

**Becky Golden-Harrell**

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**Sent:** Tuesday, March 01, 2011 8:10 PM  
**To:** ECOSUB; catulewind@blm.gov  
**Cc:** dianne.jacob@sdcounty.ca.gov; tisdale.donna@gmail.com  
**Subject:** Comments on DRAFT DEIR/DEIS FOR ECO SUBSTATION, TULE WIND & ENERGIA  
SIERRA JUARE  
**Attachments:** NoiseandHealth Final.doc

Attached please find my comments on the Noise/Sound Component of the  
DRAFT DEIR/DEIS FOR ECO SUBSTATION, TULE WIND & ENERGIA SIERRA JUAREZ GEN-TIE PROJECTS.

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California Public Utilities Commission  
Attn: Iain Fisher  
BLM California Desert District Office  
Attn: Greg Thomsen  
c/o Dudek  
605 Third Street  
Encinitas, CA 92024

March 4, 2011

VIA E-MAIL: [ecosub@dudek.com](mailto:ecosub@dudek.com) or [catulewind@blm.gov](mailto:catulewind@blm.gov)  
RE: DRAFT DEIR/DEIS FOR ECO SUBSTATION, TULE WIND & ENERGIA  
SIERRA JUAREZ GEN-TIE PROJECTS

Dear Mr. Fisher and Mr. Thomsen,

As a homeowner/musician in the area affected by the proposed wind farms in East County San Diego, I am very interested in the noise/sound part of this proposed project. I began to look around and learn about sound measurement and wind farms as well as sound in a more scientific way.

**Noise/Sound:**  
**Sound is audible and inaudible.**

**Here are my concerns:**

**1. Audible Sound:**

**D8: 1, page 1** The Environmental Impact Statement presented by Dudek with regard to noise uses only figures supplied by proponents of the Wind Farm Projects. Independent figures and independent studies must be gathered. Vested interest here colors the figures supplied. This goes without saying that none of the numbers that favor the installation of the wind farms at a distance of 1000 ft. that have been supplied by the proponents **are to be trusted.**

The sound of these wind turbines is of two kinds: audible sound and inaudible (low frequency sound.) This Environmental Impact Statement treats low frequency sound as a non-issue, as it is not mentioned.

From what I understand when measuring sound from machinery, using the "A" scale is inappropriate for measuring the effect of machinery on humans. The "C" scale should have been used. How do the numbers and effects change if this scale is used? What is better yet is using a sound spectrometer.... I am not an expert but the analysis of sound is grossly understudied. Just a few things I have gleaned.

**1. A. Measuring Wind Turbine Noise**

By [RenewableEnergyWorld.com Editors](#) | November 22, 2010 | [12 Comments](#)  
Are decibel levels the most important metric for determining impact?

Alternative Ways to Measure Sound in a More Complete and Realistic Way:

<http://www.renewableenergyworld.com/rea/news/article/2010/11/measuring-wind-turbine-noise>

Graph referred to:

<http://www.renewableenergyworld.com/rea/news/article/2010/11/measuring-wind-turbine-noise>

Comment from Eardoc)

"A key part of this graphic that most people will not appreciate is the "A" after dB (i.e. dB (A)). This means that all the infrasound (< 20 Hz) generated by the turbine, which undoubtedly affects the ear at levels below those that are heard, is totally ignored by the measurement. This measurement is equivalent to considering only the visible portion of sunlight and concluding that sunlight cannot harm you. We all know that the invisible portion of sunlight (the ultraviolet light) is the portion that causes skin and eye problems. Similarly, it is the unheard infrasound component of wind turbine noise that causes problems to nearby residents. Until the industry starts taking note of this, the problem of wind turbine noise on nearby communities will not be solved. Long term infrasound exposure disturbs sleep and this graphic completely ignores this fact. So it may be a clever graphic, but it misrepresents the true (infrasound-dominated) nature of sound. A key part of this graphic that most people will not appreciate is the "A" after dB (i.e. dB (A)). This means that all the infrasound (< 20 Hz) generated by the turbine, which undoubtedly affects the ear at levels below those that are heard, is totally ignored by the measurement. This measurement is equivalent to considering only the visible portion of sunlight and concluding that sunlight cannot harm you. We all know that the invisible portion of sunlight (the ultraviolet light) is the portion that causes skin and eye problems. Similarly, it is the unheard infrasound component of wind turbine noise that causes problems to nearby residents. Until the industry starts taking note of this, the problem of wind turbine noise on nearby communities will not be solved. Long term infrasound exposure disturbs sleep and this graphic completely ignores this fact. So it may be a clever graphic

