
PROPERTY VALUE IMPACT STUDY: WIND FARM PROXIMITY

October 2024

CohnReznick LLP



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Andrew R. Lines, MAI, CRE

Principal

Valuation Advisory Services, CohnReznick LLP
1 S. Wacker Drive, Suite 3550, Chicago, IL 60606

 312-508-5892  andrew.lines@cohnreznick.com

Licenses and Accreditations

- Member of the Appraisal Institute (MAI)
- Counselors of Real Estate (CRE)
- Certified General Real Estate Appraiser in the states of:

- ✓ Illinois
- ✓ Indiana
- ✓ Ohio
- ✓ Arizona
- ✓ New York
- ✓ New Jersey
- ✓ Kentucky
- ✓ Florida
- ✓ Georgia
- ✓ Michigan
- ✓ District of Columbia

Professional Affiliations

- Member of the Institute of Real Estate Management (IREM)
- Member of the National Council of Housing Market Analysts (NCHMA)

Education

- Syracuse University - BFA

Impact Studies

- Landfills
- Waste Transfer Stations
- Big Box Retail
- Transmission Lines
- Zoning Overlay districts
- Truck Terminals



Erin C. Bowen, MAI

Director
Valuation Advisory Services, CohnReznick LLP
Phoenix, AZ

 404-847-7740  Erin.Bowen@CohnReznick.com

Licenses and Accreditations

- Designated Member of the Appraisal Institute (MAI)
- Certified General Real Estate Appraiser in the states of:
 - ✓ Arizona
 - ✓ California
 - ✓ Nevada
 - ✓ Oregon
 - ✓ New Mexico

Professional Affiliations

- Member of the Appraisal Institute (MAI)

Education

- University of California, San Diego: Bachelors

Impact Studies

- Landfills
- Behavioral Health Facilities
- Concert Venues
- Cell Towers



**DOES PROXIMITY TO
WIND FARMS IMPACT
PROPERTY VALUES?**



METHODOLOGY

I. Academic & Peer-Authored Studies

- Reviewed studies for the last 20 years on Wind Farm Impacts on Adjacent Property Values
- Examined Studies using data from Illinois

II. CR Detailed Studies

- Produced 8 detailed Paired Sales Group studies of existing Wind Facilities
- All studies included Wind Farms in Illinois

III. Assessor Interviews

- Documented interviews with local County Assessors familiar with residential transactions next to Wind Farms in Illinois

IV. Site Specific Report

- Investigated local trends, land values, demographics, soil productivity indices and land uses to contextualize whether the project was designed in a manner that would or would not impact adjacent real estate values



ACADEMIC STUDIES



PUBLISHED WIND FARM IMPACT STUDIES- NEGATIVE IMPACT (4)

Summary of Published Studies on the Impact of Wind Farms on Property Values

	Study Title	Author	Date	Methodology	Location	Impact Found
9	Case Study: Effects of Wind Turbine Facility	Lansink (Canadian Appraiser)	2012	Five sales & re-sales of SFR homes	Melancthon, Ontario (Canada)	Negative Impact
11	Values in the Wind: A Hedonic Analysis of Wind Power Facilities	Heintzelman & Tuttle (Academic)	2011	Hedonic Regression Analysis of 11,369 property sales over 9 years	Clinton, Franklin, and Lewis Counties in New York	Negative Impact (but Mixed)
15	Written Testimony	McCann (US Appraiser)	2010	Compared sale prices of SFR <2 miles (15 home sales) and > 2 miles from turbines (38 home sales).	Near Mendota Hills Wind Farm, Lee County, IL	Negative Impact
17	Wind Turbine Impact Study	Kielisch (US Appraiser)	2009	Compared values of vacant residential lots using regression analysis	Dodge & Fond Du Lac Counties, WI	Negative Impact

“Overall, the results of this study are mixed as regards the effect of wind turbines on property values.”
- Martin D. Heintzelman & Carrie M. Tuttle, July 16, 2011



PUBLISHED WIND FARM IMPACT STUDIES- MIXED RESULTS (3)

Summary of Published Studies on the Impact of Wind Farms on Property Values

	Study Title	Author	Date	Methodology	Location	Impact Found
1	The visual effect of wind turbines on property values is small and diminishing in space and time	Guo & Wenz	2024	Hedonic Regression Analysis of 300M home sales from 1997 - 2020	United States	Small Impact (1%); Diminishes over time
2	Commercial wind turbines and residential home values: New evidence from the universe of land-based wind projects in the United States	Brunner, Hoen, et al.	2023	Hedonic Regression Analysis of 500,000 home sales from 2005 - 2020	United States	Small Impact (2%); No impact after 5 years
3	Property value impacts of onshore wind energy in New England: The importance of spatial heterogeneity and temporal dynamics	Dong, Lang, et al.	2023	Hedonic Regression Analysis of 370,000 home sales from 2001 - 2019	Massachusetts and Rhode Island	3 of 4 Regions - No Impact; Negative Impact only within 1km (3,280 Ft)

“In terms of spatial heterogeneity, we only estimate consistent, negative price impacts in one of the four regions in our study, Cape Cod and Nantucket...we generally find that that price impacts often follow a “U-shaped” pattern, meaning nearby prices start declining in the pre-construction time period, reach a maximum impact shortly after construction completes, and then start rebounding. For areas excluding Cape Cod and Nantucket, price impacts abate to zero relatively quickly“

