

Siting Wind Power: The View from the Mine Field

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Wisconsin Wind Working Group

May 2011

www.RENEWwisconsin.org

About RENEW Wisconsin



**Foggy morning, Forward
Energy Center, Brownsville**

Advocates for state-level sustainable energy policies since 1991

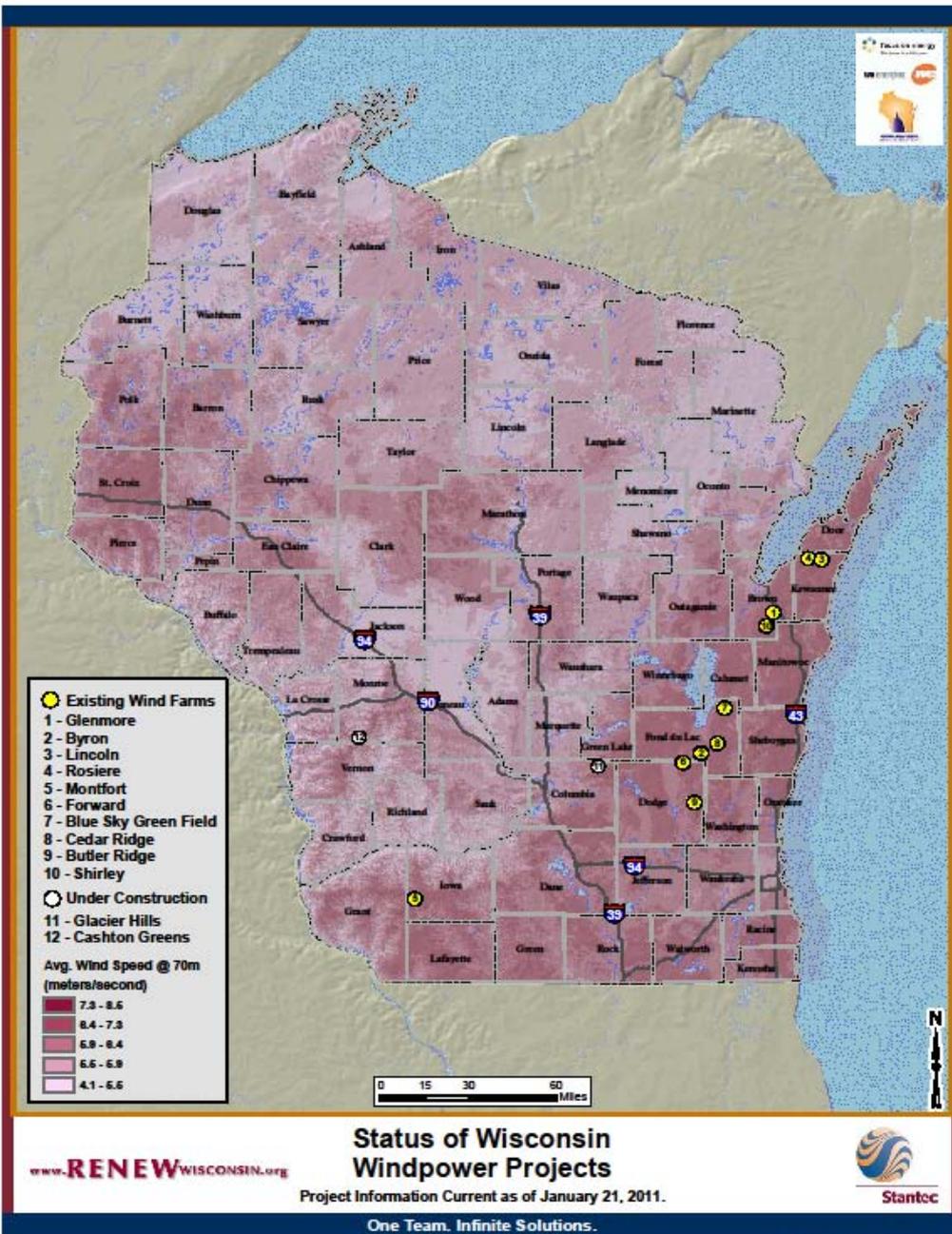
One of the architects of the state's Renewable Energy Standard and ratepayer-funded public benefits program

Top three policy priorities for 2010

- * Uniform Permitting Standards for Wind
- * Increased Renewable Energy Standard
- * Advanced Renewable Tariffs

Developing an on-line Wisconsin Wind Information Center (www.wiwindinfo.net)

An organized voice for renewable energy producers and purchasers!