(<http://www.renewableenergyworld.com/rea/news/article/2010/11/measuring-wind-turbine-noise>), but it misrepresents the true (infrasound-dominated) nature of wind turbine noise."

Another comment from the same web site by ([AcousticEcologyInstitute](#) )

"A couple other important factors: even within audible sound ranges, the sound spectrum of wind turbines is heavily weighted toward the lower frequencies. Turbine noise is often clearly of a lower overall frequency than the ambient noise in bushes and trees; this is one reason it is not as effectively masked as often is assumed.

Perhaps the most important metric is whether the turbine noise is more than 5dB above the background ambient (in the moment; averaging sound over time can miss the fact that for parts of a day and especially night, ambient noise is lower than an averaged level). As it moves past 5dB over other sounds, it becomes distinguishable; as it reaches 10dB over other sounds, it will be readily noticeable and likely to cause some annoyance. 15dB or more is quite intrusive.

Expectations are obviously crucial, as noted here. If peace and quiet is a prime reason many people in the area live there, then any audible intrusion from large industrial installations will trigger discontent. If most everyone nearby is more actively working the land and using machines in their daily life around their land/ranch/farm, then it's probably going to be less of an issue to hear turbines added to the mix at the low level they are heard." ([AcousticEcologyInstitute](#) )

**Comment:** The way sound is measured in the impact statement has been grossly under studied. This is really a big disappointment. In fact looking at the decibels appears to actually give a very incomplete measurement of what people and wildlife will have to deal with. I understand it would be 10 dB above current noise and that seems to be intrusive according to the above source if I understand correctly. Additional study will have to be done and presented and proper mitigations presented or the companies involved will have to agree to buy out all people in the affected areas who do not want to or can't deal with this sound.

### **1. B. Sound Character/Timbre**

No “**characteristic**” of the audible sound has been addressed in the impact statement. The recordings on the Internet show that the sound is very objectionable. The type of audible noise produced by the wind farms is not discussed. It seems that windmills produce a sound particularly unacceptable to humans, which for long hours is particularly grating. The type of sound must be addressed. No natural noise is constant over an hour or longer... the wind mills would/could be constant or relatively so for many hours on end day and/or night. The effect of prolonged audible and inaudible sound needs to be addressed. (As for freeway noise, most of the properties in the East County affected areas do not experience that sound.)

Ocean waves and even natural wind sound are pleasant to the ear and so more acceptable. It seems that these wind turbines produce an objectionable sound. This isn't even mentioned in the impact statement perhaps because “1,000” is supposed to take care of all sound. This may or may not be true for all individuals and what of animals?

### **2. A. Low Frequency Sound**

A large component of the sound of these wind turbine machines is below the level of hearing and has great effects on humans; this is not addressed in the Environmental Impact Statement at all. Decibels are all that is discussed.... It is like unseen sunlight that burns the skin.... Here unheard sound seems to also be a problem. Nothing is addressed in the document about this. This is unacceptable. (1. See Below)

Japan has placed a four-year moratorium on new wind farm development pending independent health studies. This indicates that there are enough serious health problems. Japan has suffered enough adverse effects to say further studies are needed and has found the situation grave enough to halt further construction.

