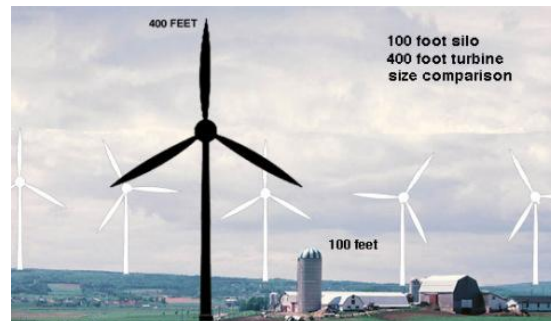




# Turbine Effects on View Shed

Do Close By Turbines  
affect Property Values?



# Chuck Ebbing

4-16-2009

You Decide ...  
Do Wind Turbines  
Within a mile or so  
Affect Property Values?  
Or your ability to sell  
The property?



I'll bet it took a lot of manure to grow those.

# Fenner Wind farm



# Fenner is not a typical Wind farm

## It has been thought out well



- There are only 20 turbines , they are all in a central cluster on a ridge.
- The minimum setback from houses is 4000 ft with most homes at a distance of a mile or more
- Most proposed North Country Wind Farms are much larger and surround the non participants.

# It's a matter of relative size



# Too Big To Fail





# Which Turbine detracts most? Which detracts least?



# Turbines tower over barn and silos in Fond du Lac County, Wisconsin



How far from a fairly priced home would a 40 story turbine have to be before you'd consider buying it?