- Luran Dong, Vasundhara Gaur, Corey Lang, 2023



PUBLISHED WIND FARM IMPACT STUDIES- NO IMPACT (14)

	Study Title	Author	Date	Methodology	Location	Impact Found
1	Wind turbines, amenities, and disamenities: a study of home value impacts in densely populated Massachusetts	Hoen, et al.	2016	Hedonic Regression Analysis	Massachusetts	No Impact
2	Impact of Industrial Wind Turbines on Residential Property Assessment in Ontario	Moore, et al.	2016	Multiple Regression Analysis	Ontario, Canada	No Impact
3	Brookings County 2015 Property Value Survey	Prevailing Winds	2015	Simple observation of increase/decrease in value of proximate and non-proximate properties (Ag & Res)	Brookings County, SD	No Impact
4	A Spatial Hedonic Analysis of the Effects of Wind Energy Facilities on Surrounding Property Values in the United States	Hoen, et al.	2013	Spatial-process difference-in-difference hedonic models	27 Counties in 9 U.S. States	No Impact
5	The Effect of Wind Farms on Residential Property Values in Lee County, Illinois	Carter	2011	Hedonic Regression Analysis on proximate and regional sales data	Lee County, IL	No Impact
6	Wind energy facilities and residential properties: the effect of proximity and view on sales prices	Hoen, et al.	2011	Hedonic Regression Analysis	24 existing wind facilities in the United States	No Impact
7	Wind Energy Study - Effect on Real Estate Values	Canning (MAI)	2010	Multiple Regression Analysis, Paired Sale Analysis	Chatham-Kent, Ontario (Canada)	No Impact
8	Wind farm proximity and property values: a pooled hedonic regression analysis of property values in central Illinois	Hinman	2010	Hedonic Regression Analysis with Difference-in-Difference Estimators	McLean County, IL	No Impact
9	The Impact of Wind Power Projects on Residential Property Values in the United States: A Multi-Site Hedonic Analysis	Hoen, et al.	2009	Hedonic Regression analysis & Repeat Sales Models	24 existing wind facilities in the United States	No Impact
10	A Real Estate Study of the Proposed White Oak Wind Energy Center, McLean & Woodford Counties, Illinois	Poletti	2007	Statistical analysis of homes in close proximity and those not proximate	McLean & Woodford Counties, IL	No Impact
11	Impacts of windmill visibility on property values in Madison County, New York	Hoen	2006	Hedonic Regression Analysis	Madison County, NY	No Impact
12	A Study on the Impact of Windmills on Property Values in Tucker County, West Virginia	Goldman	2006	Qualitative interviews	Tucker County, WV	No Impact
13	Market Impact Analysis	MaRous (MAI)	2005	Matched Pair Analysis and Interviews	Bureau County, IL	No Impact
14	The Effect of Wind Development on Local Property Values	Sterzinger	2003	Linear Regression Analysis	7 U.S. States	No Impact

- Hoen (Berkely Nat'l Lab) did find a “anticipation effect” where a dip prior to construction rebounded shortly after operations began.



CR CASE STUDIES



IMPACT STUDY - METHODOLOGY

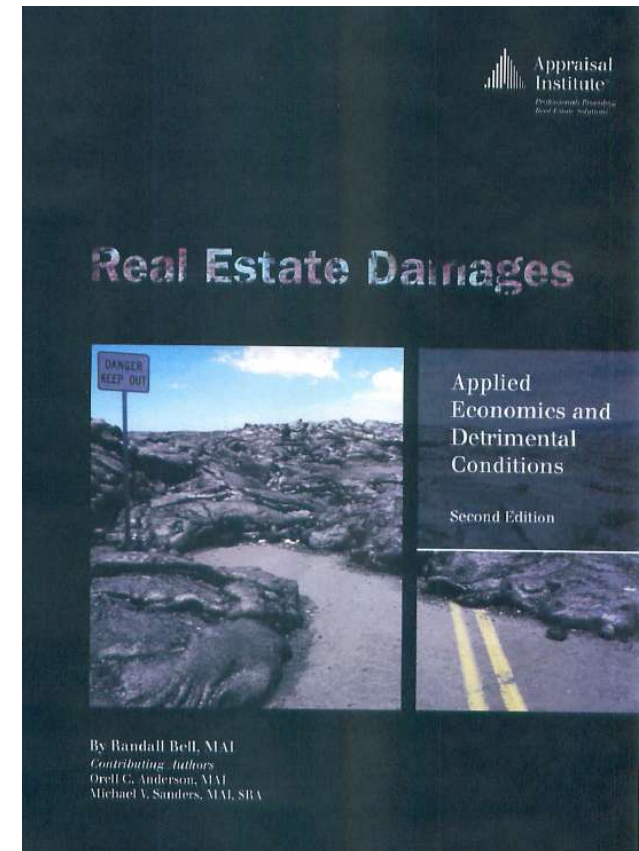
- We have studied a number of established wind facilities across the U.S.
 - Reviewed published studies
 - Interviewed market participants (real estate assessors and real estate brokers)
 - Prepared paired sales analyses to compare potentially impacted properties located in “*Test Areas*” with unimpacted properties called “*Control Areas*.”

Test Areas: A group of sales located adjacent to Existing Wind Farms.