Q. Where are the wind projects in Wisconsin located?

A. The majority are located near the load centers of eastern Wisconsin, in Fond du Lac and Dodge counties

Wind Projects - Class of 2008/2009

Project	MW/WTG	Owner	Utilities Served
Blue Sky Green Field	145/88	We Energies	We Energies
Forward	129/86	Invenergy	WPS, WPPI, MGE, Alliant-WPL
Cedar Ridge	68/41	Alliant-WPL	Alliant-WPL
Butler Ridge	54/36	NextEraEnergy	WPPI
Total	396/251		

This is a Working Landscape



Cedar Ridge – Alliant Energy - Fall 2008 – Eden, WI

The Siting Picture for Wind

> 100 MW Wind projects are reviewed by Public Service Commission, preempting local government ordinances. It is an expensive, time-consuming, lawyer-intensive process, but there is a clearly defined path to permit.

< 100 MW Local government review projects. When opposition surfaces, local governments buckle. Moratoria and restrictive ordinances are adopted to prevent projects from being built.

Permitting WI's Newest Turbines

Name	Reviewer	Date Permitted
Shirley ¹	Town of Glenmore	3/6/07
Glacier Hills ²	Public Service Commission	1/22/10
Cashton Greens ³	Village of Cashton	6/1/10

1 Fully online – February 2011

2 Under construction – Likely on line 3Q 2011

3 RFP for turbines – Likely on line 4Q 2011

None of these projects is subject to the Wind Siting Law (2009 Act 40)

Turbines Have Grown a Little

Rosiere/Lincoln

Turbine: Vestas V-47
Capacity: 660 kW
Hub Height: 65 m. (216 ft.)
Blades: 75 ft.
Max. Height: 291 ft.
Swept area: 17,696 sq. ft.
Owners: Utilities

Shirley

Turbine: Nordex N100
Capacity: 2,500 kW
Hub Height: 100 m. (330 ft.)
Blades: 165 ft.
Max. Height: 497
Swept area: 85,530 sq. ft.
Owner: IPP (10% in-state)

Glenmore Project



Wisconsin's first utility-scale turbines. Now owned by WPS, they stand near several tall TV transmission towers. Both turbines on one farm.

"I can't tell you how exciting it has been to watch this go up, and to feel and touch the turbines, and know that it's Wisconsin through and through."

Bill Rakocy,
of Emerging Energies in Hubertus

Towering turbines to harvest energy

Power to start flowing this month

By THOMAS CONTENT
tcontent@journal-sentinel.com

Glenmore — Towering above farm fields on the Niagara Escarpment south of Green Bay are some of the tallest wind turbines in the nation — rising nearly 500 feet from the ground to the tip of a blade, only about 100 feet shorter than Wisconsin's highest skyscraper, the U.S. Bank building in Milwaukee.