Home in a wind farm with a 1000 foot setback:  
Fond du Lac County Wisconsin



# Turbines were sited as close as 1000 feet from homes In Fond du Lac County, Wisconsin



# Bargain

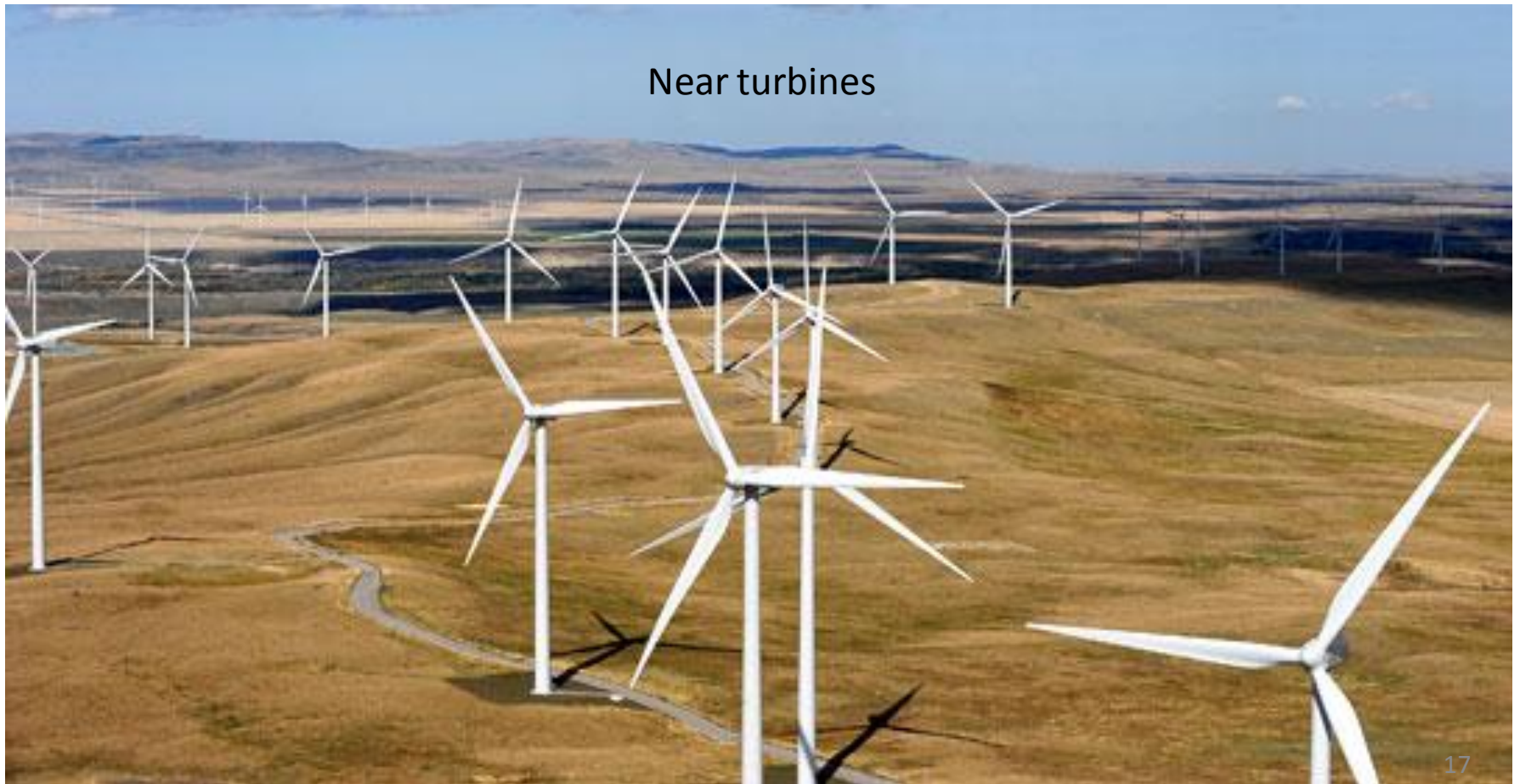


# Which Turbines most affect the View Shed?





Separate the near and the far turbines





# Location , Location, Location



# How does turbine distance affect the View Shed?



R1

Turbine at  
~ 7600 ft  
1.44 miles

R2

Turbine at  
~ 3800 ft

Turbine at  
~ 2470 ft

Turbine at  
~ 1000ft

Turbine at  
~ 147ft



# **LOOKING AT THE TREES IN THE FOREST**





**ERNEST ORLANDO LAWRENCE  
BERKELEY NATIONAL LABORATORY**

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# **The Impact of Wind Power Projects on Residential Property Values in the United States: A Multi-Site Hedonic Analysis**

**Ben Hoen, Ryan Wiser, Peter Cappers,  
Mark Thayer, and Gautam Sethi**

**Environmental Energy  
Technologies Division**

**December 2009**

Download from <http://eetd.lbl.gov/EA/EMP>

The work described in this report was funded by the Office of Energy Efficiency and Renewable Energy (Wind & Hydropower Technologies Program) of the U.S. Department of Energy under Contract No. DE-AC02-05CH1123.

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## Appendix E: View Ratings with Photos

### MINOR VIEW



1 Minor view from front observation location at 0.7 miles (R11C)



1 Substantial view from front observation location at 0.9 miles (R11C)

### MODERATE VIEW



10 Moderate view from back observation location at 1.2 miles (R12C)



5 Substantial view from back observation location at 0.8 miles (R12C)

### SUBSTANTIAL VIEW



90 Substantial view from all observation locations at 0.5 miles (R13C)



2 Substantial view from multiple observation locations at 0.5 miles (R13C)

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## EXTREME VIEW



0.8 m/s wind speed from multiple orientations, source of 0.2 m/s/c (RWDC)



2.2 m/s wind speed from all orientations, source of 0.2 m/s/c (RWDC)