The health risk of these East San Diego County Projects has been grossly underestimated with the totally inadequate analysis of sound. If we consider the study in "Wind Turbine Syndrome" by Nina Pierpont, MD, Ph.D., page 193 begins the summary of the effects of living in the proximity of wind turbines. These studies have not been included in the Environmental Impact Study. Pierpont shows many case histories and summarizes many, many symptoms. Among them disturbed sleep, headaches, tinnitus, hearing loss, Visceral Vibratory Vestibular Disturbance, problems with concentration and memory, irritability and anger, fatigue, loss of enjoyment and motivation, dizziness, loss of balance, and many, many more serious possible effects. Pressure in the ear and loss of balance affects also mental processing of many things. The longer the exposure, the worse the symptoms. Pierpont says, "The simple answer is: Keep wind turbines at least 2km (1 1/4 miles) away on the flat, and 3.2 km (2 miles) in mountains. These are minimum distances. Kamperman and James's methods (\* See Below: Kamperman and James) will likely recommend larger setbacks, especially in rural areas that are very quiet at baseline." (2. See Below, Pierpont)

Japan has found sufficient problems with wind energy to declare a four-year moratorium of further construction for health study. Holland and Nova Scotia also are declaring moratoriums.

[Nextera wind project meets opposition in West Grey :](http://www.betterfarming.com/online-news/nextera-wind-project-meets-opposition-west-grey-2705)

<http://www.betterfarming.com/online-news/nextera-wind-project-meets-opposition-west-grey-2705>

"One has only to undertake real research into the issues carried out by arms-length organizations to discover that countries who have been at it longer have indeed identified problems, not least of which is wind power does almost nothing to reduce CO2 emissions and in fact has not resulted in the shut-down of any traditional energy producing plants (in fact a study of the situation in Denmark done in 1998 contained this sentence "In 1998, Norway commissioned a study of wind power in Denmark and concluded that it has "serious environmental effects, insufficient production, and high production costs." Read more here:

[http://www.wvmcre.org/neg\\_impacts/inefficiency.htm](http://www.wvmcre.org/neg_impacts/inefficiency.htm)

As well there are a growing number of studies identifying both health problems and loss of property values (see <http://www.epaw.org/victims.php?lang=en&article=t1>, and <http://www.epaw.org/victims.php?lang=en&article=t3>, and follow the links on these pages: [http://www.wvmcre.org/neg\\_impacts/neg\\_impacts.htm](http://www.wvmcre.org/neg_impacts/neg_impacts.htm), <http://windconcernsontario.wordpress.com/2010/01/21/us-japan-france-aust...>, [http://windconcernsontario.wordpress.com/category/health/.](http://windconcernsontario.wordpress.com/category/health/)"

A medical officer of health in Ontario, Canada, Dr. Hazel Lynn, supported by the Grey-Bruce Board of Health and Grey County Council, wants to see proper health studies conducted. The recent international symposium on health effects of wind turbines, held in Picton Ontario, Canada brought together American, British and Canadian physicians, medical researchers, physicists, and acousticians all of whom say there are serious health effects that need much further study before we proceed. Canada especially has started hosting symposiums on the adverse effects of wind farms. Not enough is known here.

Will the companies involved in all these East San Diego County Projects put a deconstruction and decommissioning section in the project if new research shows that new standards need to be implemented?

Musicians know about the experience of sound. Here is one experiment that was done with low frequency and music. Of course the audience was close to the music. What this shows is that low frequency definitely has an effect on many people. How far away one must be so as to nullify that effect is the subject of other comments in this paper?

## **2. B. Infrasonic: 17 Hz tone experiment**

On May 31, 2003, a team of UK researchers held a mass experiment where they exposed some 700 people to music laced with soft 17 Hz sine waves played at a level described as "near the edge of hearing", produced by an extra-long-stroke subwoofer mounted two-thirds of the way from the end of a seven-meter-long plastic sewer pipe. The experimental concert (entitled *Infrasonic*) took place in the [Purcell Room](#) over the course of two performances, each consisting of four musical pieces. Two of the pieces in each concert had 17 Hz tones played underneath. In the second concert, the pieces that were to carry a 17 Hz undertone were swapped so that test results would not focus on any specific musical piece. The participants were not told which pieces included the low-level 17 Hz near-infrasonic tone. The presence of the tone resulted in a significant number (22%) of respondents reporting anxiety, uneasiness, extreme sorrow, nervous feelings of revulsion or fear, chills down the spine and feelings of pressure on the chest. In presenting the evidence to [British Association for the Advancement of Science](#), Professor [Richard Wiseman](#) said, "These results suggest that low frequency sound can cause people to have unusual experiences even though they cannot consciously detect infrasound. Some scientists have suggested that this level of sound may be present at some allegedly haunted sites and so cause people to have odd sensations that they attribute to a [ghost](#)—our findings support these ideas."