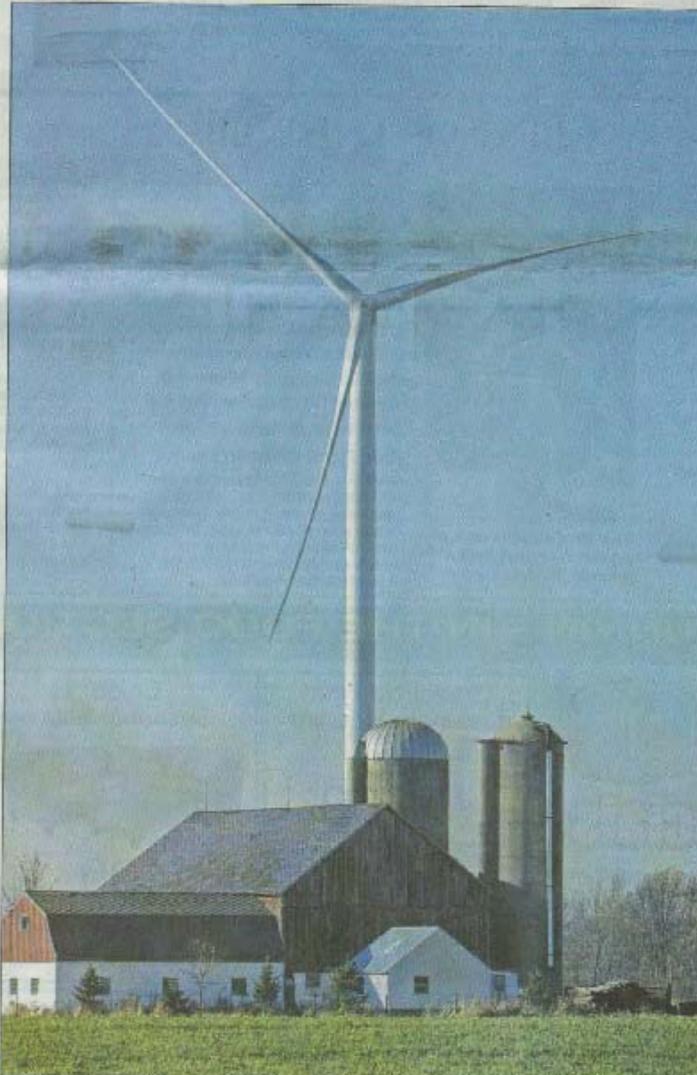
The Shirley Wind project is small by another measure, numbering only eight turbines, compared with the 90 turbines We Energies is building at the Glacier Hills Wind Park north of Madison. But the turbines that will start producing power this month in Glenmore can each generate more power than any other wind turbine erected so far in the state.

The Shirley Wind turbines are 100 feet taller than the turbines We Energies is building at Glacier Hills.

Shirley Wind's project developers, though, are quick to point out that their turbines are less than half the size of some nearby cell phone towers, which rise up to 1,200 feet.

The turbines are being tested this week and will soon start producing electricity, said Bill Rakocy, of project developer Emerging Energies in Hubertus.

Please see **TURBINES, 10A**



MARK HOFFMAN / PHOTOGRAPHY BY JOURNAL SENTINEL

A wind turbine appears to rise from a farm building in Glenmore in Brown County. The Shirley Wind project consists of just eight turbines, but their height gives them a high power output.

Front page, Milwaukee
Journal-Sentinel, November
10, 2010

BUSINESS

MSOE will invest in Park East corridor



NEWSWATCH
BREAKING NEWS AT JSONLINE.COM

NATION

www.RENEWWISCONSIN.org

Shirley Wind Turbine



Three miles east of the Glenmore turbines

Siting Chronology

- 2005/7** Local governments begin adopting restrictive ordinances (Shawano, Calumet, Manitowoc, Trempealeau counties)
- 2008** Siting reform bill introduced/does not pass
- 2009** Siting reform bill reintroduced – passed and signed into law Sept. 30, 2009 (Act 40)
- 2010** PSC initiates proceeding to establish statewide permitting standards – Wind Siting Council is formed – PSC sends rule (PSC 128) to Legislature
- 2011** JCRAR Suspends PSC 128

Major Provisions in PSC 128

- Sets nighttime sound threshold of 45 dBa
- Maximum shadow flicker – 25 hours/year
- Setback distances: the lesser of 3.1 x total turbine height or 1,250 ft. from residences; 1.1 x total turbine height from property lines
- Above provisions are waivable by neighbor
- Local govts. can require Good Neighbor payments to compensate nonparticipating residences within ½ mile of turbine(s)

In January, All Hell Breaks Loose

- PSC 128 clears legislative review in December
- Gov. Walker introduces bill Jan. 11 in special session (SB 9) that threatens to bring wind development to a standstill.
- Most important provision in SB 9: greatly extends minimum setback requirement.
 - PSC rule: 1.1 x total height from property lines (400-500 ft.)
 - SB 9: 1,800 feet from property lines

How Problematic Are 1,800 ft. Setback Requirements to Siting Wind Turbines?

