

Green Backlash: The Wind Turbine Controversy

As the nation rushes to add renewable energy to its power portfolio, a growing chorus of homeowners and others are expressing concerns about how industrial wind projects are affecting health, safety, lifestyle and property values.

Green marketing campaigns typically show rows of industrial wind turbines in remote windy locales. However, wind projects are increasingly finding their way into rural residential areas. With investment tax credits and government mandates advocating for additional installations, more homeowners and property owners may soon find themselves facing a turbine project proposal.

Wind Turbines One of three industrial turbines and a substation that now neighbor the Taylor family home in rural Illinois. © Rene Taylor
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Low-profile yet widespread concerns expressed from Kansas and Wisconsin to Vermont and Pennsylvania about industrial wind complexes are showing up all over the Internet. The efforts of community groups and various experts to bring a full discussion to light of the costs and effects of turbines are resulting in a small but growing green backlash.

Wind Turbines One of three industrial turbines and a substation that now neighbor the Taylor family home in rural Illinois. © Rene Taylor

Homeowner Problems

"We've been given a life sentence," says Larry Lamont describing his life since 88 industrial wind turbines, each nearly 400 feet tall, were inserted among the homes, farmettes and farms in the rolling landscape of Fond du Lac County, Wis., where he lives. Lamont and his wife, Carol, moved there more than 30 years ago, renovating a pre-Civil War-era stone house and adding a 17 x 13-foot window wall to enjoy the views of the one-acre pond they dug and the wooded hills beyond.

When they heard about wind turbines coming to the area, they were supportive at first and even wanted one sited on their property. "We believed in them," says Lamont. That belief has changed. They now have three turbines closer to their home than one proposed for their property would have been. The family has experienced significant sleep disturbances, although, Lamont says, "we had been told it would sound like the refrigerator running." They have also lost their viewscape. "It was suggested that we pull a curtain over our window wall." The impact has been total, he says.

"Ducks and geese that had summered on the pond for the past 25 years left mid-summer and never returned and the bat houses on the barn also were abandoned," he says. "Wind towers are known to be fatal to bats because their lungs are ruptured by the pressure change created by the turbine blades. Now all we see on the pond is the reflection of the turbines, including their red lights at night."

Wendy Todd and her husband raised three children in Portland, Maine, but it was her dream to return home to the small community of Mars Hill in the northeast section of the state. They were thrilled when her parents, second-generation farmers there, gave them four acres adjacent to their property to build a home. A wind project had been given an initial go-ahead by the town council in 2002, but it still had to go through permitting phases with the state. The Todds broke

ground for their foundation in June 2005 and moved into their nearly completed home in December 2005. In March 2006, Todd says, it was clear the wind project was a go. In late winter/early spring of 2006, trees were cut down to make way for the wind project.

“The first turbine to start the testing protocol was No. 9 in December of 2006,” he says, “Residents questioned what the noise was about. We figured it must be part of the testing phase because we were told at all public meetings that the turbines made little to no noise. In March of 2007, the project went online and we knew for sure that we were in trouble.”

“The only negative brought up at meetings was the visual impact,” she says. “It was said that if you could get over how big they were, then everything else would be okay. Most of us bought into that. There were a few opposed early on but they came across as troublemakers.

Now, the Todds have eight 1.5-megawatt turbines near them with the closest just 2,400 feet from their home. After the 28-turbine project went online in March 2007, the Todds and others to the north and east of the project started having trouble with noise, she says. “Noise was asked about at all the meetings, but we were told time and again that the turbines were silent or nearly silent...What we have found living next to them is that there are huge

Industrial wind complexes are not only in remote locales but increasingly being inserted into rural residential areas. ©

Mameframe Photography

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variations in the noise emitted. On pleasant days, the noise is more bearable but, whenever turbines are running, they can be heard. More often than not, the wind is stronger and steadier in the winter and at night. From 10 p.m. until 2 a.m. they often wail, making it difficult to sleep. But no one is out and about in tour buses then,” she says. The noise from the

turbines can go for two or three hours but sometimes goes for days. "When a blade passes the tower, it creates a thump, sort of like rap music. It can be felt in your chest and on the soles of your feet."

