

WIND FARMS: REMEDY FOR DEPENDENCE ON FOSSIL FUELS OR NEW
THREAT TO THE ENVIRONMENT?

by

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ABSTRACT

In the search for alternative sources of energy, wind farms consisting of turbines as tall as 490 feet have been proposed. Yet for various reasons discussed in this article wind farms have generated opposition from environmentalists and others from concerns about aesthetics to dangers to animals as well health risks for humans.

INTRODUCTION

In recent years the construction of wind farms has been touted as a solution to America's dependency on foreign oil. But are wind turbines the panacea they have been touted to be or are they another threat to the physical and human environment? This article will examine the arguments on both sides of the issue.

THE ENVIRONMENTALISTS' DILEMMA

Nothing has so riven the ranks of environmental groups and their leaders as the debate over the creation of wind farms.

National groups like Greenpeace and the Sierra Club are united in their support of the development of renewable energy projects to stem the impact of global warming fostered by the use of fossil fuels.¹

But there are those within the environmental movement who question the impact of these farms a stance reminiscent of earlier battles over nuclear power plants, toxic waste dumps and damming rivers.²

Among the objections to wind farms are that they are unsightly (some turbines are as tall as the Statue of Liberty)³, they kill birds and bats, they are noisy, pose human health hazards and make only a minimal contribution to meeting the country's energy needs. As of 2012, wind and solar power provided only 1.4 of the U.S.'s total energy.⁴

Some argue that the best place for wind farms is in the mid-West and Great Plains because few people live in those areas where such projects are located or are planned. In recent years wind farms have been proposed for some of the most scenic areas in the

eastern United States including the Green Mountains, the Adirondacks, Chesapeake Bay, Cap Cod and the Northern Appalachians.⁵ Among the more bitter disputes are in the Adirondacks where Barton Mines Co proposed to build a wind farm on 500 acres covering a mountain and nearby ranges.⁶ Environmentalists are concerned about disruption of the area's pristine vistas and the threat to a songbird Bicknell's thrush, which has been designated as a species of "special concern" to New York State because of the bird's limited range.⁷ The Barton turbine project which promises to produce enough power to supply 14,000 houses a year, has garnered the support of noted environmental activist and New York writer, Bill McKibben. McKibben says that while he realizes this project will not address the country's need for clean energy, he is more worried about the acid rain from industrial pollution in the mid-West which has damaged fish and plant life in lakes of the Adirondacks.⁸

Wind turbines, however, have also taken a toll on animal life. Raptors and other birds were killed by the first generation of turbines which were built in the early 1980s in Altamont Pass in Northern California.⁹ Supporters argue that turbine design has been changed and that more recent studies show that birds fly above most, although some experts claim more studies are needed.¹⁰

Apparently the problem has not been solved because in 2011, the U.S. Fish and Wildlife Service investigated the killing of at least six golden eagles at the Los Angeles Department of Water and Power's wind farm in the Tehachapi Mountains.¹¹

Bats have also been a casualty of the spinning turbine blades. In 2003, more than 2000 were killed by the 44 turbines owned by FPL Energy, a power company that is a major player in the wind industry.¹²

Another objection to wind turbines is aesthetics which formed the crux of the objection to the Cape Wind project.¹³ Opponents (which included the late Massachusetts Senator Edward M. Kennedy) claim that the project will ruin Nantucket Sound which is a summer recreational playground as well as harm the fishing industry.¹⁴ Studies show that over 20 percent of the 98,000 jobs on Cape Cod were in tourism related industries.¹⁵

Supporters of Cape Wind have said that the wind farm will have 130 turbines which will reduce greenhouse gas emissions and be the equivalent to taking 175,000 cars off the road.¹⁶

Despite this optimistic forecast, Cape Wind faces considerable costs and financing challenges, which some say could reach as high as \$1 billion.¹⁷ Given these high start up and construction expenses, opponents claim that customers could be paying two to three times what they now pay for electricity.¹⁸

In 2010 the Obama Administration approved the first offshore windmill farm despite a federal advisory council's recommendation that it be rejected because of the "destructive impact on local scenery."¹⁹

The fact that Cape Wind was not located close to a populated area did not stop the project from generating a strong opposition.²⁰ In more densely populated locations, such projects have created considerable controversy.

In 2010, BNE Energy, Inc. proposed to build two 1.6 megawatt wind turbines on a 67 acre site in Prospect, Connecticut. The neighbors banded together to oppose the

project and between experts and legal fees spent \$140,000 during a four year battle with the State Siting Council, \$45,000 of which will not be paid off until mid 2012.²¹ Had BNE prevailed, Prospect would have been the most densely-populated residential area in the United States to have industrial grade wind turbines. Nearly 250 homes would have been affected, with 900 houses just one mile away.²²

The Siting Council rejected the facility because of the size (492 feet high)²³ and proximity to the neighbors²⁴ but approved a project in Colebrook much to the dismay of the residents who vow to fight the decision in court.