Control Areas: A group of otherwise similar properties not located adjacent to Existing Wind Farms.

- *“If a legitimate detrimental condition exists, there will likely be a measurable and consistent difference between the two sets of market data; if not, there will likely be no significant difference between the two sets of data.”*

-From the Appraisal Institute’s textbook, *Real Estate Damages*, page 25





TEST & CONTROL PROPERTY SELECTION CRITERIA

Test Area Sales are:

- In a township or area that contained wind turbines, within close proximity and visibility of a turbine and outside of turbine setbacks, but within two miles of turbines.
- Properties that sold after the construction of the wind farm
- Arm's length transactions
- Not distressed sales (no foreclosures, short sales, bank-owned sales)
- Not participating land owners. Every effort was made to identify potential participating land owners and were excluded from analysis.

Control Area Sales are:

- In a surrounding township or area that did not contain wind turbines, at least 14,725 feet (2.79 miles) from a turbine
- Properties that sold after the construction of the wind farm, and within approximately 18 months of the Test Sale property
- Similar in construction, age, land area, and size to the Test Area Sales
- Arm's length transactions
- Not distressed sales (no foreclosures, short sales, bank-owned sales)



WIND FARM IMPACT STUDIES

CohnReznick's research has indicated there has been no quantifiable and consistent detrimental impact measured on the Test Area properties, with regard to such market elements as:

- Range of sale prices
- Differences in unit sale prices
- Time on market
- Overall marketability
- Rate of Appreciation
- New Development

The following analysis reflects CohnReznick's study on wind farms located in Illinois.