Industrial wind complexes are not only in remote locales but increasingly being inserted into rural residential areas. © Mameframe Photography

In addition, shadow flicker—a strobing effect as blade shadows rapidly sweep the land after sunrise and before sunset—has been an "invasion to our home and land," Todd says. She says it is much like someone turning lights on and off in the house. Outside, she says, it pulls your attention in the direction it is moving, making you dizzy, even sick to your stomach. "It's changed the way we live. We built around the views. The project has destroyed the views. Turbines overpower the hillside," she says. Besides noise and health issues, she wonders about property devaluation and is upset that she would have to try to sell a home that is "smack dab in the middle of Mom and Dad's property."

Rene Taylor and her husband purchased a century-old restored

Victorian home in Ellsworth, Ill., in 2004 as a quiet rural property where they could keep some horses and raise their kids. Now they have three turbines 1,500 to 1,800 feet to the north of their property, a project substation 870 feet from their east property line and 1,100 feet from their home. Taylor can see 150 of the 240 turbines in the project. "We're kind of surrounded," she says. When the winds are high, she says, the sound is like the rumble of a train that produces a vibration in your body. She says her 11-year-old daughter tells her: "The hamster is running in my chest again."

They had heard about a possible wind project about three weeks before they closed on the property. "We always considered ourselves to be 'green' and thought we would see a few up on a hill." The high-pitched buzz and hum from the substation and the turbine noise and vibrations now have caused the family, including a high-functioning autistic child, to have headaches and trouble sleeping. They haven't tried to sell yet because they have to pay down the mortgage first, Taylor says, but she is also concerned about whether they will face problems when they do go to sell.

Noise and Health Concerns

The problems being experienced by these homeowners and others are not isolated. As wind turbine projects grow in number, footprints beyond the turbine pad sites extend into thousands of acres and turbines gain size, more concerns have been expressed about effects not only in the U.S. but in Europe as well. The third international conference on wind turbine noise is planned for June 17-19, 2009 in Alborg, Denmark.

In Rumford, Maine, members of the medical staff of Rumford Hospital issued a press release in February asking for a moratorium on wind projects. The announcement noted that "there is a literature emerging worldwide expressing a multitude of side effects affecting those who live, work or attend school in the vicinity of wind farms. The health hazards include problems arising not only from audible noise

frequencies but also from inaudible low frequency noise waves.”

Lisa Linowes, executive director of Industrial Wind Action Group, advises communities and officials about industrial wind complexes. © Lisa Linowes

Richard James, principal consultant for E-Coustic Solutions of Okemos, Mich., has more than 35 years of experience addressing community noise for new and existing industrial and commercial facilities and has presented his findings across the country as local governments review industrial wind proposals. James says there are three main problems for homeowners that neighbor turbines. Two are a combination of audible sounds—one is similar to the sound of an airport in the distance and the second is a woosh-woosh sound of moving blades similar to a helicopter flying overhead—both of which are uncharacteristic of a rural environment, particularly at night, he says. The third problem is low-frequency acoustic energy, best described as a vibration felt inside homes.

What confuses the situation is that sounds can affect each person differently and low-frequency vibration can depend on a home’s construction and the shape of its rooms. Those most at risk, he says, are people with pre-existing medical

conditions, those 60 and older when sleep problems are more common and children under six. He suggests that setbacks from homes should be at least a mile with noise limits of 35 decibels, maximum, using the A-weighting filter (i.e. dBA) to measure the audible part of the noise and 55 decibels, maximum, using the C-Weighting filter (i.e. dBC) to measure the low-frequency non-audible sound outside a home. "Thirty-five decibels at night will be audible in the country unless the home is within a few miles from a major highway," James says. "That's why 1,000 feet from a home, where some turbines have been placed, can seem so outrageously loud."

Property Values

For Barbara Pitcairn, Owner/Designated Broker for Maine's Presque Isle and Fort Kent offices of Aroostook Real Estate, the devaluation of property is a big issue. "Why would anyone want to live close to that level of noise and be consistently affected by the shadow flicker these giant turbines generate?" She says a majority of her sales are to people relocating from southern New England and many desire building or purchasing their retirement home away from the traffic and noise. "Most want privacy and seclusion so they can enjoy northern Maine's way of life," she says. Pitcairn says it is her broker's professional opinion that several of the homes located near wind turbines on Mars Hill Mountain suffer from diminished value.

Jim Shaw, owner/broker for Northern Maine Realty in Mars Hill, says that he has had no issues with selling property, living near or renting cabins on the west side of the wind project on Mars Hill Mountain. However, he does say that those on the opposite side of the project must sometimes contend with a noise similar to a low-flying jet aircraft or a waterfall. As far as property values, Shaw says that since there have not been any properties sold to confirm a drop in value, there is no proof of devaluation.

