

Utilities see winds shift for wind power

Once of curiosity, turbines become a more integral part of energy puzzle

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In less than a decade, wind turbines have gone from a public relations tool to a virtual necessity for Wisconsin's biggest utilities.

Once viewed as too green by the slow-to-change utility industry, wind farms are cropping up in Wisconsin and other windy regions.

Wisconsin is on the brink of a massive windmill expansion. Most of today's wind farms are near Dodgeville and Green Bay. Plans call for building 250 or more turbines in Fond du Lac and Dodge counties, possibly by the end of this year.

Each of seven wind farms currently on the drawing board would dwarf the largest wind farm now operating here.

Wind turbines currently generate about 53 megawatts of power, enough to supply about 26,500 homes. In the next three years, if all projects in the works are built, that could increase to more than 1,000 megawatts - or enough power for 500,000 homes.

Fanning wind's day in the sun are a political and economic factors that make the technology more cost-effective than a few years ago:

Accelerating technology. Manufacturers, including General Electric and several European companies, have refined their turbines.

These larger, more efficient turbines are useful in states such as Wisconsin with less than ideal wind corridors. Each turbine has the capacity to generate power for tens of thousands of households.

New turbines becoming the industry standard will dwarf the state's most visible turbines - a pair built by We Energies in the late 1990s along U.S. Highway 41 in Fond du Lac County. The new turbines will be 10 stories taller and generate twice as much power.

Shifting political winds. A federal tax credit, renewed by Congress last year, helps make wind projects more appealing for developers looking to sell electricity to state utilities. Meanwhile, a state energy task force recommended last year that utilities more than double the amount of renewable energy in the state's electricity generation mix. That mix is currently dominated by coal-fueled power plants.

Wind farms allow utilities to build bridges to environmental groups who have been active in protesting projects such as new coal plants and high voltage power lines. Wisconsin Energy Corp., for example, hopes to have 5% of its electricity supply come from renewable energy sources, principally wind, by 2010-'11. Wind is also attractive because it is pollution-free at a time of growing concern about climate change.

Spiraling natural gas prices. The price of natural gas has doubled since the late 1990s, which means use of natural gas-fired power plants isn't as cost-effective as it was for much of the '90s.

Calls for energy independence. Spiking prices of crude oil and natural gas have put the spotlight on reducing the reliance of the state and the nation on imported sources of energy.

All of this does not mean Wisconsin is turning into a wind power mecca. Neighboring states, including Iowa and Minnesota, enjoy strong Great Plains winds and are generating roughly 10 times as much power from wind as Wisconsin.

Economic development

The fact that Wisconsin's windiest areas are also fast-growing exurbs creates obstacles as well.

An executive at Madison-based Alliant Energy Corp. said building wind farms isn't as easy in Wisconsin as in Iowa. In Iowa, wind power is seen as economic development - a second cash crop for farmers looking to remain on their land.

"Clearly in Wisconsin you just see more pushback on 'I don't want to see a wind turbine,' " said Kim Zuhlke, vice president of generation at Alliant, which buys 6% of the nation's wind power from projects in Iowa, Minnesota and Wisconsin.

"The wind in Iowa is in pretty remote areas - this is rolling prairie," Zuhlke said.

The fact that Wisconsin has so many small family farms also plays a role, because some farmers get paid to host turbines while neighbors have to look at them without any compensation. Some wind developers now pay neighbors as well as host property owners, Zuhlke said.

In many of the windy sites considered for projects in Wisconsin, said Greg Bollom, assistant vice president of energy planning at Madison Gas & Electric, "you have a lot of other people who have moved out into those areas for reasons other than farming, and are more concerned about aesthetic issues. It's a more prevalent issue to deal with in Wisconsin."

Demonstration projects

The combination of economies of scale, technology improvements and the tax credit has led companies to invest more heavily than ever in wind projects. Some major corporate names are in the wind business, including General Electric - one of three leading makers of turbines - FPL Energy and international names such as Gamesa and Vestas.

"The price of the energy now is competitive with everything else that we're seeing as options in the portfolio," said Zuhlke of Alliant.

When wind power first came on the scene in Wisconsin, it was largely through demonstration projects where a few turbines were erected as a symbolic commitment to green power. But utilities still had plenty of reservations about wind energy - not only its cost but its availability.

Today, the American Wind Energy Association says wind power, with the help of the federal tax credit, can beat the price of other forms of generating electricity - even coal - in some of the nation's gustiest areas, when all costs associated with building power plants are taken into account.

Utilities that rely on coal plants remain concerned that the variability of wind makes it a resource that's hard to plan for, particularly during summer heat waves when demand for electricity spikes.

Though wind power can't be turned on and off like other power plants, utilities that are fans of wind use weather forecasts to predict the next day's wind speeds and determine how much power to expect from their turbines.

Wisconsin's wind potential pales in comparison with Iowa, and Alliant estimates it can produce electricity 25% more cheaply from wind in Iowa than in Wisconsin.

Opponents of wind-turbine projects in Wisconsin question the value of building so many turbines here, given that we're not a Great Plains state. According to the Battelle Pacific Northwest Laboratory, Wisconsin ranks as the 18th most windy state. That's about a tenth of the wind potential of Iowa or Minnesota.

"How much energy are we really producing out of all of this?" asked Geoffrey A. Baker, an Oak Park, Ill., attorney, who represents a group opposed to Forward Wind Energy Center near the Horicon Marsh, a national wildlife refuge. "It certainly isn't worth endangering all of the birds," he said.

That disparity is driving both utilities and renewable-energy advocates to look closely at beefing up power lines linking Wisconsin with Iowa, which ranks fourth in the nation in wind power.

Gov. Jim Doyle says he's optimistic that the Legislature will endorse his energy task force's proposal to boost to 10% the amount of renewable energy supplied by Wisconsin utilities.

Despite some reservations about wind power, Wisconsin's big utilities sat on the task force and endorsed its recommendations. In exchange for committing to boost their wind-power supplies, the utilities would be guaranteed compliance with a state energy priorities law - even as they propose to build more fossil-fuel power plants.

Pace of development

Wisconsin is not alone in seeing an expansion of wind projects. But development of the projects has moved at a slower pace than initially forecast, as wind power faces a variety of obstacles, from neighbors, concerns about turbines' impacts and birds and bats, and the stop-and-go nature of the industry's evolution. Wind development halted last year after Congress let the tax credit expire. The tax credit, 1.5 cents per kilowatt-hour of electricity, is provided to wind-farm builders once a project is generating electricity. Wind-power proponents are concerned that they will have to rush to have projects online by the end of the year unless Congress renews the credit again.

Lee Bergquist of the Journal Sentinel staff contributed to this report.

Wind Power



Photo/[Dale Guldan](#)

Wind turbines whirl at sunset along Highway 18, just west of the Town of Cobb. The Monfort Wind Farm is the largest wind power project in Wisconsin. The state is likely to see an explosion in wind energy, because of improvements in technology, a warmer political climate and rising raw energy costs. But the technology continues to have its critics.

By The Numbers

55

Wind turbines now generating power for utilities in Wisconsin.

580

Turbines that have been proposed.

53

megawatts of power now generated by wind.

1,000

megawatts: what could be generated by proposed projects.

Wind Energy Projects



Graphic/[Bob Veierstahler](#)

(Enlarge graphic)

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