

Introduction to Research on Property Value Impacts

Concern for the impact of wind turbines on property values was a recurring theme in comments made to the committee by Township residents. Property value concerns raised by township residents include impacts of numerous very large turbines, night lighting and the impacts of an expanded electrical infrastructure with larger and more numerous electrical transmission lines and substations. While property values cannot be directly regulated through zoning, controlling factors that affect land values can minimize negative impacts. According to the Michigan Townships Association, the purpose of zoning is to "ensure the compatibility of land uses, protect natural resources and protect property values."

As documented in the attached document, the committee considered a variety of sources and research on property value impacts. *The Wind Energy Handbook* addresses tower size, view shed issues and also the associated issue that neighboring residents believe they are paying the cost of a financial benefit accruing to other landowners. The REPP study, *The Effect of Wind Development on Local Property Values*, which is frequently cited by wind farm developers, is seen to be incomplete and flawed by many, including David Maturen, a real estate appraiser in Kalamazoo, as he documented in a letter written to the MI Wind Working Group in 2005. The committee concluded that the impact on property values depends on location.

Large wind turbines can affect neighboring property values due to noise, health effects and visual impacts on residents. These adverse impacts on property values may not exist in agricultural areas that have huge farms. Centerville Township, however, allows 1 1/2 -acre residential parcels within agriculturally zoned land, and small residential parcels are scattered throughout the township. Adequate setbacks can minimize negative impacts and potential complaints from residents living near commercial wind turbines. The township supervisor of Lincoln Twp, WI told a committee member about problems that residents experienced after two public utilities constructed wind farms in Door County. Even residents living 1200-1500 feet from turbines complained of noise impacts and health problems. Several residences purchased by the power company were subsequently razed. In hindsight, the supervisor's opinion was that many of the problems could have been avoided with 2,000' setbacks and 40 decibel noise limits.

Large wind turbines can also affect neighboring property values due to incompatibility with non-residential adjacent land uses. Centerville Township has large vineyards, and several wineries have opened tasting rooms within the township. The Centerville Master Plan states, "we encourage those tourist related enterprises which are locally owned and generate Economic benefit for the local area and people, as opposed to a tourist business where the economic benefit is exported out of the area." At the August 7, 2006 committee meeting, township resident Dan Matthies shared his recent experience as a real estate agent, specializing in vineyard properties. He had lost the sale of a large parcel within Centerville Township, because of the wind farm proposal by Noble Environmental. Based on Mr. Matthies' report, it seems a real possibility that large-scale wind development could seriously affect the agri-tourism business in Centerville Township.

DO WIND TURBINE GENERATORS AFFECT THE VALUE OF HOMES?

Findings

Yes, it is reasonable to conclude the presence of wind turbine generators (WTG) near residential housing causes property values to decline. This is common sense, and there are no serious scholarly studies that support an opposite conclusion.

Sources

Four reasonable source documents exist which discuss the impact on property values.

1. Wind Energy Handbook. Tony Burton, David Sharpe, Nick Jenkins, Ervin Bossanyi. John Wiley & Sons, New York, 2001.
2. “The Effect of Wind Development on Local Property Values.” Renewable Energy Policy Project, May 2003.
3. “A Study of Wind Energy Development in Wisconsin.” Energy Center of Wisconsin, July 1, 2004.
4. “The Net Benefits of Utility-scale Wind Generated Electricity in Western North Carolina.” Todd L. Cherry, Appalachian State University, June 2004.

Common Sense

The most important citation is common sense. The old saying about residential real estate values is that price and salability depend on “location, location, location.” The locating of a WTG near a residential house can, at best, have no effect on the value and salability of the house. That is, the presence of a nearby WTG might be a matter of indifference to a potential buyer. For example, if wind turbines were only five feet tall and made no more noise than an air conditioner, nearby properties would be unaffected. But logically, as wind turbines are larger and larger, in some cases 400 feet tall, and as they produce constant audible noise over a large area, as they intrude on the viewshed, the only valid conclusion is that nearby residences are less valuable than they would be if there was no turbine nearby. Why would a buyer choose a house within sight and sound of a turbine, if a comparable house at the same price were available elsewhere, beyond the sight and sound of the turbine? It is totally counter-intuitive to suggest anything else.

Property Values and Salability

Researchers do best when studying data that can be verified and replicated. Residential property values are subject to multiple variables at all times; so that isolating the effect of any one variable (such as the nearby presence of a WTG) is difficult. Particularly difficult is measuring the transaction that doesn't occur. In a buyer's market (which is currently a nationwide situation), a negative location factor can reduce the number of potential buyers significantly. This is, presumably, ultimately reflected in lowered prices, but some homes have been reported as “not salable” because of WTG proximity. This salability factor exists as common sense, it is probably significant, but is probably impossible to quantify statistically. There are no studies or surveys on this subject.