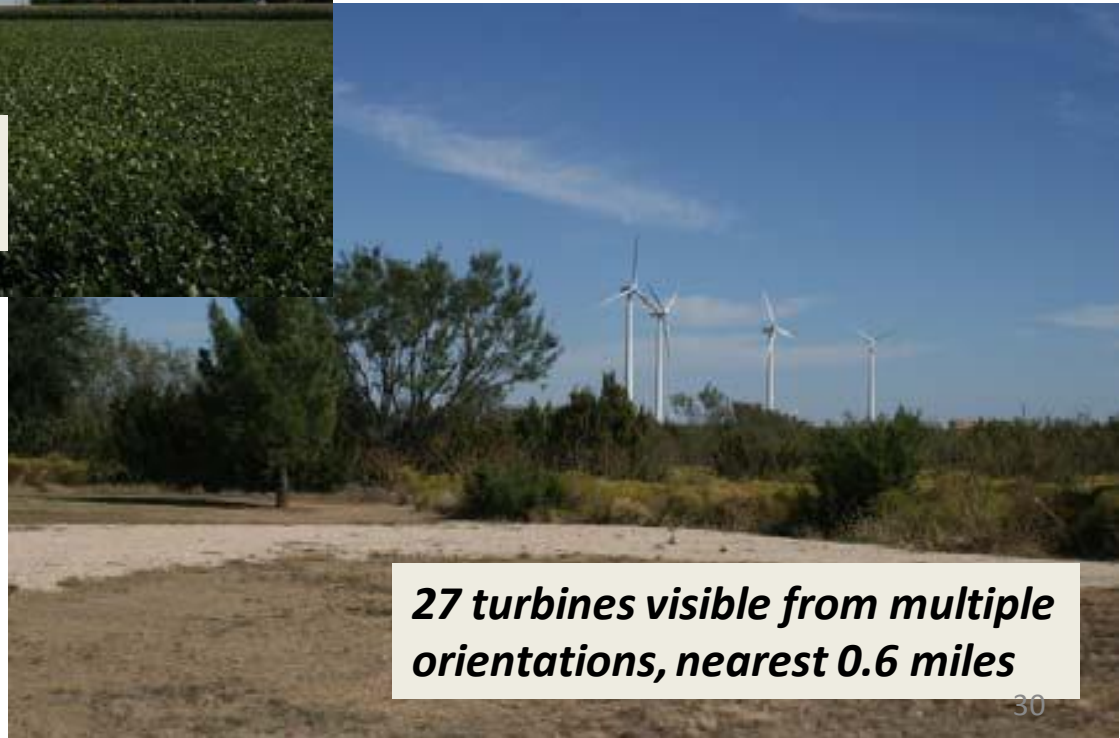


# SUBSTANTIAL VIEW



*90 turbines visible from all orientations, nearest 0.6 miles*

*From Hoen 2009*



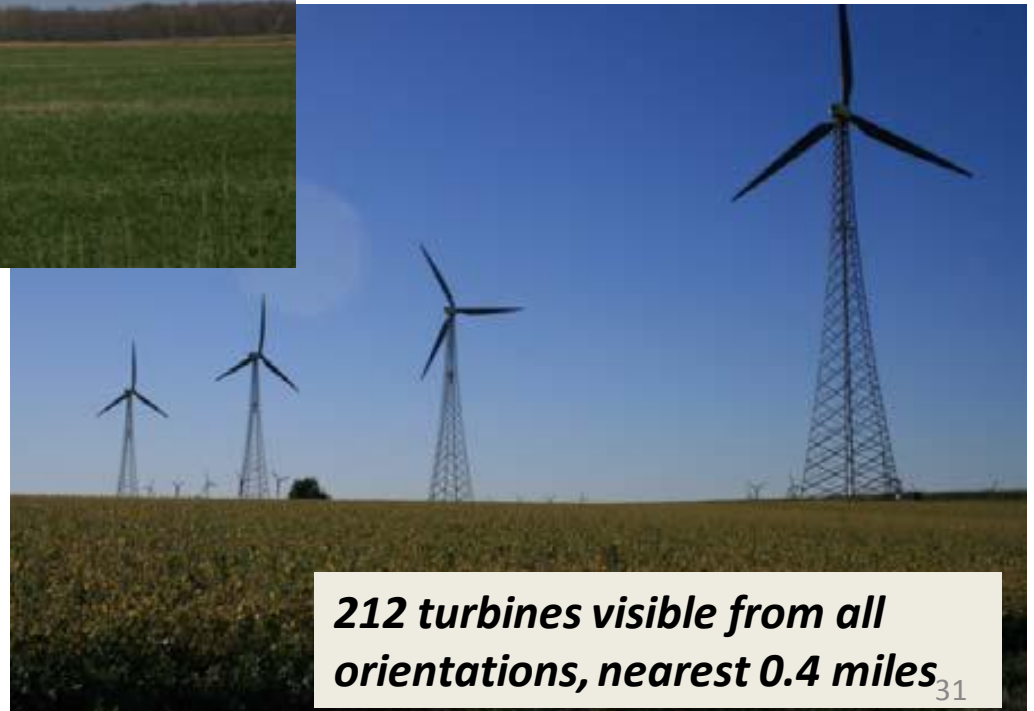
*27 turbines visible from multiple orientations, nearest 0.6 miles*

# EXTREME VIEW



*6 turbines visible from multiple orientations, nearest 0.2 miles*

*From Hoen 2009*



*212 turbines visible from all orientations, nearest 0.4 miles*

# What was the problem

As thoroughly acknowledged by the authors of the Report, proximity to an amenity or a nuisance can and does have significant effect on the value of residential property. Sale prices for property in zones up to 10 miles distant from a wind farm project are not considered to be a reliable basis for concluding a lack of impact on the most proximate properties, particularly those located in the "footprint" of a project. As those homes can be effectively surrounded by a large-scale industrial "overlay" with in some cases hundreds of 400-foot tall wind turbines becoming the dominant land use, it is exactly those (sales of ) homes which would best reveal the greatest measurable impact of the projects.