WIND FARM 1: TOP CROP WIND FARM, LIVINGSTON, GRUNDY & LASALLE COUNTIES, IL

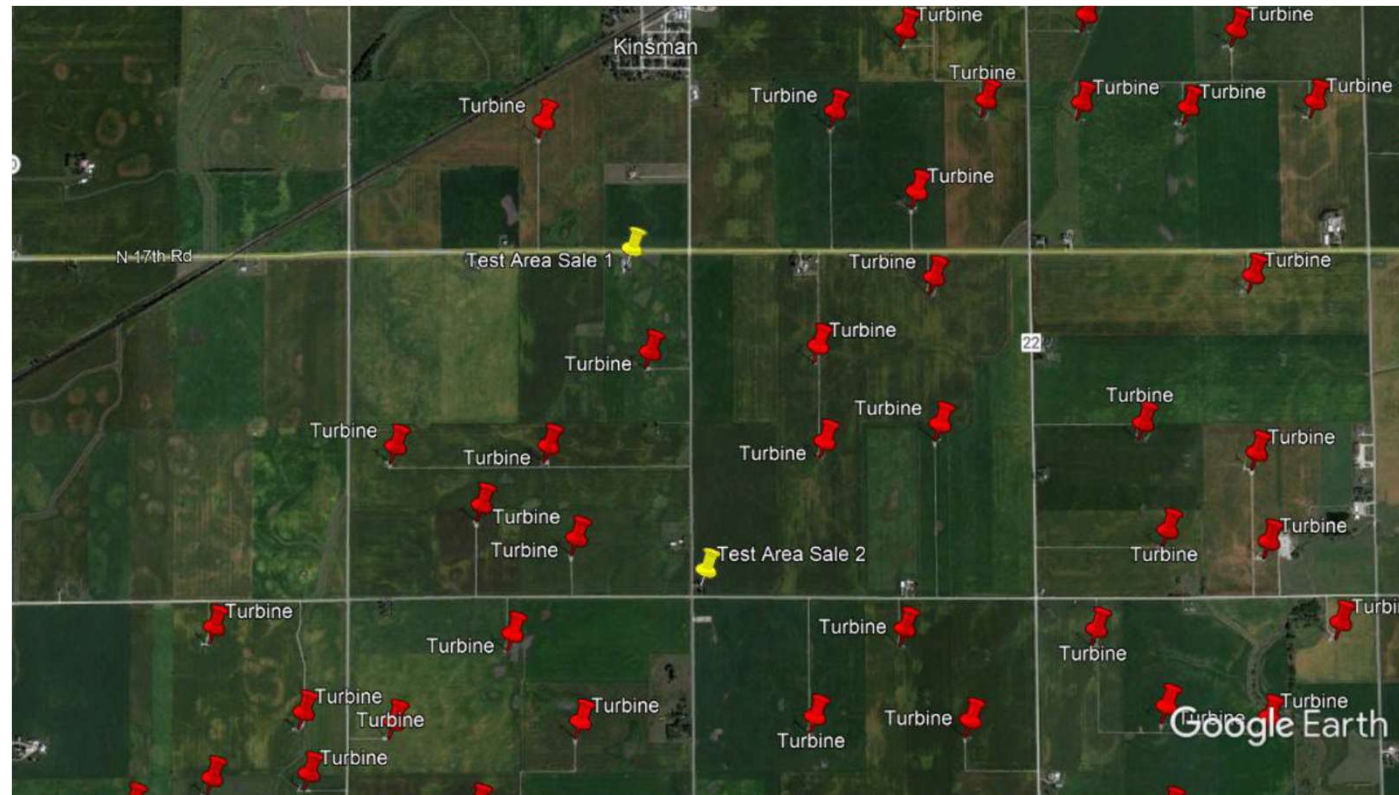
Total Land Size: ±28,000 Acres

Date Project Announced: 2009

Date Project Completed: August 2012

Output: 300 MW AC

GROUP 1

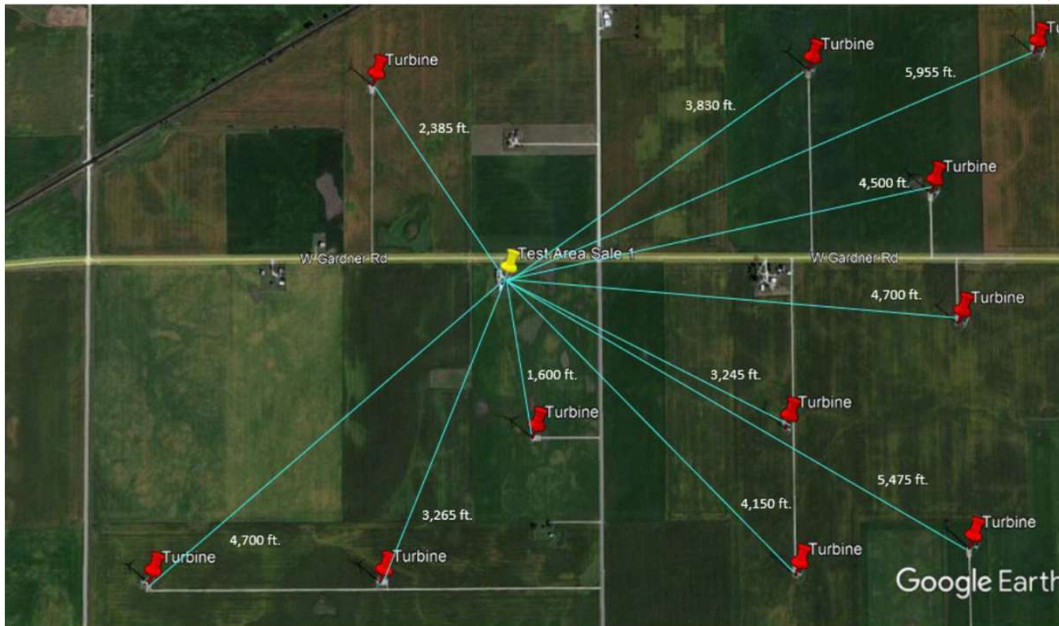


Top Crop Wind Farm - Group 1

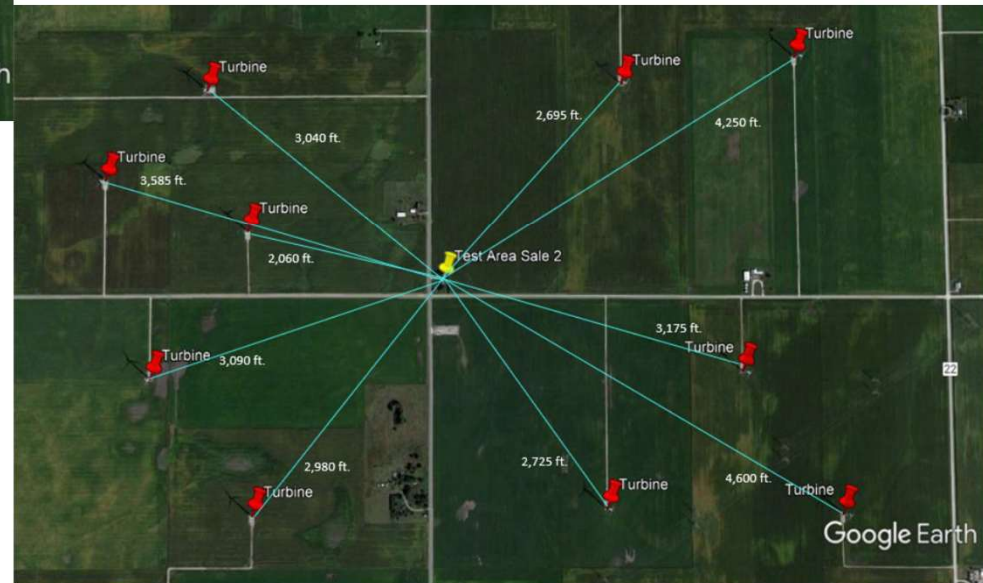
Test Area Sale #	Address	Township	Sale Date	Sale Price	Above Grade SF	Beds	Baths	Year Built	Site Size (AC)	Price/SF
1	8193 W. Gardner Road	Kinsman	6/4/2019	\$191,000	1,848	3	2.0	1975	1.00	\$103.35
2	7970 S. Kinsman Road	Kinsman	8/24/2022	\$125,000	1,532	3	2.0	1970	1.00	\$81.59



