

PUBLIC HEARING

MEETING NOTES

June 20, 2012

Meeting, Date and Time	A public hearing was held on June 20, 2012, at 7:00 p.m. in the Council Chambers, Municipal Complex, Kentville, NS.
Attending	<p>All Councillors were in attendance</p> <p>District 1 Councillor Jim Taylor District 2 Deputy Warden Janet Newton District 3 Councillor Dick Killam District 4 Councillor Fred Whalen District 5 Councillor Wayne Atwater District 6 Warden Diana Brothers District 8 Councillor Dale Lloyd District 9 Councillor Basil Hall District 10 Councillor Patricia Bishop District 11 Councillor Eric Smith District 12 Councillor Mike Ennis</p> <p>Warden Brothers outlined the rules of the Public Hearing procedure as adopted on November 1, 2011, and explained the purpose of the Hearing.</p> <p>Approximately 220 members of the public were in attendance.</p>
File No: P12-01 Large-scale Wind Turbines	<p>Ian Watson, Planner, outlined the history and process surrounding the proposed amendments to the Municipal Planning Strategy (MPS) and Land Use Bylaw (LUB) for Large-scale Wind Turbines. The proposed amendments replace all current regulations concerning large-scale wind turbines. The amendments indicate that Council intends to further review the issues and, in the meantime, not permit large-scale wind turbines in any area of Kings County.</p> <p>Two written submissions were received from the public before the Hearing (attached) Barry Zwicker, MCIP/LPP, President/CEO of Scotia WindFields Kayla Kenneally – Harbourville area</p> <p>Thirty-seven oral submissions were presented at the Hearing (written presentations attached) Andrew Steeves – Black River Road Dr. Gordon J. Callon – Ross Creek Road, Arlington (Professor Emeritus, School of Music – Acadia University)</p> <ul style="list-style-type: none">• Supports Council's intention to rescind current amendments• Introduced Dr. Carl Phillips and provided his credentials Carl V. Phillips, MPP, PhD – Populi Health Institute

Robert (Bob) Gansel – Gospel Woods Road
 Gerald Fulton – Brooklyn Street
 Jack & Mary Jane McMaster – Forest Hill, South Mountain
 Rick Graham – Baxters Harbour
 Judy Van Tassel – Gulliver’s Cove, Digby County
 Debi Van Tassel – Gulliver’s Cove, Digby County
 Jo Currie – Hwy 359, Centreville
 John Colton – Greenfield, South Mountain
 Soren Bondrup-Nielsen – Head, Biology, Acadia University
 (presentation presented by Gary Boates - Kentville)
 Dr. Mary Lou Harley – Port Williams
 Eugene Pothier – White Rock Road
 Kelly Lee, Lyda Keizer and Jaden Kaizer – Long Beach Road
 John Griffiths – English Mountain Road, Canaan
 James Ruddy – Halls Harbour
 Warren Peck – Black River Road
 Amy Pothier – Canaan, South Mountain
 Paul & Imgard Lipp – Black Rock Road, Grafton
 Marilyn & Paul Cameron – Arnold Road, Woodville
 Fabienne (Fab) Leydecker – Halls Harbour (showed a video compiled using excerpts from an interview by WERU 89.9 FM radio with residents living near the Fox Island Wind Farm located in Vinalhaven, an island community about 12 miles off the coast of Maine. Those speaking are describing their experiences of living with turbine noise. The images appearing in the video are not from Vinalhaven, but are actual photos of other locations in North America where towers were sited very close to homes.)
 Nancy Denton-Peck – Black River Road
 Ruth Winterhalt – Baxters Harbour

- Supports Council’s motion to rescind the current bylaws governing large-scale wind development in Kings County.
- Appreciates Council’s willingness to listen and learn with the rest of us about large-scale wind turbines and to take a second look at the whole thing.
- A 700 metre setback from a home is simply not adequate.

Ted Van Trigt – Halls Harbour

- Talked to an individual from Sutton Realty in Ontario who worked very closely with Wind Concerns Ontario to conduct a study called “Living With The Impact of Wind Turbines” – was told that 2 of every 3 homes for sale near wind turbines do not sell. Those that do, sell for 20-40% less than the market value.
- Comparable findings showed that property rights were trumped and property values eroded dramatically.
- Landowners in Phase 1 in Ontario are responsible for the decommissioning of the turbines once they are deemed no longer useful (20-25 years) which is estimated at approximately one million dollars.

- It is not a good idea for us until we can come up with a better way for green energy.

Jacqui Brown – North Mountain

Madonna Spinazola – Halls Harbour

- Tourism is the No. 1 industry in Nova Scotia.
- Tourism and its spinoffs generate more revenue than agriculture, forestry or mining.
- Tourism is fast becoming a natural resource in Kings County.
- Referenced messages left at their Bed & Breakfast stating “no turbines here please”; visitors come to our area because of its tranquility, the peace and quiet and the opportunity to star gaze.
- We are fortunate to live in an unspoiled environment.
- The current amendments need to be rescinded.
- Hopes that the way progress, profit and power are being described are not any part of the culture and values of Kings County.