The problem is that Connecticut had no regulations regarding the location of the turbines and cities and towns are only currently in the process of revising zoning regulations to address possible projects.²⁵

As of 2011, only ten states including three New England states (Maine, New Hampshire and Vermont) had regulations regarding wind projects. Other states have towns with local rules.²⁶

POSSIBLE HEALTH RISKS FROM WIND TURBINES

Many state and local regulations focus on how far wind projects should be located from homes as well as shadow flicker (what happens when the sun is directly behind the blades) and ice throw (which happens when the blades spin off frozen precipitation).²⁷

There is another more serious consequence from wind farms: human health concerns.

Dr. Nina Pierpont is a pediatrician and author of Wind Turbine Syndrome: A Report on a Natural Experiment (2009) which claims that people living in close proximity to wind turbines can become seriously ill. The problem may be caused by the

inner ear which controls human's sense of motion, position and balance. Sufferers find the experience similar to a case of seasickness or carsickness.²⁸

Symptoms triggered by the inner ear dysfunction include sleep disturbance (awakening in a panic), headache, tinnitus, ear pressure, dizziness, vertigo, nausea, blurry vision, tachycardia, irritability, problems with concentration and memory and panic episodes.²⁹

Pierpont claims that none of the people studied had these symptoms before the turbines went into operation and found that these maladies disappeared once they went away from home, resurfacing once they returned.

Pierpont's sample is an admittedly a small one: ten families, thirty-eight people both in the United States and abroad. Pierpont data suggests that young children and adults over the age of 50 are the most vulnerable.³⁰

She recommends that governments study what she has dubbed "Wind Turbine Syndrome". She urges that turbines be located at least 2km or 1.24 miles away from homes.³¹

Pierpont's findings have been debunked by the industry and others.³² Some turbine companies have bought out homeowners who complained of ill-health but as a condition of the buyout, they had to sign gag-orders not to discuss the settlements.³³

THE ECONOMICS OF WIND TURBINES

Who are the financial beneficiaries of wind farm projects? Landowners and energy companies are the primary winners.

In a sparsely-populated part of rural Oregon, where the timber industry is depressed and sawmills have closed down, Sherman County got \$3 million in property taxes from the wind farms in 2010. The county with 1700 residents has reaped \$17.5 million in taxes and fees since 2002.³⁴

Residents of the county receive \$590 a year from the wind energy development but their views have been damaged by the turbines. Apparently the checks are designed to dampen any ill-feelings about the noise and risks to bats and birds.³⁵

Some farmers earn a percent of the gross revenue from turbines located on their property.

Oregon also offered incentives for wind farms including tax credits while counties waived local property taxes in exchange for fees and payments.

Supporters of these arrangements claim that these deals have permitted farmers to continue to operate and have provided jobs and kept businesses open.³⁶

Wind-swept rural counties in the West are not the principal beneficiaries of wind development. The energy companies stand to benefit the most. Among the energy giants in the wind power business are Shell, BP, JP Morgan Chase and Babcock and Brown. While BP and Shell state that their investments in wind may improve their images with the public, their primary objective is to make money.

For industry giants the key issue is whether the federal government will continue its clean energy tax credit program and whether Congress will support legislation requiring that 15% of the nation's energy come from renewable sources like wind and solar by 2020.³⁷

THE FUTURE OF WIND POWER

After several years of growth, wind power appears to be in decline. Lower demand for electricity in some countries and natural gas discoveries in the United States as well as the decline of government subsidies have stemmed the growth of the industry.³⁸

Wind is a cheap renewable energy source but only when the wind is blowing. While government studies believe that one day wind could produce up to 20% of electricity in the United States, there is a significant investment involved in building the biggest turbines possible to catch wind at the highest level but also the problem of building expensive transmission lines to move power from the mid-West to the major cities on the east and west coasts. New high voltage lines will have to be developed to store wind power so it can be used on days in which there is no wind. Batteries are under consideration as a means to accomplish this but have not proven to be economically feasible.³⁹

Moreover, the price consumers will pay for wind generated power varies from place to place. A turbine located in the Great Plains where there is a steady wind will create more power each year than one located in the North east where the wind is weaker. Wind generated power, therefore, sells for less in the mid-West than the Northeast.⁴⁰

A study by the Energy Information Administration predicts that in 2016 the cost of producing electricity from a wind farm will be the same as from a new gas-fired plant in the windiest part of the country, but that producing wind power in the mid-Atlantic and Southeastern states.⁴¹

Wind power is a dicey proposition because a wind turbine's output is unpredictable due to changes in wind speed. If the power generated by the turbines cannot be stored then wind will never be a reliable source of electricity.