WIND FARM 1: TOP CROP WIND FARM, LIVINGSTON, GRUNDY & LASALLE COUNTIES, IL



GROUP 1





WIND FARM 1: TOP CROP WIND FARM, LIVINGSTON, GRUNDY & LASALLE COUNTIES, IL

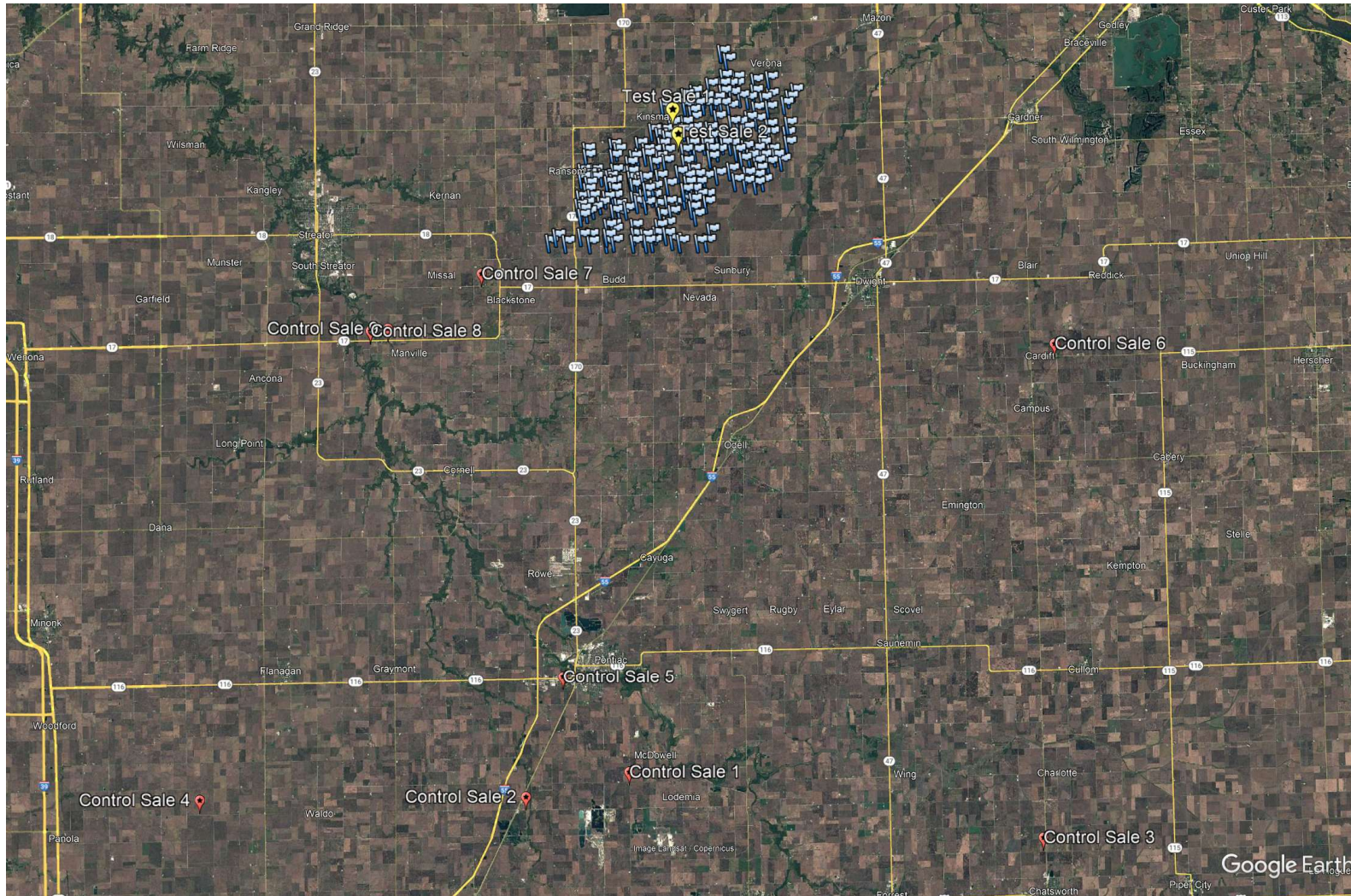
GROUP 1

Control Area Sale No.	Address	Township	Sale Price	GLA SF	Type	Bedrooms	Bathrooms	Year Built	Lot Size (AC)	Sale Date	Sale Price/SF	Months	Adjustment	Adjusted Sale Price/SF
G1-1	12959 N. 1700 East Road	Pontiac	\$120,000	1,381	1.5-Story Single Family Home with Unfinished Basement, Detached Garage, and Attic Space	4	1.5	1951	1.50	12/30/2021	\$86.89	-12	-6.1%	\$81.58
G1-2	11977 N. 1300 East Road	Pontiac	\$175,000	1,434	1-Story Single Family Home with Large Detached Garage	3	2.0	1973	0.75	9/28/2021	\$122.04	-8	-4.1%	\$117.06
G1-3	32911 E. 1000 North Road	Chatsworth	\$165,000	1,363	1-Story Single Family Home with Unfinished Basement and Attached Garage	3	1.0	1968	1.02	5/7/2021	\$121.06	-4	0.0%	\$121.06
G1-4	483 E. 1200 North Road	Gridley	\$165,500	1,935	1-Story Single Family Home with Partially Finished Basement and Attached Garage	3	2.0	1958	2.47	6/27/2018	\$85.53	31	0.0%	\$85.53
G1-5	1205 Countryside Lane	Pontiac	\$200,000	1,896	1-Story Single Family Home with Attached Garage, Workshop and Shed	3	2.0	1982	1.59	9/27/2019	\$105.49	16	8.2%	\$114.09
G1-6	33986 E. 2900 North Road	Dwight	\$212,500	1,799	1-Story Single Family Home with Unfinished Basement and Attached Garage	3	2.5	1977	0.98	8/1/2022	\$118.12	-19	-9.7%	\$106.68
G1-7	11390 E. 3200 North Road	Blackstone	\$167,000	1,846	1.5-Story Single Family Home with Unfinished Basement, and Attached Garage	4	3.0	1973	2.00	10/18/2018	\$90.47	27	0.0%	\$90.47
G1-8	29876 N. 700 East Road	Cornell	\$140,000	1,748	1-Story Single Family Home with Unfinished Basement, Attached Garage, and Farm Structure	3	1.5	1972	0.68	4/30/2019	\$80.09	20	0.0%	\$80.09
G1-9	7748 E. 3000 North Road 32	Cornell	\$130,000	2,074	1.5-Story Single Family Home with Attached Garage and Farm Structure	3	2.5	1953	0.86	10/16/2019	\$62.68	15	7.6%	\$67.47



