

Wind Turbines: Some Deeper Questions

A book commentary by David Orton and Helga Hoffmann-Orton

Wind Turbine Syndrome: A Report on a Natural Experiment

by Nina Pierpont, MD, PhD, K-Selected Books, Santa Fe, New Mexico,
2009, 292 pages, paperback, ISBN-13: 978-0-9841827-0-1.

“Symptoms include sleep disturbance, headache, tinnitus, ear pressure, dizziness, vertigo, nausea, visual blurring, tachycardia, irritability, problems with concentration and memory, and panic episodes associated with sensations of internal pulsation or quivering that arise while awake or asleep.” p. 26 (Health effects experienced by some people living near 1.5 to 3 MW wind turbines, built since 2004.)

“Keep wind turbines at least 2 km (1.25 miles) away on the flat, and 3.2 km (2 miles) in mountains... Second, all wind turbine ordinances should hold developers responsible for a full price (pre-turbine) buyout of any family whose lives are ruined by turbines – to prod developers to follow realistic health-based rules and prevent the extreme economic loss of home abandonment.” p. 254

Introduction

This book commentary was written in the context of our own local situation, and to make Nina Pierpont’s **Wind Turbine Syndrome: A Report on a Natural Experiment** better known to others who have wind turbines sprouting up like industrial mushrooms in their backyards and regions. Pierpont, a rural physician living in upstate New York, writes about health impacts suffered by people living close to wind turbines. The book is essentially about human health, and does not discuss ecosystem health, a more encompassing topic with wider dimensions. The reference to ‘natural experiment’ in the subtitle, refers to “a circumstance wherein subjects are exposed to experimental conditions both inadvertently and ecologically (within their own homes and environments).” (p. 5)

Our situation

We live in rural Pictou County, Nova Scotia, and within visual distance from the 51 MW Dalhousie Mountain wind turbine complex – re-branded ‘wind farm’ presumably to convey an innocuous bucolic image. Its 34 industrial wind turbines are a ‘first phase’, with the developers ‘promising’ more to come, rationalized in the name of reducing greenhouse gases, not creating economic rewards for the developers. The proponents are R.M. Synergy Ltd and Stantec Consultants Ltd. Dalhousie Mountain is now a ‘forest’ of rotating wind turbines hundreds of feet tall. The 1.5 MW turbines measure approximately 120 meters in height from the ground to the tip of the rotor blade. The site is a hilly area and about 340 metres above sea level. The wind farm is a massive intrusion on the

viewscape of many people, not only in our own immediate area, but also for those travelling on the Trans-Canada Highway between Truro and New Glasgow.

The environmental assessment for the Dalhousie Mountain project was approved on September 2, 2008, less than a month after it was submitted. John Livingston, perhaps Canada's deepest eco-philosopher, as well as a life-long naturalist, told us in his 1981 book **The Fallacy of Wildlife Conservation**, that "EIA (Environmental Impact Assessment) is a grandiloquent fraud, a hoax, and a con." (p. 33) He also discussed what he called "resourcism", pointing out that in our society, once anything is considered a "resource" for human use, this allows us to consider "nature as our subsidiary" and its demise is only a matter of time.

We are told in one of the submitted environmental assessment documents: "The visual impact of installing 34 turbines in an unpopulated area to provide much needed electricity can only be considered a responsible addition to the aesthetics of Pictou County."

Another revealing comment from the same document shows its blindness to the wonders of the natural world: "Industrial fixtures become endearing features for our communities, describing the culture or the 'way we live.'" The impact is not just visual, since as well as the turbines themselves, there are new roads, new connecting power lines, the cutting of trees, a new electrical sub-station, lights on some of the turbine blades for aircraft, and increased human traffic.