["Infrasound linked to spooky effects"](#). msnbc.com. 2007-09-07.

<http://www.msnbc.msn.com/id/3077192/>. Retrieved 27 January 2010.

## **2. C.**

Sumas Energy 2 Final SEIS  
Section 3.4 – Low-Frequency Noise  
May 2002 Page 3.4-8

"This is characterized by noise levels at frequencies less than about 100 hertz (Hz). For this SEIS, low-frequency noise is described as noise levels in the 16 Hz, 32 Hz, and 64 Hz octave bands. Noise at those frequencies can be annoying to some people even at relatively low levels that might not be discernible to other people standing nearby (van den Berg 1998). Low-frequency noise can propagate through closed windows and lightweight walls typical of most homes, so in many cases the indoor and outdoor levels at homes near sources of low-frequency noise can be nearly identical. For that reason, annoyance from low-frequency noise usually occurs when the receiver is indoors where the background noise levels are low compared to the intruding low-frequency noise.

If the low-frequency noise level is sufficiently high, it can cause discernable vibration and rattling of windows or other lightweight structures. “

## **2. D. Periodic Beats**

Sumas Energy 2 Final SEIS  
Section 3.4 – Low-Frequency Noise  
May 2002 Page 3.4-8

“In some cases where two sources of low-frequency noise operate near each other (e.g. two adjacent turbines operating at the S2GF), sound waves propagating away from the sources can interact to cause repetitive low-frequency “beats.” These periodic beats can be readily discernible (and be potentially annoying) even when the overall noise level is low.“

**Comment:** The sound effects of two or more turbines in sync or out of sync and the audible sound waves and low frequency waves produced as a result are a whole order of magnitude above all that is mentioned in the EIS and these comments of mine. How far these waves travel is not discussed. The Environmental Impact Statement does not even mention the possibility of this, let alone the effects on people and wildlife. These kinds of self interfering or self coordinating waves seems to augment the possibility of actual noise and physical effect on residents and wildlife beyond what one source of sound waves would produce. This situation also needs to be addressed as many windmills in the same area are planned and close to residences and a school.

## **3. Effects on Children**

Some of the wind turbines in the East County Projects are planned to be close to schools and homes with children. A Tule Wind Farm Project would have a mill placed 1.25 miles from an Elementary School. It seems there could be a problem with child leukemia...

### **The NIH Document: EMF Associate with the Use of Electric Power-June 2002**

“Q. What can we conclude about EMF at this time?

A. "Electricity is a beneficial part of our daily lives, but whenever electricity is generated, transmitted, or used, electric and magnetic fields are created. Over the past 25 years, research has addressed the question of whether exposure to power frequency EMF might adversely affect human health. .... There is some evidence from epidemiology studies that exposure to power-frequency EMF is associated with an increased risk for childhood leukemia. This association is difficult to interpret in the absence of reproducible laboratory evidence or a scientific explanation that links magnetic fields with childhood leukemia."  
June 2002"

**WHO results:**  
**Extremely Low Frequency Fields**

## **Environmental Health Criteria Monograph No. 238**

### **Chapter 12 WHO**

#### **Conclusions**

“Consistent epidemiological evidence suggests that chronic low intensity ELF magnetic field exposure is associated with an increased risk of childhood leukemia. However, the evidence for a causal relationship is limited, therefore exposure limits based upon epidemiological evidence are not recommended, but some precautionary measures are warranted.”

**Comment:** The bone structure of children is thinner and not as solid as adults. This information about the possibility of childhood leukemia plus the effects of “Wind Turbine Syndrome” on children make it imperative that the wind turbines be set back at least 2 miles and better 2.5 miles from schools and residences where there are children in particular, so as to avoid future complaints and lawsuits.

#### **4. Maintenance:**

Detailed plan for maintaining the windmills and proof of maintenance.

"The plan will also demonstrate how the project will maintain the turbines so that they will be kept in good running order throughout the operational life of the project and will not create noise levels due to deterioration that would violate County standards."