WIND FARM 1: TOP CROP WIND FARM, LIVINGSTON, GRUNDY & LASALLE COUNTIES, IL

GROUP 1





WIND FARM 1: TOP CROP WIND FARM, LIVINGSTON, GRUNDY & LASALLE COUNTIES, IL

GROUP 1

CohnReznick Paired Sale Analysis Top Crop Wind Farm - Group 1		
No. of Sales	Potentially Impacted by Wind Farm	Adjusted Median Price Per SF
Test Area Sale (2)	Adjoining wind farm	\$92.47
Control Area Sales (9)	No: Not adjoining wind farm	\$90.47
Difference between Unit Price of Test Area Sales and Adjusted Median Unit Price of Control Area Sales		2.22%

Top Crop Wind Farm - Group 1				
	Gross Finished Living Area (SF)	Land Size (AC)	Year Built	Beds / Baths
Test Area Sale	1,532 - 1,848	1.00	1970 - 1975	3 / 2
Control Area Sales (Range)	1,363 - 2,074	0.68 - 2.47	1951 - 1982	3 - 4 / 1-3

The days on market for the Test Area Sales was 69 days, while the median days on market for the Control Area sales was 62 days (ranging from 22 to 342 days)



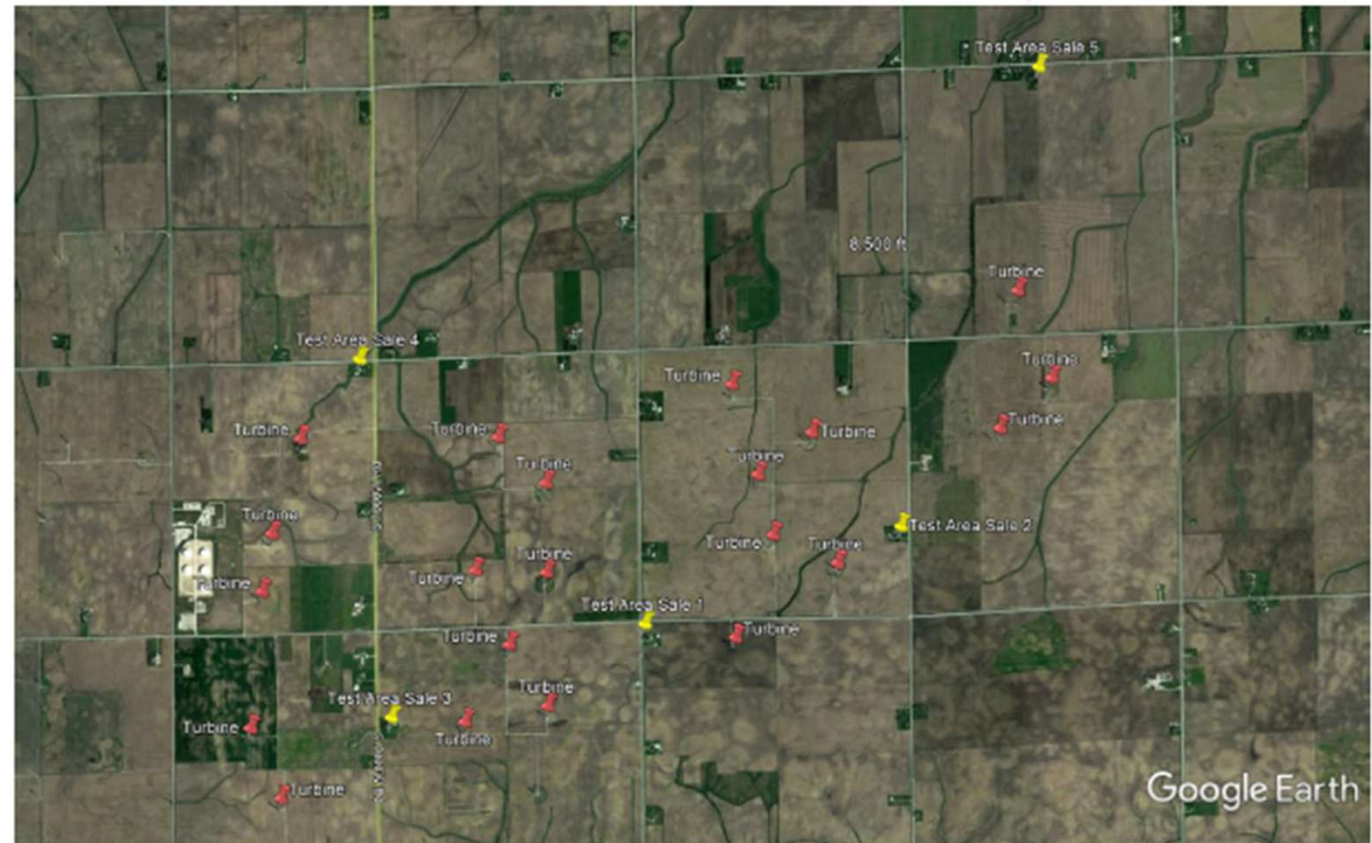
WIND FARM 2: PILOT HILL WIND FARM, KANKAKEE & IROQUOIS COUNTY, IL

Total Land Size: ±15,000 Acres

Date Project Announced: 2013

Date Project Completed: August 2015

Output: 175 MW AC





WIND FARM 2: PILOT HILL WIND FARM, KANKAKEE & IROQUOIS COUNTY, IL

GROUP 1

CohnReznick Paired Sale Analysis Pilot Hill Wind Farm Group 1		