Mary Kenny – Peck Meadow Road

- Unfortunate we did not have this level of engagement during the decision making last year.
- Supports the rescinding of the amendments in the bylaws as it currently stands.

Eduardo Vaz – Wolfville

- Understands quite clearly what the concerns are.
- Is very much a proponent of renewable energy.
- Presentations have been very much one-sided to the detriment of wind energy.
- Wind energy is not perfect and it is not an isolated bubble. It is competing against coal and oil. Nova Scotia produces over 80% of our power from coal and oil and there is more data as to the detriment of that type of energy compared to wind energy.
- When doing your research try to look at a comparative assessment of what your decision will be. The issue is not that this is a bad form of energy but it has to be done in a way that engages the community from the onset.
- Technology is advancing.
- There is energy storage for large-scale wind turbines and this is being looked at for Nova Scotia to demonstrate that you can have on demand wind power well situated and safe for everyone.

Dave Hockey – Baxters Harbour

- When mistakes are realized you need to rectify them.
- Commended Council on its support.
- Supports Council’s motion to rescind and rethink the bylaws.

	<p>Betty Lou Brown – Greenfield</p> <ul style="list-style-type: none"> • Supports the rescinding of the current bylaws. • As-of-right does not mean that it is “right”. <p>Jennifer Levy – Commercial Street, New Minas</p> <ul style="list-style-type: none"> • It is wonderful living in the valley and being able to go to areas to experience the silence that is decreasing in our society. • Supports the rescinding of the bylaws. <p>Emily Gale – Baxters Harbour</p> <ul style="list-style-type: none"> • Is whole heartedly and completely supportive of the motion to rescind the current bylaws regarding the industrial size wind turbines. • Thanked Council for its hard work and continued listening skills. • Don’t turn a blind eye to your citizens because of the assumed economic influx or provincial green energy targets or reports from wind companies that state there are no health effects. <p>Andrea Schwenke Wyile – Wolfville</p> <ul style="list-style-type: none"> • Supports the rescinding of the bylaws. <p>Chris Cann – Baxters Harbour</p> <ul style="list-style-type: none"> • People here are some of the best informed about the issues related to industrial scale wind turbines. • Brings greetings from the World Wildlife Fund who is watching on how we deal with this matter in terms of the effects on ecology and the International Coalition for Wildlife. • Supports the motion to rescind the current bylaws. <p>Rebecca Hudson - Kentville</p> <ul style="list-style-type: none"> • Supports the rescinding of the bylaws. <p>The Chair, on behalf of Council, thanked those in attendance for their patience in allowing them to work through this issue. Proud to see the passion expressed for their community, County and neighbours. The recommendations will be coming to Council on July 3, 2012 at 6:00 p.m.</p>
	<p>Councillor Killam reported that Gerry & Carrie Dickie from Halls Harbour are supportive of the motion to rescind the current bylaws. They like the idea of renewable energy but not at the cost of our health, our lands or putting units up that are only 20-30% efficient. The cost does not justify the return.</p>
<p>Adjournment</p>	<p>There being no further business, the meeting adjourned at 10:14 p.m.</p>



June 20, 2012
Warden & Council
Municipality of the County of Kings
PO Box 100
87 Cornwallis St
Kentville, NS
B4N 3W3

Re: Amendment of Policies Regarding Development of Large Scale Wind Turbines

Dear Warden Brothers and Councillors of Kings County:

In late 2011, our preliminary work on a wind energy project near Greenfield helped start the review process that has led to these proposed amendments. Though we felt at the time that the existing regulations were able to adequately mitigate the impacts of large wind turbines, we know public acceptance is paramount to the success of Nova Scotia's renewable energy goals.

We are not interested in developing projects which are unwelcome in the communities they service. Since the revelation of this public opposition, we have been actively looking for new project locations which we hope the community will find more acceptable. At the same time, we have been participating in what has been to this point, one of the most thorough and engaging examples of wind energy regulation development we've seen in Nova Scotia.

This process has continued the tradition of reasonable and detailed policy development established during the 3 years leading to the Municipality's first wind energy bylaw. While any revision to the existing policy would undoubtedly make our job more difficult in finding potential project sites, we believed that if new regulations enjoyed true public support, it would be an ultimately beneficial result for everyone.

So, it is with regret that we've watched the public and political discourse surrounding this matter reach such a fevered pitch that council is today considering an extreme and ill-advised measure.



Extending a moratorium on wind energy development is not a defensible position. It does not reflect the real experience Nova Scotians have had with wind energy projects to date, nor does it reflect the conclusions of the Municipality's own independent study. This motion was conceived of by the Planning Advisory Committee on April 24th, recommended to Council on May 14th and given first reading on May 15th. Two days later, on May 17th, the final results of that investigation were released. To advance such drastic proposals before the conclusion of the Municipality's own consultant study is a reflection of the degree to which this debate has been undermined by heightened emotions and an unwillingness to make politically difficult decisions.