**Comments:** This absolutely needs to be shown how this will happen in detail before the project starts. What recourse will locals have if this is not done? Will locals have the possibility of turning off the windmills when they become too much to handle as in some European installations?

#### **5. Future Studies:**

What is the plan for incorporating the results of future studies that possibly change the noise and low frequency thresholds and other variables? This kind of flexibility needs to be built into the projects. This could also include the possibility of complete shut down and complete decommissioning if these new standards can not be met.

#### **6. Conclusion:**

##### **6. 1. A More Serious and Complete Study of Sound Needed**

These few pages of mine are only the beginning of a more serious and scientific look at the whole nature of sound and in particular the sound emanating from the wind turbines. I am a musician and not a sound expert and so my presentation here is also not complete, but I am only suggesting that much more needs to be looked at. I cited only a few works and studies and there are many, many more.

- A. Sound measurement needs to be amplified and refined both of audible and inaudible sound/noise. A sound spectrometer or at least the “C” Scale should be used and whatever else the experts say. Experts in sound need to be consulted.



- B. Periodic beats need also to be looked at and included as to effects on audible and inaudible sound waves.
- C. Adverse health effect studies need to be looked at especially of infrasound for all residents, children, elderly and wildlife.

From the above studies and comments it seems that there are sufficient problems on the part of residents living closer than 2 miles from wind turbines to warrant much more attention and understanding and ultimately inclusion in these aspects of sound in the Environmental Impact Statement.

I have also not touched on the impact on the hearing wildlife in the affected areas. It is known that animals hear higher and lower frequencies than humans.

## **6.2. Distance from Wind Turbines Changed to at least 2 miles**

It seems that wind turbine distance from residences and schools needs to be set back to at least 2 miles away, given the evidence that is starting to be presented around the world with regard to health effects of being closer than 2 miles from the low frequency source. Before the Wind Farms can be constructed that could adversely affect the health of so many people and wildlife much more study is needed. Distance from the turbines seems to be of paramount importance.

## **6.3. Inclusion of Health Marker Monitoring of Local Residents**

Since the health problems of residents as stated in the extensive study of “Wind Turbine Syndrome” of Dr. Pierpont and the other cited comments and studies seem to be a real possibility, if wind turbine distance is not altered from the proposed 1,000 feet standard, the County should have a component in the project for monitoring the “Wind Turbine Syndrome” and “Sick Building Syndrome” health markers to see if they are presenting themselves in people closer than 2 miles to the turbines. The age of residents seems important as to impact on health; the young and the old are more affected.

Further study needs to be done included in the Environmental Impact Statement and distances altered, if this is not done and the County does not undertake the monitoring of the health markers of the residents then the communities themselves will have to take up the defense of their own health including children in schools and mount adequate scientific monitoring of the health markers set forth in these and other studies with the help of experts and with the intention of presenting them to the proper authorities if there are forthcoming adverse effects.

## **6.4. Inclusion of Buyout Option**

For me our property will possibly be located within 1,000 feet of a wind turbine and is close to an alternative high energy line route and would possibly become unlivable with

so many frequencies all around. This raises the question of buyouts as a result of this industrial incursion on already established families.

## **6.5. Maintenance**

The maintenance schedule needs to be very clear and available to all as well as public recourse if this maintenance isn't complied with.

## **6.6. Future Study Conclusions**

There needs to be a way to include the results of future study as to noise/sound and EMF thresholds for humans; that is, to include some kind of inherent flexibility in the project structure.

## **6.7. Possible Abandonment of Wind Farm Projects**

It seems like a better option to resurrect some of the 12,000 abandoned wind turbines that seem to be all over California. These abandoned areas already have approval. Perhaps it is best to exercise the Do Not Construct Option for all these East County Projects.