No. of Sales	Potentially Impacted by Wind Farm	Adjusted Median Price Per SF
Test Area Sales (3)	Adjoining wind farm	\$133.13
Control Area Sales (7)	No: Not adjoining wind farm	\$132.76
Difference between Unit Price of Test Area Sales and Adjusted Median Unit Price of Control Area Sales		0.28%



Pilot Hill Wind Farm - Group 1				
	Gross Finished Living Area (SF)	Land Size (AC)	Year Built	Beds / Baths
Test Area Sales (Range)	1,675 - 1,900	3.6 - 5.0	1900 - 1974	3 - 4 / 2 - 3.5
Control Area Sales (Range)	1,500 - 2,352	2.0 - 5.17	1940 - 1978	3 - 4 / 2 - 4



WIND FARM 2: PILOT HILL WIND FARM, KANKAKEE & IROQUOIS COUNTY, IL

GROUP 2

CohnReznick Paired Sale Analysis Pilot Hill Wind Farm Group 2		
No. of Sales	Potentially Impacted by Wind Farm	Adjusted Median Price Per SF
Test Area Sale (1)	Adjoining wind farm	\$175.00
Control Area Sales (10)	No: Not adjoining wind farm	\$173.98
Difference between Unit Price of Test Area Sale and Adjusted Median Unit Price of Control Area Sales		0.59%



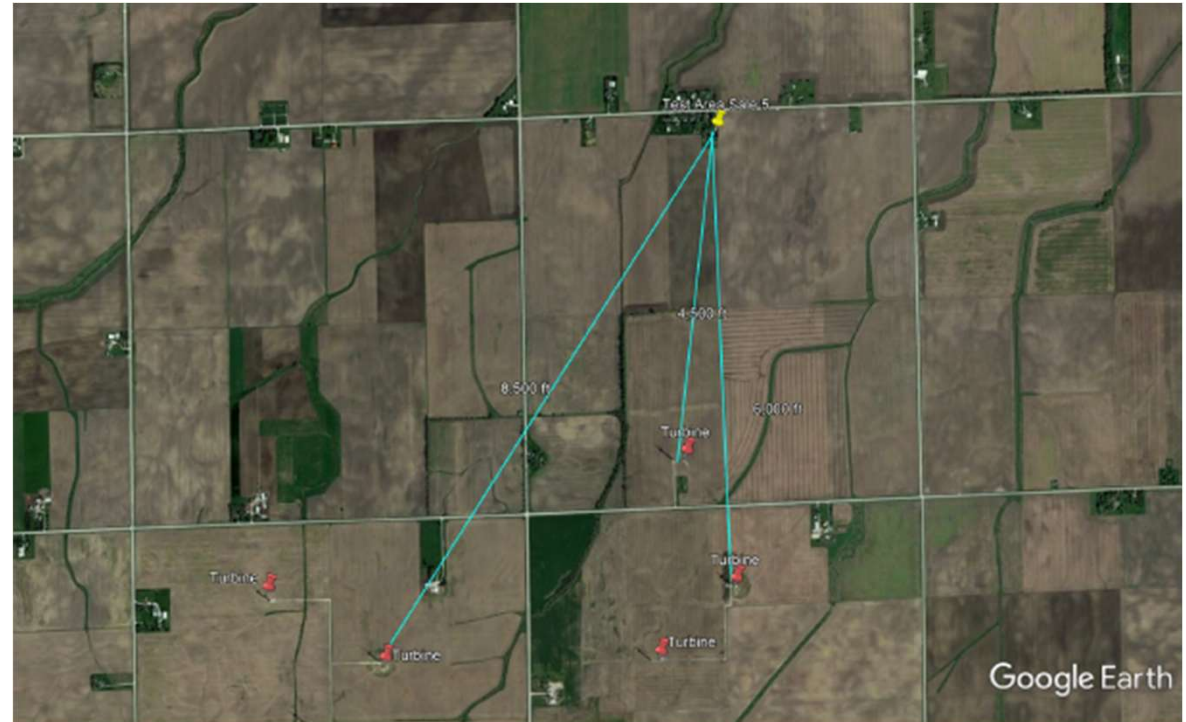
Pilot Hill Wind Farm - Group 2				
	Gross Finished Living Area (SF)	Land Size (AC)	Year Built	Beds / Baths
Test Area Sale	1,800	2.9	1995	3 / 2.5
Control Area Sales (Range)	1,300 - 2,200	2.2 - 5.5	1985 - 2002	3 / 1.5 - 2.5