# Hoehn didn't really study the effects of near by wind turbines

The Report also concludes that *"Although this work builds on the existing literature in a number of respects, there remain a number of areas for further research. The primary goal of subsequent research should be to concentrate on those homes located closest to wind facilities, where the least data are available. Moreover, much of the data collection for this report was concluded in 2006, leaving the possibility of another round of analysis in the same study areas using more current data, and expanding the number of study areas, both of which would increase the overall sample size, and specifically the number of sales transactions for homes that are particularly close to wind facilities. A more detailed analysis of sales volume impacts would also be possible, as would be an assessment of the potential impact of wind facilities on the amount of time homes are on the market in advance of final sale. Finally, it would be useful to conduct a survey of those homeowners living close to existing wind facilities, especially those residents who have bought homes in proximity to wind facilities after facility construction."*

April 12, 2010

**PROPERTY VALUE GUARANTEES: Are they a legitimate tool to deal with the uncertainty of property value impacts associated with wind farm development?**

A leading economics researcher, who has studied property value impacts associated with wind farms in the U.S., recently said in a phone conversation that we have to be very cautious about drawing any conclusions about value impacts for properties located close to turbines. In the discussion close meant turbine placement 1,250 ft away from a home. Too much is unknown about the up-close impacts, he said, and added that wind developers were quick to use his reports to suggest that there are no negative impacts from wind development, but that is not what he would say. He would be much more careful about making these kinds of claims. Making claims about view impacts are one thing, however, the close-up effects of noise, shadow flicker and night-time effects are another matter. He reviewed the Property Value Guarantee agreement from DeKalb County, Illinois and thought it could be a useful tool to deal with the uncertainty of close-up property effects. Furthermore, he believed that any developer who will not guarantee against property devaluation would have little to stand on since they have claimed their wind farms do not devalue adjacent properties.

DeKalb County, IL Property Value Guarantee Agreement

This Property Value Guarantee Agreement ("Agreement") made and entered into on this \_\_\_ day of \_\_\_\_, by and between FPL Energy Illinois Wind, LLC, having its principal offices at \_\_\_\_\_ ("Guarantor") and \_\_\_\_\_, residing \_\_\_\_\_ at \_\_\_\_\_, Illinois ("Property Owners").

RECITALS

WHEREAS, Property Owners own eligible Property as described herein ("Property"), that Property having the legal description as follows:

[INSERT LEGAL DESCRIPTION OF NON-PARTICIPATING PROPERTY WITHIN 3/4 MILE RADIUS OF ANY WIND TOWER, AS MEASURED FROM THE BASE OF A WIND TOWER AT GROUND LEVEL TO THE FOUNDATION OF A RESIDENCE]

WHEREAS, Guarantor has been granted a Special Use Permit by DeKalb County Ordinance No. 2009-05 for the construction and operation of a wind energy center consisting of up to 119 turbines on properties located in unincorporated Shabbona, Milan, Afton and Clinton Townships in DeKalb County, Illinois ["Wind Energy Center"];

WHEREAS, Guarantor desires to alleviate concerns about the preservation of Property values of property located in proximity to the Wind Energy Center, specifically within three-quarters of a mile of any wind tower; and

WHEREAS, Property Owners are desirous of preserving equity in the Property, by ensuring that if the Property described herein is sold at a price less than the ASKING PRICE as a result of proximity to the Wind Energy Center, as determined by the procedures contained herein, the Guarantor will guarantee payment to the Property Owners of such difference;

IT IS HEREBY AGREED AS FOLLOWS:

1. EFFECTIVE DATE OF AGREEMENT. This Agreement shall become effective and binding on Guarantor when signed by both parties. Notwithstanding the foregoing, if an administrative agency or court of competent jurisdiction rules or holds that the permit issued by DeKalb County for the Wind Energy Center has been in excess of or in violation of said governmental body's authority or otherwise unlawful, then Guarantor's obligations under this Agreement shall be null and void.

2. ELIGIBILITY: EXERCISE OF GUARANTEE. Property that is within three-quarters (3/4) of a mile of the base of any wind tower that is part of the Wind Energy Center is covered by this guarantee, to the extent developed on June 17, 2009, the date

DeKalb County Property Value Guarantee

# Conclusions

- Most impact is caused by nearby Turbines.
  - Impact falls off rapidly with distance.
  - DeKalb County Property Value Guarantee
  - Agreement can cover non-participating property with *within 3/4 mile radius*
  - *Or 6240 ft Diameter* of any Wind Turbine
- [INSERT LEGAL DESCRIPTION OF NON-PARTICIPATING PROPERTY WITHIN 3/4 MILE RADIUS OF ANY WIND TOWER, AS MEASURED FROM THE BASE OF A WIND TOWER AT GROUND LEVEL TO THE FOUNDATION OF A RESIDENCE]
- Turbines are usually spaced about *1200 ft apart.*
  - So roughly within this *3/4 mile radius* Circle approximately *16 Turbines would be expected.*

# My Conclusions

- DeKalb County Property Value Guarantee Agreement covers non-participating property with *within 3/4 mile radius* of any Wind Turbine.

- *If there isn't any significant decrease in home values adjacent to wind turbines then this should not be of significant consequence to the wind developers.*