There are indeed some offsetting considerations for non-residential properties. First, if land (with a house on it) is being sold as fertile farmland, then the presence or absence of a nearby wind turbine is probably irrelevant. Second, if there is a chance that a future wind turbine might be placed on the farmland, a potential buyer might think the land was slightly more valuable.

Recently, in Centerville Township, a 150-acre real estate sale fell through when the potential buyer heard of the possibilities of wind turbines coming to the area. The buyer had a friend in Minnesota whose property value declined when a wind farm was located nearby. This buyer did not want to take a chance that the value of the property he wanted to purchase could decline also if a wind farm were to be located in Centerville Township.

Source: Wind Energy Handbook.

This is a comprehensive, pro-wind power textbook. There are these three references to viewshed and property values:

Page 513: "...their size makes visual effects a particularly important aspect of the environmental impact..."

Page 513: "success or failure hinges critically on environmental considerations...and dialogue with...local inhabitants..."

Page 527: "In particular, there is the difficult issue that some local residents consider they are paying a high cost for a benefit, either financial or environmental, which accrues to others." (emphasis added)

Source: "The Effect of Wind Development on Local Property Values." (Renewable Energy Policy Project).

REPP is an outspoken advocate for wind turbine generators. They received a Federal grant to study the question of local property values. (It is common for researchers to be a proponent of a particular viewpoint, without their scholarship being impaired.) REPP's (unsurprising) conclusion: wind farms result in increased property values! The study is widely quoted, usually to make the point that there is divided opinion on the question.

The problem is, the REPP study is badly flawed. The flaws are :

- a. The study itself calculates several correlation coefficients, to prove the relevance of their data. But the data are not added up. Adding up the data gives a coefficient of 46%, which, in statistical terms, is inconclusive. That is, the data vary too much to be persuasive.
- b. Ten projects were analyzed by REPP. Two of them were add-ons to projects begun fifteen years before. These two projects should have been excluded. Deleting them, the coefficient falls to 39%, which is approaching the conclusion that very little of the actual variation is explained by the analysis. A compilation of these data is attached.
- c. The REPP study reached the remarkable (but wrong) conclusion that property values increased, but they did no follow up to verify this conclusion. Any credible researcher

would then have used a simple follow up questionnaire to property purchasers (when the researchers had the names and addresses in front of them), which would have been such a verification. They failed to do so, thus making their conclusion not valid. A good researcher always double-checks the facts.

d. The REPP study only examined change in comparable property values over a three-year period. In most cases, the projects had been announced and debated long before the three-year window opened, so any depressive effect on property values would have occurred prior to the start of the study.

e. The REPP study did not look at other indices of real estate value, such as rising or falling inventory values, or the number of days from listing to sale. By limiting the study to percentages of change, the data can become tricky. Suppose two houses were each worth \$100,000 ten years ago, and the value of one of them falls to \$25,000 because a wind farm is announced. Then, if seven years later the first house sells for \$110,000 and the second sells for \$28,000, you can see that House One has an increase of 10% and House Two has an increase of 12%. So, REPP would conclude, that the owners of House Two are better off due to the presence of WTGs. In this hypothetical example, the REPP methodology would have ignored the 75% LOSS in value incurred when the WTG news first hit the papers.

f. And so on. Other criticisms of REPP are listed in the following sources.

Source: "A Study of Wind Energy Development in Wisconsin." Energy Center of Wisconsin

This is an objective study of WTGs, including the question of property values. The authors are unable to reach a definitive databased conclusion because of too few property transactions. This is a Catch-22 situation: wind farms are often located in areas of low population density; so that there never will be a statistically significant number of home sales transactions to analyze! However the Energy Center criticizes the REPP study as follows:

a. Part 3 page 125: REPP did not analyze whether the properties they studied "had a direct line of sight to the turbines."

b. Page 125: REPP "did not incorporate distance from the development as a variable..."

c. Page 126: "for a study such as (REPP) the real statistic is the confidence band surrounding the estimates...without these confidence intervals, it is impossible to determine whether the data...support any kind of conclusion..."

d. Page 135: "Nearly half of the property sales (in the Wisconsin study) could not be considered arms-length transactions." REPP ignored this element.

e. Page 137: "There are inherently opposing forces at work here, in the sense that while impacts on property values are likely to be strongest close to the development and taper off with distance, the number of property transactions decreases the closer one approaches the development. This...undermine(s) the credibility of the REPP study conclusion that 'there is no support for the claim that wind development will harm property values.'"

Source: “The Net Benefits of Utility-scale Wind Generated Electricity in Western North Carolina.” Todd L. Cherry

This paper supports a wind project proposed for North Carolina.