This promoter, like other industrial wind farm enthusiasts, does not seem to understand, as E.F. Schumacher instructed us in **Small is Beautiful: A Study of Economics As If People Mattered**, that "for every activity there is a certain appropriate scale." (p. 54) We are not talking here about a small group of wind turbines ecologically situated, community owned and controlled, and helping to supply energy to the local bioregion, with the revenues community-generated, not privately accumulated, within an overall societal strategy of seriously reducing citizen energy lifestyles and hence greenhouse gas emissions. The operator of this wind farm now has a contract from Nova Scotia Power to produce wind-generated electricity for 25 years and wants to significantly expand the number of turbines on the mountain.

In Nova Scotia, the provincial New Democratic government aims to generate 40% of electricity from "renewable resources" by 2020. (There is, of course, no let-up on the offshore promotion of fossil fuel exploration and extraction by the Nova Scotia government.) "Renewables" include, as well as wind turbine generated electricity, biomass harvesting from forests already ravaged by industrial forestry, and placing electricity generating turbines in the tidal Bay of Fundy – newspaper reports have spoken of 200 to 300 units – with costs unknown to the marine ecosystem.

The provincial government, along with its federal counterpart, is also in financial partnership with a South Korean company planning to manufacture wind turbines in Trenton, a town in Pictou County. (According to newspaper reports, the government money amounts to 70 million dollars.) So the wind turbine push is on. Support for industrial wind turbines crosses party lines. Elizabeth May, in the name of the federal

Green Party, on August 19, 2008 stated about the Dalhousie Mountain project, “The Green Party is pleased to support a local entrepreneur in the undertaking of this project. Its over-all environmental impact is unquestionably positive.”

Faced with this new industrial reality in our area, we belatedly started to look into the industrial wind turbine issue, from the perspective of deep ecology. We are trying to read as widely as possible, and are still doing more research on the topic. While exploring the subject, we came across references to “Wind Turbine Syndrome” and the name Nina Pierpont. We got her book to see what she had to say – hence this commentary.

Impressions

Nina Pierpont is a pioneer in critically assessing the effects of industrial wind turbines on the health of people living in close proximity to such turbines. This makes her book quite remarkable and important to read, notwithstanding various secondary criticisms. The author describes what she has called the “Wind Turbine Syndrome” – a name she first used in 2006 – to depict the complex of symptoms displayed by her sample group of ten families (38 people, ranging in age from infant to 75), whom she interviewed by telephone. (One of these families was that of Daniel d’Entremont, from Yarmouth County in Nova Scotia. The family moved out of their home because of the intolerable effects on their lives of the nearby Pubnico Point wind farm.) Eight out of the ten families interviewed eventually moved out of their residences. This is very compelling evidence of the harm from wind turbine exposure.

Pierpont had no big money behind her to fund her research, just her own resources. The newly emerging wind turbine industry, assisted by governments at all levels, heavily promotes the setting up of industrial wind turbines in hilly rural areas and on the coast and denies that there are any ‘significant’ negative impacts on humans or the ecosystem resulting from the wind farms. Pierpont says that, on top of the direct financial gains from the turbines, the wind turbine industry can also sell carbon credits.

With her study, Nina Pierpont is pointing to some of the health problems – associated with the sound and vibrations created by the turbines – which some families have experienced. To hear the sound of a wind turbine, check [this site](#) in Wales.

There are obvious limitations to this study, which are acknowledged by the author: non-random, small sample size, no control group, interviews conducted over the telephone, no money to follow up on leads for more research, etc. Still, what she has found out is suggestive and is useful for people seeking critical information on the potential health effects of living close to wind turbines. A vitally important question not addressed in this book is the impact of turbines on wildlife, both at the turbine site and in the surrounding area. Pierpont does note in a couple of passing comments from the case histories of the ten families studied, how the behaviour of their domestic animals was also impacted by wind turbines. We do know from other studies that birds (in particular raptors) and bats are affected and killed by the turbines. Yet more research is required to assess the various effects of a wind farm on the ecosystem.