### **A Personal Note:**

I am a musician and my hearing is sensitive. I can hear to high frequency humming of dimmer lights and exposure can leaving feeling nauseous. Low frequency assaults the body in many ways. We do not only hear with our ears. Sound is vibration of all frequencies and it bathes, surrounds and penetrates the body; experiencing all of this is real hearing, complete hearing. As I tell my students, we don't only hear with our ears, but with our whole bodies. Our whole body is an ear. Musicians know this (music experiment quoted above) and audiences need to be educated to properly hear music, which I do at all my performances. I have trained myself in this for years, as my instrument (shakuhachi) is one that emphasizes timbre and microtonal variation. ([www.shakuhachi.org](http://www.shakuhachi.org))

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### **Notes:**

1. "[Symposium Delivers Facts on Wind Energy](#) Ontario, Canada

*Author:* Garand, Henri

The First International Symposium on the Global Wind Industry and Adverse Health Effects, held this past weekend [October 29-31] in Picton, brought together American,

British and Canadian acousticians, physicists, physicians, and medical researchers. The audience came from across Ontario and the United States and from as far as Australia. Our understanding of how wind turbines can affect human health is steadily increasing. Since the facts often contradict the Ontario government's and wind industry's claims, it may be useful to clarify the current state of knowledge.

1. *Claim: Ontario's regulations are the best in the world.*

**FACTS:** Orville Walsh, CCSAGE chair and APPEC vice president, studied government regulations in every country hosting wind turbines. The standards differ widely and most are based on noise, not setback distances. Ontario's noise level is 40 dbA, measured outside a home. Countries, like Germany, with lower levels cite either 35 dbA or +3 dbA above ambient sound. Night time ambient sound in a rural area is typically 30 dbA or less. (On the dbA scale, the ear can detect a difference of  $\pm 2-3$  decibels and perceives 10 decibels as a doubling of sound.)

2. *Claim: The sounds heard from wind turbines are no louder than whispers or a refrigerator.*

**FACTS:** Dr. John Harrison, a physicist, explained that wind turbine sounds, especially the "swoosh," are different because of their amplitude and can exceed the 40 dbA regulatory limit because turbine settings are based on computer models, not live measurements. Moreover, turbine noise is not masked by natural sounds and can sometimes be perceived over great distances. Depending on weather conditions and cloud cover, a large installation of wind turbines, such as those planned for Lake Ontario, could emit over 40 dbA of noise as far as 9-15 km away.

3. *Claim: Wind Turbines do not produce low-frequency sound.*

**FACTS:** Acoustician Rick James exhibited spectrograms of the sound coming from land-based wind turbines in which the low-frequency component was substantial and could be measured more than 5 km away. He also compared the symptoms of people suffering from "Wind Turbine Syndrome" to the identical symptoms reported in the 1970's and 80s by those working in so-called "sick buildings." The latter problem was eventually identified as due to infra low-frequency sound (ILFN) transmitted through ducting.

4. *Claim: People cannot detect infrasound.*

**FACTS:** Dr. Alex Salt, a physiologist, described his recent research findings in which parts of the inner ear reacted visibly to infrasound. His research shows that the ear does respond to low-frequency sound even though we do not perceive it as sound. Further research will be required to understand how these impulses are transmitted to the brain, with possible disturbance and detrimental effects.

5. *Claim: Complaints about wind turbine noise indicate annoyance, which is harmless.*

**FACTS:** Dr. Arline Bronzaft, a noise researcher, explained how daytime transit noise near a New York City public school went well beyond annoyance and affected students' academic achievement. The effects of noise disturbance are not restricted to nighttime, and the effects of noise on children can be profound, impacting development.

6. *Claim: Wind turbine noise is harmless.*

**FACTS:** Dr. Christopher Hanning, a specialist in Sleep Medicine, explained how noise can disrupt the sleep patterns necessary for health and how loss of sleep affects memory and thinking, and can lead in the long term to risks of diabetes and heart disease.

Dr. Nina Pierpont, a physician and researcher and author of *Wind Turbine Syndrome*, explained how auditory systems react to sound and the negative effects of wind turbine sound on the patients she has studied.

7. *Claim: Wind turbine noise affects few people seriously.*

**FACTS:** Dr. Michael Nissenbaum reported on his studies of people living near wind projects in Mars Hill and Vinalhaven, Maine. Both studies indicate that residents within 2 km and beyond, compared to a control group outside the project areas, suffered serious sleep disturbance and stress.