- a. Page 13: “The empirical results (of the REPP study)...may be questioned on empirical methodology issues shown to be substantially influential on the results.”
- b. Page 15: “Installing turbines that negatively impact property values essentially takes an attribute of the property that the owner paid for within the purchase price.”
- c. Page 19: “The most significant...indirect cost is likely the impact on property values (i.e. viewshed)—with it possibly being a larger problem in western North Carolina...due to the region’s scenic vistas being such a vital component of its quality of life and economic development.”
- d. Page 23: “Long term economic development for the local area (meaning jobs and tax revenues) will be minimal.”
- e. Page 36: In an elaborate table of economic plusses and minuses, Professor Cherry states:
 1. “The calculation conservatively assumes viewshed and noise impacts on 500 houses valued at an average of \$25,000 per house.” (emphasis added)
 2. “The net property tax effect is zero.”

This last point is important in this discussion. Whatever property value appreciation accrues to landholders who permit installation of WTGs, is exactly offset by the property value depreciation accrued to all other landholders in the area. So the WTG lessee incurs a higher property tax and receives annual rent for signing the lease/easement as more than offsetting compensation. The other landholders find their property values decreased, and they receive nothing. The township has no net gain or loss on property taxes.

Other Sources: Letter from David Maturen, Appraiser, Kalamazoo Michigan, to “Michigan Wind Working Group” dated July 17, 2005

In his letter, Mr. Maturen cites several studies that were based on surveys of real estate agents in Europe and the United States. These studies did not have the rigor of true research. They all support the position that real estate values declined when WTGs were installed.

Other Sources: Renewable Energy Systems, Great Britain, Frequently Asked Questions

This pro-wind resource cites a study by the Royal Institution of Chartered Surveyors (RICS) in England. Despite the claim that “there is no conclusive evidence” regarding impacts on property values, the details provide reasonable evidence that there is a negative impact.

Page 3: “The results of the RICS study clearly demonstrated that...60% of the sample suggested that wind farms decrease the value of residential properties where the development is within view...”

Page 3: “Those living nearest to wind farms are their strongest advocates.” The RICS study looked at long-established wind farms. Obviously, opponents of wind farms had moved away. Even so, these advocates were part of the 60% who experienced declines in property values.

Conclusion

Some people have written, “The jury is still out on this question.” Presumably people have this view because of the REPP study, which concluded, erroneously, that the presence of wind turbines caused property values to rise! Admittedly, the question of the impact of WTGs on property values is difficult to analyze, and the results difficult to quantify. Many factors affect property values: supply and demand, interest rates, cost of new construction versus prices of used homes, availability of utilities, etc. So, in addressing the question of the impact of WTGs on property values, we can look at the available evidence and make an informed conclusion, using the data that we have, and using common sense.

That conclusion is the presence of WTGs negatively impacts property values. The amount of impact is as high as \$25,000 per residence. Overall salability of properties probably declines. The economic benefit to the lessee of the wind development rights is an equal economic detriment to the surrounding residences.

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Notes:

1. Some may argue that the nearby presence of a WTG would encourage wind power proponents to purchase a home. While this is theoretically possible, there is no evidence to support it. The purchase of a home is the largest purchase a person makes. Despite individual preferences, the resale of that home is usually a factor in deciding to buy. Thus, a purchaser who is deaf might not care that there is significant noise from a nearby freeway, but the purchaser would recognize that subsequent salability of the home is a factor to consider.

2. Is it fair to dismiss the REPP study completely? In fact, the work of the analysts was very thorough and appears objective. The problem is, the results are so surprising that they needed to be verified, but they were not. The paper was not subjected to peer-review, as any good scholarly work should have been. The three comprehensive, serious studies (which are otherwise pro-wind) subsequent to REPP are completely dismissive of its findings. Yes, it is fair to dismiss the REPP report.

3. Why did REPP publish its results without verification and without peer review? In its paper, REPP laments that its funding ran out so there were questions they did not pursue. It is a reasonable conjecture that they were delighted with their results and did not seek additional funding. They likely concluded, rightly, that any research finding, no matter how flawed the scholarship, that showed no property value decline, would be disarming and confusing to critics of wind power.

4. If it is so obvious that property values decline, why aren't there persuasive data to prove the point? Wind farms exist in many differing locations and are of significantly different sizes. A wind farm in the North Sea off the coast of Denmark is difficult to compare to a proposed Centerville Township project. Wind turbines 150 feet tall in a California desert are similarly difficult to compare. Some wind farms have less than ten WTGs; others have hundreds of WTGs. Importantly, in several European wind developments, the adjacent property owners participate in the economic benefits, through reduced electricity bills: this outcome would certainly be a positive economic influence on attitudes of current property owners and of potential buyers. Further, large wind farms in populated rural and scenic areas are a very recent development. Sufficient time must pass before trends and valid comparisons can be established. By the time such comparative data bases are established and analyzed, decisions about new wind farms will have been made and implemented.