This book is difficult to read, because of the specialized vocabulary used. There is an eleven-page glossary and fifteen pages of references. The author discusses the topic with evident knowledge. She has a PhD from Princeton in behavioural ecology and an MD degree, which led her to becoming a pediatrician. Her research on the wind turbine syndrome is self-described as “the offspring of behavioral medicine married to behavioral ecology.” (p. 294)

While the author’s erudition is not in question, there is an ‘overboard’ feel to this book, as regards the parading of academic and medical credentials. (Sometimes Pierpont is wrong, as in her comment that there is no ‘good evidence’ of harm produced on humans by exposure to electrical or magnetic fields. See p. 34.) The reader is left with the impression of someone who is obviously intelligent and well read in her fields of interest, but who still feels obliged to “prove” herself to others, in order to justify what she has to say. There is too much parading of her own credentials and of endorsements for her work by various alleged authorities, presumably to show how important the book is. Yet all this is unnecessary and somewhat vulgar, because this book **is** important in its own right.

Further Discussion

“My own subjects made it clear their problems are caused by noise and vibration and, in some instances, moving blade shadows. What’s more, my subjects notice that their symptoms come and go according to the wind’s direction and strength, blade spinning speed, which way the turbines are facing, and particular sounds coming from the turbines. In other words, they see their symptoms increase and decrease depending on what the turbines are doing.” pp. 208-209

Nina Pierpont seems to have been motivated to enter the wind turbine discussion because of wind developers which turned up in her own community in 2004. (“Developers” are better termed “habitat annihilators” as Fred Bender pointed out in his 2003 book *The Culture of Extinction: Toward A Philosophy of Deep Ecology*.) Pierpont points out how land ‘owners’ who allow turbines on their land in return for annual cash payments of several thousand dollars are normally required to sign gag clauses “from saying anything negative about the turbines or developer.” (p. 7) A **Globe and Mail** article of November 18, 2009, noted that Stantec, an engineering company also involved with the wind farm on Dalhousie Mountain, filed liens against private landowners who had rented out their land for turbine sites in Ontario, when a wind company it was involved with went into bankruptcy.

The two kilometre set-back for houses from industrial wind turbines recommended by Pierpont is to be contrasted with the situation here in Pictou County, Nova Scotia. A bylaw was passed in 2007, saying wind turbines had to have a 600 metre setback from residences and 300 metres from public roads. Pierpont argues that wind turbine noise has some unique characteristics, in particular a pulsating quality, which cannot be compared to noise from roads and vehicles or train traffic, and which cause some of the health effects.

Final Musings

Wind turbine activists seeking critical information should read Nina Pierpont's book, although its focus is quite narrow, namely the health of people living close to industrial wind turbines.

The question of whether or not to generally support wind farms seems to fracture Greens and environmentalists. Those who live close by, as opposed to those living in urban centers, tend to have more critical concerns. To make matters more complicated, some authors opposing wind farms turn out to be climate change deniers and supporters of nuclear power! (See John Etherington, **The Wind Farm Scam.**)

There seems to be a sense of unreality about the apparent support for "green energy" projects in Canadian society. In many ways, society seems hell bent on ruining what is left of the natural world, caught up in various "green" projects (which often also have serious implications for human health), in the name of 'saving' the existing society from the impact of climate change. Corporations, politicians and various economic opportunists, who have no past credentials as Earth warriors, become overnight environmentalists in their push for wind-generated energy. Also, many who claim the environmentalist label, positively evaluate the soft energy path. Yet usually they are eco-capitalists in basic sentiment and are not willing to accept that the existing industrial capitalist society is ecologically doomed.

The following are some additional considerations, in deciding whether or not the generation of electrical energy from wind turbines should be supported or not.

