selected for Glacier Hills), the distance would increase to 1,270 feet. If that standard were applied to a Nordex N100/N2500 (the model selected for the Shirley Wind project), the distance

would increase to 1,540 feet. However, the sound emission limits would be the same across all types and sizes of wind turbines.

The rule would also set 100 kilowatts as the dividing line between small and large turbines.

A Work in Progress

At the meeting, the Commissioners made it clear that the proposed standards were not set in stone and that they would welcome proposals to change the proposed standards along with arguments supporting such changes. People wishing to submit comments can do so electronically at the web site or in person at the three public hearings scheduled in late June.

Applicability

These standards will apply to any turbine in an application that is officially filed after the rules take effect. Turbines that have already been permitted are exempt from the rules, as are turbines proposed for development in a pending application. For projects greater than 100 megawatts, which require PSCW approval to proceed, the agency may apply these rules to the proposed facility, but is not required to do so.

Hearing Dates; Filing Comments

Monday June 28, 1:00 pm and 6:00 pm, City Hall, 160 S. Macy St., Fond du Lac

Tuesday June 29, 1:00 pm and 6:00 pm, Holiday Inn, 1017 E. McCoy Blvd., Tomah

Wednesday June 30, 1:00 pm and 6:00 pm, PSCW, 610 N. Whitney Way, Madison

Comments filed electronically, mailed or hand-delivered are due Wednesday, July 7, at noon. Comments filed by fax are due Tuesday, July 6, at noon. All written comments must reference docket 1-AC-231 and should be addressed to Sandra Paske, Public Service Commission, P.O. Box 7854, Madison, WI 53707-7854.

Catching Wind is funded by a grant from the U.S. Department of Energy to RENEW Wisconsin, 222 S. Hamilton Street, Madison, WI 53703. Web site: www.renewwisconsin.org. E-mail: mvickerman@renewwisconsin.org

Schools Roll Out Northwind 100 Turbines

Within a seven-day period in late April, two Wisconsin schools — Wausau East High School and Madison Area Technical College (MATC) in Fort Atkinson — celebrated the installation of their 100-kilowatt wind turbines. For the manufacturer, Burlington, VT-based Northern Power Systems, these installations mark the debut of the company's signature Northwind 100 turbine in Wisconsin. They also are the two largest wind generators owned by Wisconsin schools.

The honor of installing the first Northwind 100 in Wisconsin fell to Madison-based Seventh Generation Energy Systems, which erected Wausau East's turbine in October 2009. The turbine anchors the school's Outdoor Renewable Energy Learning Center, which also has two solar electric systems and will soon have a second, smaller wind turbine.

A grant from Wausau-based Walter

Alexander Foundation was instrumental in obtaining the center's renewable energy equipment. One of the foundation's board members is Dr. Fred Prehn, who recently installed the first 35-kilowatt turbine manufactured by Endurance Wind Power, a Canadian company. Dr. Prehn's Endurance turbine serves his cranberry farm near Tomah.

The installation contractor for the Fort Atkinson turbine was Hudson, WI-based Energy Concepts. That turbine is situated on a grassy field between the MATC building and Fort Atkinson High School. At that location, the certified site assessment estimates production in the range of 120,000 kilowatt-hours at an average wind speed of 11.3 mph. Grants from Focus on Energy and We Energies helped offset the up-front cost of MATC's wind turbine.

Both turbines are located within the municipal limits of each city.

Equipped with direct drive technology, the Northwind 100 is the only turbine operating in Wisconsin that does not have gears. Instead, the turbine's rotor and generator move together at the same speed. The blades' rotational speed is controlled by wind speeds; the stronger the breeze, the faster the blades spin.

Including the Wausau East and MATC-Fort Atkinson installations, Northern Power Systems has installed 13 Northwind 100's at 11 schools across North America.

The next two Northwind 100's scheduled for installation in Wisconsin will serve the Village of Cascade's wastewater treatment facility. Cascade's wind turbines should be placed in service before the end of June.

Links: www.seventhgeneration.org
<http://energyconcepts.us>
www.northernpower.com

Tall Turbines Set to Breeze into Green Bay Area

Breaking a lull lasting more than a year, construction is now underway on the next commercial windpower station in Wisconsin, a 20-megawatt (MW) installation in Brown County 20 miles south of Green Bay. Named after a nearby hamlet, the Shirley Wind project will feature eight Nordex turbines atop 100-meter towers fabricated by Tower Tech Systems in Manitowoc. Shirley Wind will also be the tallest windpower installation in North America when completed in the fourth quarter of 2010.

For the moment, Wisconsin's newest windpower project remains the 36-turbine (54 MW) Butler Ridge installation in Dodge County. Now owned by NextEra Energy Resources, Butler Ridge was placed in service in March 2009.

According to Emerging Energies of Wisconsin, LLC, Shirley Wind's developer, the access roads and foundations should be finished by the end of May. Turbines should start arriving at the project site in August, and project commissioning should begin a month later. All of the electricity generated at Shirley Wind will be sold to the local utility, Green Bay-based Wisconsin Public Service Corporation (WPS). This installation is expected to produce an average of 64 million kilowatt-hours each

year, enough energy to supply energy 8,000 residences per year.

Central Hudson Energy Group, a Poughkeepsie, New York-based energy company, is investing \$50 million in this facility, sufficient to acquire a 90% controlling interest in the project. Emerging Energies will retain a 10% controlling interest.

With blades extending about 165 feet from the rotor above the tower, Shirley Wind's turbines will have a total height of about 495 feet. For comparison purposes, the Vestas turbines at We Energies' Blue Sky Green Field installation have a total height of 397 feet (80-meter hub height with 82-meter rotor diameter). Shirley Wind will be erected within a mile of WPS's two-turbine Glenmore installation, the oldest (and smallest) commercial wind project in Wisconsin, placed in service more than a dozen years ago.

Shirley Wind's proximity to the Glenmore facility should offer a compelling side-by-side contrast between what was considered a state-of-the-art wind energy installation in 1998 versus a present-day one. Perched on 60-meter (197-foot) towers and equipped with 73-foot blades, Glenmore's turbines, with a rated capacity of 600 kilowatts each, are barely more than

half the height of those going up at Shirley.

Without doubt the most eye-catching difference between commercial wind generators then and now is the size of the rotor. With a rotor diameter of 100 meters, the Nordex turbines will have a swept area that is almost five times as large as those of the two Tacke generators nearby. In one fell swoop a first-time visitor will have all the visual evidence needed to understand why Shirley's eight turbines are likely generate 25 times the quantity of energy produced at WPS's Glenmore facility with only four times the number of turbines.

Several Wisconsin companies will figure prominently in the construction of Shirley Wind. The balance-of-plant contractor is Brownsville-based Michels Wind Energy, which also was the general contractor for Invenergy's Forward project. Shirley Wind will be the first installation in Wisconsin to be supplied with tower sections from Tower Tech Systems. Finally, the cranes used for turbine assembly are products of Manitowoc Crane.

Links: www.emerging-energies.us
www.towertechsystems.com
www.michels.us
www.glenmorewind.com