

Wind Turbines & Property Value

A presentation by

Kurt C. Kielisch, ASA, IFAS, SR/WA, R/W-AC President/Sr. Appraiser – Appraisal Group One

Focus on Value

- PERCEPTION = VALUE
 - The key to understanding real estate value is to understand it is based on perception.
 - Perception drives the buying decision.
 - E.g. perceived enjoyment of home.
 - E.g. perceived income stream of investment.
 - Perception need not be based on a proven, scientific fact. (e.g. the haunted house or electric power lines)
 - When the buyer acts on this perception through a buying action you have established value and the effects of this perception.

E.g. Perception of Electric Transmission Lines

Perception

 They cause health problems especially cancer.

• They are noisy.

 They are unsightly, and ruin the view shed.

Fact

 Not proven as a scientific fact, however the jury is still out and there is published literature on this issue.

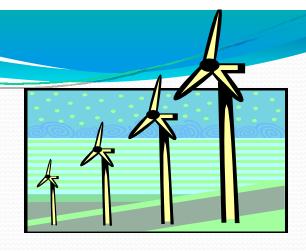
 Sometimes, depending on humidity, power and distance.

True both near and far.

Perception of Wind Turbines

Perception

- They cause health problems though noise and deep ultrasonic sound waves, sleep deprivation.
- They are noisy.
- They cause light flicker.
- They are unsightly, and ruin view shed.



Fact

- Not proven as a scientific fact, however the jury is still out and there is published literature on this issue.
- True, depending on wind, size, age and distance.
- True depending on location and distance.
- True both near and far.

What Drives Perception?

- Media
 - Printed media
 - Electronic media
 - Internet

To measure this perception of media we conducted a **Literature Review**

Literature Review

- Health Issues
 - Articles found on health disorders including:
 - Sleep deprivation
 - Headaches
 - Dizziness
 - Anxiety
 - Depression
 - Vibroacoustic Disease (VAD) & Wind Tower Syndrome
 - WHO Community Noise Paper of 1995 counters claims.
 - Doesn't affect everyone.
 - Wind industry has counter claims stating "no health impact."
 - Similar to the EMF issue relating to power lines.



Measuring Perception

- To measure the impact of this perception we did two things:
 - Conducted a Realtor Survey of Realtors who worked in a wind turbine area.
 - Conducted an Impact Study using sales of properties impacted by wind turbines compared to those that were not.

Realtor Survey



Purpose: learn from those in the trenches of buying and selling.

Focus: residential land use, both vacant and improved.

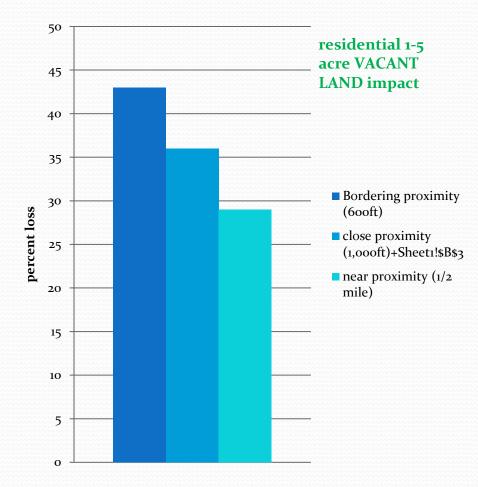
Visual field proximity: 3 different levels...

- 6ooft from turbine (border)
- 1,000ft (close)
- ½ mile (2,64oft) (near)

- Survey utilized graphics and pictures to standardize the concept being portrayed.
- Survey used Realtors that were in a wind turbine area.
 - Fond du Lac County
 - Northeast Dodge County
- Surveys were given in person, on-site, verified with date, person's name and contact.

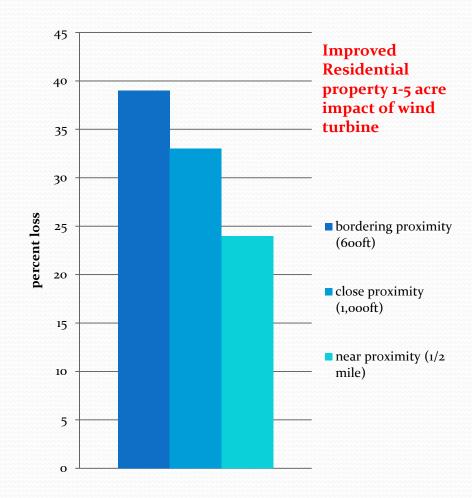
Realtor Survey results . . .

- Question to impact of wind turbine to vacant land:
 - 82% negative if border
 - Loss estimated at -43%
 - 69% negative if close
 - Loss estimated at -36%
 - 59% negative if near
 - Loss estimate at -29%



Realtor Survey results . . .

- Question to impact of wind turbine to improved property:
 - 91% negative if border
 - Loss estimated at -39%
 - 86% negative if close
 - Loss estimated at -33%
 - 60% negative if near
 - Loss estimate at -24%



Realtor Survey results . . .