Some basic societal assumptions influence the wind farm discussion. Yet, such assumptions are rarely called into question. Arne Naess, the late Norwegian founder of deep ecology, made a crucial distinction back in 1972. This distinction is about the difference between "shallow" and "deep" ecology. Shallow ecology, meaning that the existing industrial capitalist system based on continual economic growth and consumerism, Nature seen as private property to serve humans, etc. are taken as a given. Within this, efforts are made to address various environmental problems, like today's concern with climate change. Deep ecology, on the other hand, says that we have to move from a human-centered to an Earth-centered society. It says that the problems we humans face, like climate change, require fundamental institutional changes to end our overconsumption of the bounty of the natural world. This is necessary, so that a new societal formation, rooted in a nonhuman-centered ecology, with equality between species and social justice for humans, can come into being. Thus energy plans should include a population reduction strategy. We are talking about scaling back the Earth's overall human population to one to two billion persons, if the Earth's ecosystems are to start on the recovery path.

For Naess and for deep ecology supporters, "the earth does not belong to humans." As regards the placement of wind turbines, human or corporate interests cannot be

paramount, over the interests of nonhuman animals and plant life. At the present time, corporate interests with government support, prevail in industrial wind farm placements. And, as Nina Pierpont shows in her book, these corporate interests also prevail over the human health consideration of those living in close proximity to wind farms. Furthermore, they prevail over those who value the viewscape of the natural world against the placement of industrial technology structures like wind turbines.

From a deep ecology perspective, the high energy consumption of existing society must be drastically reduced. Yet the Dalhousie Mountain wind farm uses, in its human-centered environmental assessment, as one its justifications, “a 5% annual increase in demand by Nova Scotians.”

What we overwhelmingly see, with the promotion of industrial wind farms, is that the existing industrial capitalist society is taken as a given. Not only is it assumed that renewable energy can maintain a growing industrial capitalist society (Ted Trainer’s 2007 **Renewable Energy Cannot Sustain a Consumer Society** presents a convincing case against this position), but it is also assumed that fossil fuel extraction can continue, notwithstanding that reductions in greenhouse gases of the order of 80-90 percent are needed in the industrial economies like Canada. However, we all know that the emissions of carbon dioxide, the main greenhouse gas, continue to increase year by year.

Whatever wind energy is generated should be used locally and not exported to the United States. We should choose the placement of wind turbines on an ecocentric basis, not one which only suits some human and corporate interests. A transition to a very different kind of society must be part of a renewable energy strategy for it to enjoy our support.

May, 2010

Addendum

A Wind Turbine Scammer

By David Orton and Helga Hoffmann-Orton

The Wind Farm Scam: An Ecologist’s Evaluation, by John Etherington, Stacey International, London, 2009, 198 pages, paperback, ISBN: 978 1905299 83 6.

“Thus, by elimination and, like it or not, nuclear satisfies every demand of a power system and it also ‘tackles climate change’, if saving CO2 emissions is truly necessary.”
p. 190

Introduction

For novices looking into the placement of industrial wind turbines and seeking books with a critical perspective, two authors' names come up in internet and other searches – Nina Pierpont and John Etherington. After having read both books, and having positively reviewed Pierpont's contribution to the wind turbine debate, we felt compelled to include an Addendum about John Etherington's book with the Pierpont review, as we do not feel Etherington's book deserves a review in its own right.

We cannot recommend **The Wind Farm Scam**. Unfortunately, this book feeds into that position which asserts that those opposing industrial wind turbine placements are climate change deniers and supporters of nuclear power – which is John Etherington's position. The author's analysis is itself a "scam", because in delivering a critique of industrial wind turbines – some of it useful – he arrives at a position which most people opposing industrial wind farms would not want to be associated with.

The sub-title of the book, *An Ecologist's Evaluation*, is also quite misleading, because there is only one chapter out of eleven chapters ("Landscape degradation and wildlife"), concerned with ecological matters, and even that has little new ecological thinking. The information on bat and bird kills, including raptors, is recycled. These kills must be only a small manifestation of the wind farm-related disruption of the natural world. If humans can suffer from wind turbine syndrome, then this must also impact non-human animals. This cannot only be measured by tallying dead bats and birds around turbine sites. Are the noises associated with wind turbines creating "wildlife exclusion zones"? The lack of ecology in *The Wind Farm Scam* is disappointing and is not rectified by the presumably "field ecologist at work" posture of the author on the inside book cover.