Since the wind is a fickle source of power, does it make sense to damage the environment by building roads and cutting down trees to erect unsightly machines that have estimated useful life of only twenty years? Who will pay to raze these towers or will they become monuments to obsolescent industrial technology, a modern day relic like Stonehenge or Easter Island or the entombed nuclear power plants at Chernobyl? Each generation has its enthusiasm for a panacea for some ill like DDT or for nuclear energy until the downside becomes clear later on.

There are far less expensive ways to wean the United States and the world away from dependence on fossil fuels.

Bjorn Lomborg featured in the film "Cool It" suggests that a portion of the \$250 billion now spent on renewable energy like wind be diverted to researching algae fuel and wave power which are more predictable sources of energy.⁴²

Lomborg urges the use of better roofing and paving materials, creating denser cloud formation over the ocean, and planting more trees to capture CO₂ from the air.⁴³

CONCLUSION

In the meantime, energy companies are pushing for more turbine sites in more populated areas. Some state and local governments have been caught without regulations governing how these wind farm applications should be handled.

Local governments should not wait for their states to act. Cities and towns should amend their zoning regulations in order to have some guidelines for commissioners to use when these applications are filed. The regulations should cover distance from homes, and regulations on flicker and ice throws so the public is not in danger. More attention must be paid to any bird species that may be in jeopardy from the whirling blades.

The United States government should fund a study on the human health effects of these turbines and state agencies designated to evaluate the applications for these projects should be required to take into account health threats, wildlife jeopardy, diminution in property values and aesthetics before granting approval. Former energy officials should be barred from service on these councils or commissions. No Siting Council member should be compensated directly or indirectly from fees paid by energy companies applying for a permit.

The final a test of the sincerity of energy companies' belief in wind power will come when government subsidies, tax credits and property tax remissions end. If these companies truly believe in the viability of wind farms they should be willing to invest the capital to make them feasible alternative energy sources. Rate payers should not be forced to pay this "silent tax" on their monthly electric bills.

Until the larger questions about human health, effects of wildlife and feasibility can be resolved, supporting wind power may just be "tilting at windmills".

NOTES

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² Id.

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- ⁵ “Debate Over Wind Power”, supra note 1.
- ⁶ Darryl McGrath, “Wind Farm Plan Rocks the Adirondacks”, Boston Sunday Globe, Nov 27, 2005 at A-17. (hereinafter Wind Farm Plan Rocks the Adirondacks).
- ⁷ Id.
- ⁸ Id.
- ⁹ Debate Over Wind Power, supra note 1.
- ¹⁰ Id.
- ¹¹ “Turbines Kill At Least 6 Eagles at Wind Farm”, Waterbury Republican-American, Aug 4, 2011 at 7A.
- ¹² Debate Over Wind Power, supra note 1.
- ¹³ Anna Badkhen, “Tilting at Windmills”, Waterbury Sunday Republican, Dec 12, 2004 at A2. (hereinafter “Tilting at Windmills”).
- ¹⁴ Stephen Power and Mark Peters, “First Offshore Wind Farm Wins Approval”, Wall St.J. Apr 29, 2010 at A7. (hereinafter “First Offshore Wind Farm Wins Approval”).
- ¹⁵ “Tilting At Windmills”, supra note 13.
- ¹⁶ “First Offshore Wind Farm Wins Approval”, supra note 14.
- ¹⁷ “Vast Wind Farm Off Coast of Cape Cod Gains Federal Approval”, N.Y. Times, Apr 29, 2010 at A22.
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- ²⁶ Vinti Singh, “Lack of Rules, Experience Slowing of Wind Turbines”, Conn. Post, May 23, 2011 at A4.
- ²⁷ Id.
- ²⁸ Wind Turbine Syndrome <http://kirbymtn.blogspot.com/2009/05/>. See also Nina Pierpont, MD, Ph.D, “Wind Turbine Syndrome”, Berkshire-Litchfield Environmental Council, Wind Turbine Forum, Falls Village, CT. Apr 16, 2011.
- ²⁹ Id.
- ³⁰ Id.
- ³¹ In Testimony before the New York Legislature Energy Committee, March 7, 2006. Dr. Pierpont who has an M.D. from Johns Hopkins and a Ph.D from Princeton urged that wind “installations” be located no closer than 1.5 miles from homes, hospitals and schools. See <http://www.savewesternny.org/docs/pierpont-testimony.html>
- ³² Kathie Fehrenbacher, “Wind Turbine Syndrome: Living Near Wind Farms May Be Hazardous to Your Health”, <http://gigaom.com/cleantech/windturbinesyndrome>.
- ³³ Id.
- ³⁴ Lee Van Der Voo, “Money Blows In To a Patch of Oregon Known For Its Unrelenting Winds”, N.Y. Times, May 31, 2011 at A16.
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- ³⁷ John Donnelly, “Two Oil Giants Plunge Into the Wind Business”, Boston Globe, Mar 2, 2007 at A1.
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- ⁴⁰ Id.

⁴¹ Id.

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⁴³ Id.