When Derry Gardner of Gardner Appraisal Group, Inc. out of San Antonio, Texas, hears that turbines do not affect property values or neighboring property values, he says, "it goes against common sense, which automatically raises a red flag." He cites market data showing diminished values. He also says it's important that any value analysis of property use a commonly accepted method such as the paired sales analysis, which is part of the methodology used under the direct sales comparison approach. With that, a property's characteristics—such as market conditions over time, improvements and location—are considered. Similar properties are then identified and some of the variant features become the reason for the difference in value.

Gardner says a 350-acre ranch in Erath County, Texas, is one example. It was purchased at top price for a retirement homestead. The new owner learned that 27 wind turbines were to be placed within a 1.5-mile radius and put the ranch up for sale. A prospective buyer agreed to the sales price but backed out when the turbine project was disclosed. The seller offered a 25 percent discount but the prospective buyer declined, says Gardner.

He points to sales of seven rural Texas tracts between March 2006 and August 2007 in which contributory values of improvements were deducted from each sales with all other characteristics considered similar. Properties with turbines averaged a 37 percent decrease in value, properties two-tenths to four-tenths of a mile from turbines had a 26 percent average drop and properties in which turbines were up to 1.8

miles away experienced an average value decrease of 25 percent.

According to Michael McCann of McCann Appraisals LLC in Chicago, Ill., "Turbines are large-scale industrial machines/projects, which surround homes, unlike any other large-scale projects. I have never seen a situation akin to wind farms where an industrial zoning 'overlay' encompasses and surrounds existing homes. No other industrial, retail or other type of large-scale project gets approved without first buying out the existing residences rather than surrounding them. A home is the biggest investment most people have in their life and deserves value protection from a dominating land use, which generates profits for the developers and is claimed to be for the public good. It would seem that most wind energy companies are unwilling to compensate people fairly for value loss....nor buy them out."

McCann, a Certified General Real Estate Appraiser who has qualified as an expert witness on real estate value and zoning cases in 20 states, has reviewed residential sale data for 46 transactions near the boundaries of Illinois' first wind project, Mendota Hills, in Lee County that occurred after turbines were erected from 2003 through March 2005, "a strong market overall." The homes averaged a sale price of \$74.63 per square foot, he says. A separate group of sales much further removed from the project averaged \$102.94 per square foot. Most homes were older farmstead residences and modest ranch-type homes typical of those found in rural Illinois. He says the sales data reveals that the typical home within a mile or two of project boundaries is 25 percent lower in value than for more distant homes. Some examples range upward of 30 percent and, in softer current market conditions, he anticipates value discounts exceeding 30 percent and perhaps as high as 50 percent.

It is important to keep zoning districts separate to provide for compatibility of uses and to protect property values, health, safety and welfare of residents, says McCann. Farm areas have

a pre-existing established residential character that is typically a "permitted" use. He says the Obama administration missed the opportunity to require value protection of project footprint homes in the stimulus bill when extending the wind energy tax credits to 2012. "That would have cost the taxpayers nothing and, at worst, would have re-allocated the funds for one percent or two percent of the turbines, which cost about \$2 million each," he says. "Since the turbines do not run at 100 percent of nameplate capacity, no energy would have been lost and homeowners would have been taken fairly into the equation of this wind energy trend."

Benefit Concerns and Wildlife Impacts

In 2004, Lisa Linowes and her husband were planning the renovation of an old farmhouse they had purchased when they heard about a wind project possibly coming to their New Hampshire town. With a little digging, she says, she determined that the project was not a good idea and set out on a quest to educate herself and others.

In 2006, she and others formed Industrial Wind Action Group to play a proactive, leadership role with fact-based analyses to assist communities and to advise officials at federal, state and local levels. Her immersion in the topic has made Linowes a recognized wind and land use expert. She serves as the group's executive director and has been invited to speak and to be a panelist at numerous venues across the country, including the 12th annual Midwest Energy Conference of the Midwest Chapter of the Energy Bar Association in March in Chicago.

Many issues have arisen about industrial wind turbines not only for homeowners but for taxpayers and nature lovers as some expected benefits turn out to be less than originally estimated and impacts on wildlife, such as bats, begin to be understood. Linowes says she hopes to "put the cold hard facts on the table and to take emotion out of the room."

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