Consider Glacier Hills – a 90-turbine wind project under construction in two townships in Columbia County characterized by a low density of population

- No. of turbines beyond a 1,250 ft. setback requirement from non-participating residences: **75 to 80**
- No. of turbines beyond an 1,800 ft. setback requirement from property lines: **2 to 5**

-
- In face of strong opposition, Governor + Legislature decide to shelve SB 9.
 - However, Joint Committee on the Review of Administrative Rules (JCRAR) holds a hearing 2/9/11 to decide whether to suspend PSC 128. Three weeks later, JCRAR suspends PSC 128. While the rule is in suspension, the regulatory environment reverts to the status quo ante (2007).

What Are the Complaints?

Aesthetics



County Hwy B, Fond du Lac County, near Forward Energy Center

Health and Safety



State Highway 96, east of Wrightstown (The Ledge)

The Shotgun Approach



Approaching Shirley project on Hwy 96

Code Words Indicating Jealousy



Translation:

You make a pile off these turbines, yet we're the ones that have to look at them.

What's Behind Wind Opposition?

- Aesthetics (real but subjective)
 - The machine in the garden
 - No different than with Cape Wind
- Presumed Adverse Effects on Property Values
 - Closely linked to aesthetic response
 - Impact on sale prices not substantiated
 - Impossible to separate turbine impacts from macroeconomic factors

Why Tilt at Wind?

Turbines are highly visible, iconic symbols of change. For the majority, wind turbines symbolize the hope of a peaceful, more sustainable future. For others they symbolize alien forces that appear out of nowhere and take over the landscape. (Don Quixote falls into this category. Recall that windmills did not originate in Spain; they came from the Netherlands.) At the core, opposition to wind generation is driven by a visceral revulsion over their appearance. The arguments that opponents use are attempts to rationalize their negative emotional response. Like Cervantes' Quixote, wind opponents are prone to liken wind turbines to monsters.

Outliers

From a press release praising the adoption of a one-year moratorium on wind development in Glenmore:

“The vote was taken after [a neighbor] described the unbearable conditions that caused him and his wife to leave the home they built 30 years ago”

- Note: The closest of the six Shirley wind turbines within view of their home is approximately 3,100 feet away. (3/5ths of a mile)

My Interpretation

Symptoms described:

“Headaches, unsteadiness, sleep deprivation, flight response.”

Symptoms are consistent w/ claustrophobia caused by changes to the landscape beyond the perceiver’s control.

Noise and Human Health —Conclusions

- **Statistically significant self-reported sleep disturbance at wind turbine sound levels >45 dBA**
- **Wind turbine sound more annoying than most other environmental noise**
- **Annoyance strongly associated with noise sensitivity, attitudes towards turbines, and turbine visibility**

Jevon McFadden presentation to the Wind Siting Council, May 17, 2010, page 64

<http://www.renewwisconsin.org/blogdocs/McFadden%20-%20ERF.pdf>

General Conclusions - Health

Evidence does not support the conclusion that wind turbines **cause** or **are associated with** adverse health outcomes

- Gaps remain in our knowledge of the impact that wind energy may have on human health
 - Potential positive and potential negative impacts
- Passionate analyses, whether by proponents or opponents of wind energy development, may be subject to significant bias, which compromises credibility

Jevon McFadden presentation to the Wind Siting Council, May 17, 2010, page 76

<http://www.renewwisconsin.org/blogdocs/McFadden%20-%20ERF.pdf>

Property Values – Kewaunee County

Poletti and Associates, an Illinois real estate appraisal company, examined the effects of the Lincoln and Rosiere projects on nearby property values. The report, published in March 2009, concluded that the presence of wind turbines had no statistically significant effect on sale prices of small, medium and large tracts, nor on sale prices of family homes. Moreover, a number of new residences have been constructed in proximity to the MGE and WPS projects.

Link: <http://www.wiwindinfo.net/studies/Poletti%20Study.pdf>

Observations

- **Good neighbor payments are helpful, but they're no panacea**
- **45 dBa sound thresholds are here to stay**
- **Sensitivities to environmental impacts vary widely – how individuals may respond to environmental changes can't be predicted accurately**
- **Opposition to wind energy capture is as old as Don Quixote**
- **Some individuals are put off by tall structures and continuous motion**
- **Public acceptance of WI's smallest projects has been very high**

An Unhappy Neighbor



One half mile to the west of the Shirley turbine

The View to the East





**Same house, same
sign, different angle**

**A classic example of
money trumping
aesthetics**

For More Information

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