Hobby Farm



- Bordering proximity (600ft)
 - 70% said negative impact
 - 23% said no impact
- Close proximity (1,000ft)
 - 47% said negative impact
 - 47% said no impact
- Near proximity (2,64oft or half mile)
 - 44% said negative impact
 - 47% said no impact

Position of Turbines

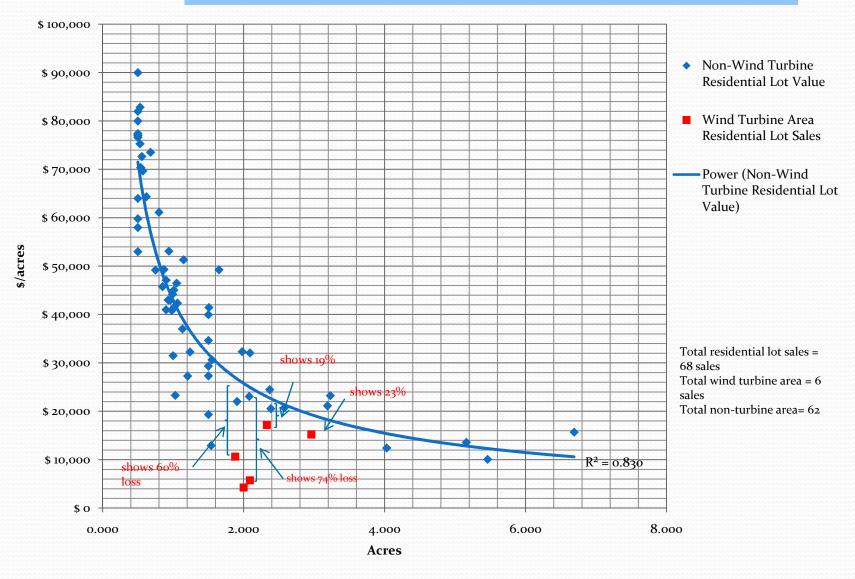
- 83% said the impact was negative if the turbines are in the front yard of a 1-5 acre residential parcel.
- 71% said the impact was negative if the turbines were located in the back yard of a 1-5 acre residential parcel.

Impact Studies

Checking perception with buying action

WE ENERGIES - BLUE SKY GREEN FIELD WIND FARM

1 acre to 8 acre residential land sales -- all sales included

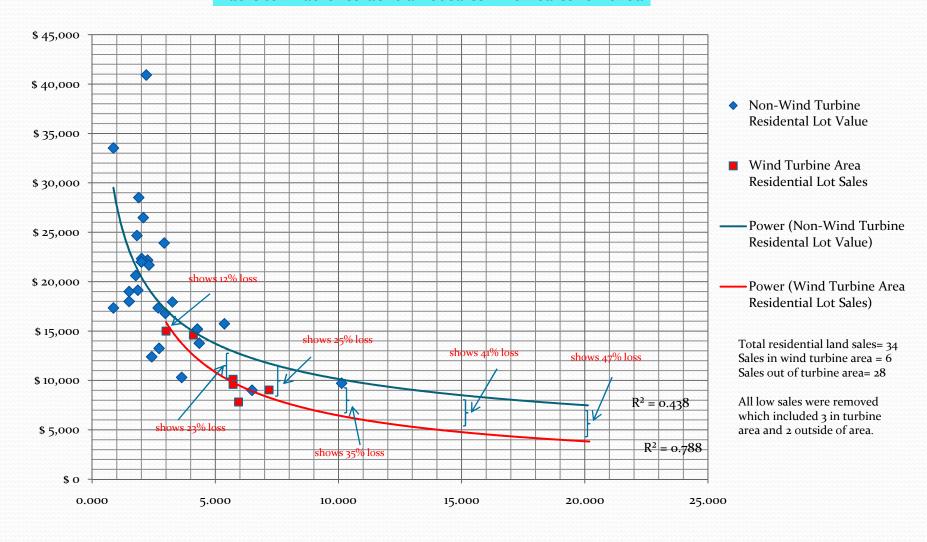


Blue Sky Green Field results . . .

- Sales within the wind turbine area <u>sold for less</u> than comparative sales outside of the turbine area.
- There were substantially <u>less sales</u> available within the wind turbine area than outside of it.
- The impact of the wind turbines on vacant residential land is in the range of <u>-19% to -40%</u>.
- This loss range corresponds with the Realtor survey.

INVENERGY - FORWARD WIND FARM

1 acre to 20 acre residential lot sales -- low sales removed



Forward Wind Farm results . . .

- Sales within the wind turbine area <u>sold for less</u> than comparative sales outside of the turbine area.
- There were substantially <u>less sales</u> available within the wind turbine area than outside of it.
- The impact of the wind turbines on vacant residential land is in the range of <u>-12% to -30%</u>.
- This loss range corresponds with the Realtor survey.

Conclusion of Perception of Wind Turbines Impact to Property Value

- Media has reported on negative health issues and value issues influencing a negative perception.
- 2. Realtor survey indicated that these perceptions are real in the market.
- 3. Impact studies suggest the values are substantially negatively impacted in the range of -12% to -40%.
- 4. The further away, the less the impact.