The book is published by Stacey International, a London-based publishing house which tells us on the front cover that it caters to "Independent Minds". It turns out that all the authors in the 'Independent Minds' section of the web site, including Etherington, are climate change deniers!

Some relevant issues

The author is based in the United Kingdom and the data he uses for his arguments against wind turbines mainly refers to that country. Overall, this is a difficult book to read, because of the technical discussion about wind turbines which John Etherington engages in. Thus, for the average reader, a lot has to be taken on faith. Yet, because of his climate change denier position and his promotion of nuclear power (which is only hinted at early on, and becomes more developed towards the end of the book), there is some shadow cast over the credibility of the author with regards to his critique of the wind turbine industry.

Etherington never calls for the reduction of electrical consumption by the citizenry or for population reduction. He assumes the continuation of industrial capitalist society, with its built-in economic growth and consumption mantras, which are mainly responsible for climate change. For him, "it is inconceivable that a modern civilization could function without electricity." (p. 86)

The reader can learn a lot about wind turbines and how they function. There is detailed information on the technical aspects of wind energy, wind turbine construction, poor economic returns from investment in wind energy, poor energy return from wind energy, etc.

Some other information gleaned from the book:

- Windmills first appeared in England in the 12th or 13th century. By the early 1800s there were about 10,000 windmills, but they had disappeared as functioning entities by the close of the Second World War.
- These windmills were about a “quarter the height of a large wind turbine.” (p. 23)
- Today wind turbines are becoming much larger (almost 600 feet tall) and are capable of generating 6 megawatts of power in very windy conditions. “We need about 10 mph or so for any wind electricity and 34 mph for maximum generation.” (p. 56)
- Another name for wind turbines is “aerogenerators.”
- Wind speed increases with height.
- Wind turbines average 25% to 30% of their rated maximum output. (p. 156)
- Wind turbines can interfere with television reception, radar and wireless communications.
- Accidents to modern wind turbines mainly involve blade failures.
- While the rotors of wind turbines appear to be travelling quite slowly, “the blade tip velocity of a big machine often exceeds 150 mph.” (p. 103) This brings the lethality of wind turbines for birds and bats more into focus.

Etherington points out, as have many others, that wind-generated energy requires a back-up electrical grid – usually fossil fuel-fed – for the times when the winds do not blow: “At present there is no economically viable way of storing electricity in quantities sufficient to smooth industrial wind power through periods of low generation ... wind stations must be coupled to the conventional electricity system which provides the necessary backup of reserve generating capacity.” (pp. 59-60)

The main argument throughout the book is that because wind energy is intermittent, we always need another energy source as back-up. This makes wind energy not worth the cost.

Wind turbines are heavily subsidized. Here in Nova Scotia, there are provincial and federal tax breaks for wind farms and the promotion of what are called “feed-in tariffs”. Mainstream provincial environmental groups, like the Ecology Action Centre and the Sierra Club, Atlantic Chapter, have publicly called for these feed-in tariffs. (See the **Chronicle Herald**, March 31, 2010) Etherington defines such tariffs as “a premium above market rates, usually over a guaranteed time period.” (p. 82) It is of course the citizenry who ultimately funds the feed-in tariffs with higher electricity rates. There is nothing wrong with this in a good cause, but this is not the situation when the rural landscape is covered with wind farms. Etherington calls it, in a nice turn of phrase, the “crucifixion” of the countryside. The proliferation of wind farms has adapted to the

existing always expansionary industrial capitalist society, driven by ever more consumption of fossil fuels.

Conclusion

The redeeming features of **The Wind Farm Scam** are not sufficient to overcome its discrediting of climate change, by supposedly ‘refuting’ its arguments and advocating nuclear energy. Those who oppose industrial wind farms cannot ally with such climate change deniers, because to do so would discredit the real ecological and social arguments against such farms.

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