WIND FARM 2: PILOT HILL WIND FARM, KANKAKEE & IROQUOIS COUNTY, IL

GROUP 3

CohnReznick Paired Sale Analysis Pilot Hill Wind Farm Group 3		
No. of Sales	Potentially Impacted by Wind Farm	Adjusted Median Price Per SF
Test Area Sale (1)	Adjoining wind farm	\$129.06
Control Area Sales (7)	No: Not adjoining wind farm	\$120.73
Difference between Unit Price of Test Area Sale and Adjusted Median Unit Price of Control Area Sales		6.90%



Pilot Hill Wind Farm - Group 3				
	Gross Finished Living Area (SF)	Land Size (AC)	Year Built	Beds / Baths
Test Area Sale	1,239	1.0	1959	3 / 1
Control Area Sales (Range)	1,108 - 1,700	1.7 - 3.7	1900 - 1975	3 / 1 - 2



SUMMARY OF TESTED DATA

CohnReznick Impact Study Analysis Conclusions						
Wind Farm #	Wind Farm	Adjoining Test Sale Properties	Adjoining Property Sale (Test Area) Median Price per SF	Control Area Sales Median Price per SF	% Difference	Avg Linear Feet from Turbine to House
1	Top Crop Wind Farm	Group 1 (2)	\$92.47	\$90.47	2.21%	1,830
		Group 2 (1)	\$132.78	\$121.09	9.65%	4,475
2	Pilot Hill Wind Farm	Group 1 (3)	\$133.13	\$132.76	0.28%	1,533
		Group 2 (1)	\$175.00	\$173.98	0.59%	1,900
		Group 3 (1)	\$129.06	\$120.73	6.90%	4,500
3	Kelly Creek Wind Project	Group 1 (1)	\$86.79	\$86.99	-0.24%	1,400
		Group 2 (1)	\$123.29	\$118.15	4.35%	2,200
4	Camp Grove Wind Farm	Group 1 (1)	\$49.67	\$49.04	1.28%	2,105
		Group 2 (1)	\$83.43	\$79.71	4.67%	2,650
5	Lee-DeKalb Wind Energy Center	Group 1 (2)	\$99.41	\$97.68	1.77%	2,283
		Group 2 (1)	\$97.62	\$95.65	2.06%	1,600
		Group 3 (1)	\$73.66	\$72.32	1.85%	2,425
		Group 4 (1)	\$124.71	\$124.29	-0.34%	2,225
6	White Oak Wind Energy Center	Group 1 (1)	\$121.71	\$118.93	2.34%	1,870
		Group 2 (5)	\$93.20	\$86.10	8.25%	3,080
		Group 3 (5)	\$106.28	\$102.60	3.59%	3,730
		Group 4 (1)	\$117.88	\$118.31	-0.36%	2,930
7	Rail Splitter Wind Farm	Group 1 (1)	\$109.12	\$103.21	5.73%	1,650
8	Bright Stalk Wind Farm	Group 1 (1)	\$99.73	\$100.36	-0.63%	3,260
Median Variance in Sales Prices for Test to Control Areas					+1.85%	
28 Adjoining Test Area Sales studied and compared to 163 Control Area Sales						



MARKET PARTICIPANT INTERVIEWS



MARKET COMMENTARY

Shelly Renken, Supervisor of Assessments in Livingston County, IL (Minonk wind farm and Streator Cayuga Ridge South):

- Reported that the potential impact on home values are always a concern of some people.
- **“But there's no documentation that shows that's happening, that values have gone down or up as a result of being near a wind farm.”**

Renee Johnson, Stark County Illinois Tax Assessor:

- **“Could not see a difference in home prices between current values and before wind farm was built.”**
- No complaints from residents after construction
- New homes constructed in 2012 and in 2018 next to existing wind turbines

Bridget Nodurft, Chief Deputy of the Supervisor of Assessments Office in DeKalb County, Illinois:

- Reported **“being near the turbines did not cause harm to values.”**

Wendy Ryerson, Chief County Assessment Officer in Lee County, Illinois (Mendota Hills wind farm):

- Reported **“has not noticed any difference in values of homes that are near wind turbines.”**

Tracey Vinavich, Assessor in Henry County, IL:

- **“There have been no changes in values because of the wind farms that have been developed.”**

Christine Andersen, Coordinator in Assessor's office in Bureau County, IL:

- **“[They] have never received any complaints about potential changes in home values, before or after any of the wind farms were built.”**



CONCLUSIONS



CONCLUSION

Based upon our examination, research, and analyses of the existing wind farm uses, including multiple peer-reviewed studies from other experts, we have concluded that **no consistent negative impact has occurred to adjacent property values that could be attributed to proximity to the adjacent wind farm**, based on:

- Data analyzed in 8 Illinois Wind Farm Projects
- Data analyzed in Iowa, Wisconsin, Colorado, New York and Washington
- Marketing Time Analysis
- Annual Appreciation Rate Studies
- Published Studies on National Data (20 studies)
- Published Studies on Illinois Data (5 studies)
- Interviews of Real Estate Assessors