8. *Claim: Wind turbines are safe because no peer-reviewed studies prove otherwise.*

**FACTS:** Dr. Carl Phillips, an epidemiologist, explained that clinical reports around the world are sufficient evidence of adverse health effects and that wind industry denials reflect misunderstanding of the stages of scientific inquiry and the value of peer review.

9. *Claim: Wind development serves the public good.*

**FACTS:** Carmen Krogh, board member of the Society for Wind Vigilance, applied the concept of social justice to public health and presented testimonies from Ontario, Germany, and Japan of people suffering from wind projects. Ontario rural residents are dismayed, to put it mildly, that every government agency has ignored their plight. ....Considering the adverse health effects and practical limitations of wind energy, how is it that wind development remains so popular? The answer lies in twenty years of social marketing, environmental fears, and the false economic hope of green jobs. The Symposium should make everyone question what the Ontario government and wind industry would like us to believe.

Henri Garand

Chair, Alliance to Protect Prince Edward County"

(\*)[Simple guidelines for siting wind turbines to prevent health risks](#)

*Author:* Kamperman, George; and James, Richard

*Also see* ["How-to guide to criteria for siting wind turbines to prevent health risks from sound"](#) by the same authors

Paper presented at Institute of Noise Control Engineering (INCE) NOISE-CON 2008, July 28-31, 2008

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Rev. 1.0, July 27,

2. Pierpont, MD, PhD, Nina, [Wind Turbine Syndrome, A Report on a Natural Experiment](#), 2009, p. 254, King Printing, Lowell, Mass.

[http://www.multi-science.co.uk/effects\\_low-frequency.htm](http://www.multi-science.co.uk/effects_low-frequency.htm)

The Effects of Low-Frequency Noise and Vibration on People

Edited by Colin H. Hansen, University of Adelaide

## Wind Turbine Syndrome

<http://www.windturbinesyndrome.com/http://www.windturbinesyndrome.com/>

Wind energy is a multi-billion dollar a year industry. It's billed as "clean, green, renewable."

In this engagingly written, peer-reviewed report by a Johns Hopkins University School of Medicine trained M.D. and Princeton (Population Biology) Ph.D., we discover wind energy's dirty little secret. Many people living within 2 km (1.25 miles) of these spinning giants get sick. So sick that they often abandon (as in, lock the door and leave) their homes. Nobody wants to buy their acoustically toxic homes. The "lucky ones" get quietly bought out by the wind developers—who steadfastly refuse to acknowledge that Wind Turbine Syndrome exists. (And yet the wind developers thoughtfully include a confidentiality clause in the sales agreement, forbidding their victim from discussing the matter further.)

Dr. Nina Pierpont explains in simple, layman's terms how turbine infrasound and low frequency noise (ILFN) create the seemingly incongruous constellation of symptoms she <http://www.windturbinesyndrome.com/buy.html> has christened Wind Turbine Syndrome. (Incongruous only to the non-clinician who does not understand Mother Nature's organs of *balance, motion, and position* sense.) For the high level clinician, Pierpont provides a parallel chapter written in sophisticated medical language and format, complete with voluminous, up-to-date clinical and scientific references.

The core of the book is 66 pages of ingeniously laid out tables wherein the author presents her clinical Case Histories. The hard data.

Since publishing the book in late 2009, Pierpont has heard from people around the world who are discovering that Wind Turbine Syndrome is not confined to living in the shadow of industrial wind turbines. It turns out people suffer identical symptoms from living close to [natural gas compressor stations](#), industrial sewage pumping stations, and other power plants. In each case, low frequency noise and infrasound appear to be the chief disease-causing culprit—basically, Wind Turbine Syndrome without the turbines.

**3. Summary of Recent Research on Adverse Health Effects of Wind Turbines**, 20 October 2009, Compiled by Keith Stelling, MA MNIMH, Dip Phyt, MCPP (England), with additional files from Carmen Krogh, BscPharm

**4. The Society for Wind Vigilance, "Wind Turbines Linked to 'Sick Building Syndrome.'"**

**5. The Waubra Foundation:** "I have now interviewed over 40 people in rural Australia who have been affected by wind turbines, with the same symptoms." Dr. Sara Laurie,  
Medical Director

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