Furthermore, we believe the proposed amendments, as written, do not reflect what municipalities are enabled to do under the purview of the Municipal Government Act. The MGA allows for the development of regulation, a process which Kings County has already invested significant time and effort. It does not provide for the wholesale ban of any specific type of development. We hope Council recognizes the illegality of these proposed amendments, and if not, we expect the Province will. To that end, Scotian WindFields will be forwarding this letter and the proposed amendments to Service Nova Scotia, seeking their immediate input.

Many local governments in this province have been able to devise acceptable regulations to govern wind energy development. We see no reason why, after working for six months towards this goal, it is no longer possible in Kings County. Scotian WindFields categorically opposes the amendments being proposed to the Municipal Planning Strategy and Land Use Bylaw regarding large wind energy development.

Yours Truly,

Barry Zwicker MCIP/LPP
Pres/Ceo

Hello,

I have heard of the meetings for development of wind turbines in Kings County. I am from the Harbourville area, and while I am away at university, I am very much interested in the development of the community. I am a strong proponent of renewable and sustainable energy. Nova Scotia is one of the biggest contributors per population to air pollution due to the heavy reliance on coal to provide our energy needs (Environment Canada). I believe that constructing wind turbines will enhance the local ecology, economy and health. While many good questions on the effects the turbines will have have been raised and should be looked into, I believe that the potential benefits outweigh the costs.

Thanks,
Kayla Kenneally

To Think of What the Country Really Needs

PRESENTED TO KINGS COUNTY COUNCIL, 20 JUNE 2012

Tonight we are discussing the fitness of a bylaw which was intended to regulate the use of Large-Scale Wind Turbines in our county. Our elected officials enacted this law in good faith, but perhaps they enacted it before they had fully comprehended the scale and characteristics of these turbines, the physical extent of the infrastructure such projects require, or the potential impact they might have, both on the wellbeing of residents and on the social fabric of the rural communities where they would be sited.

As a result, many citizens have expressed concern. The council's impressive willingness to listen to the community resulted in a decision to review a policy which was not even a year old, and a unanimous recommendation that the old laws be struck down and that development be arrested while we all sort out what regulations would best answer the community's concerns without unduly thwarting renewable energy development. What we have seen, so far, is a democratic process *working*.

So I am here tonight to support and encourage the council. I am in favour of the motion to rescind the current bylaws. I am also in favour of continuing with a broad-based and unhurried review process in the hopes of establishing new by-laws—not a moratorium, but laws which better balance the needs and the values of our rural communities with municipal and provincial objectives with regards to energy production and economic development.

What I fail to understand is how that makes me 'afraid', 'ill-informed' 'selfish' or 'anti Green'. I can tell you with certainty I am none of these things. Two years ago, I got serious about the energy problem and reduced my own household grid power consumption to ZERO. My home uses photo-voltaic panels and batteries to generate and store electric power, and I burn biomass (culled wood) from my land to heat the space and heat my water. It is all quite affordable, simple, manageable and comfortable. So I am someone who believes that change starts small, and that it starts with at the household level.

So opposing the erection of large industrial developments in rural communities is not the same thing as saying that everything is okay as it is, or that we should simply carry on with the present levels of energy consumption, or that we can continue to employ unsustainable methods of generating electricity. What those who are opposing these developments are saying is that they do not believe that they provide the solutions that we need. What they are saying is that the costs—social and economic— and the risks appear to outweigh the benefits.

The problems we are facing with regards to energy are real, and the solutions required will inevitably be nuanced, complex and require significant change. They will take time, and they will require cooperation and effort by everyone.

We cannot simply abdicate our responsibility to others—change starts with each individual citizen and the choices they make. Above all, we must ensure that the things we do, that the choices we make, actually address the problem that we have. And we must make sure that the policies that we enact protect the very communities that they claim to serve.

The need for change, however, does not provide all developments purporting to be part of ‘the solution’ with a free pass, nor does it elevate developers of ‘green’ projects beyond public scrutiny. Corporations build things to make money for their shareholders. At the DNA level, that’s simply what they do. They capitalize on opportunities, and the shift to green energy is a big opportunity they rightly intend to cash in on. So we must be very cautious about how we as a society work with the corporate world, ensuring that we are appropriately circumspect of the distance which will frequently exist between what they are selling us and what we actually need.

There are many ways to measure the suitability of these projects, but I’ll offer two. One is the question of scale; the other is the question of the value of rural places.

There is a defunct mill pond on Black River near my home which has been handed down through many generations, and was most recently used by several generations of Davisons. This development was an intrusion on the natural flow of the river, but with minimal ecological damage it provided many households with a livelihood over a couple of centuries, and provided a community with a useful service. It was truly a local project and it functioned on a human or community scale.

It would be a mistake to look at that mill pond, however, and say that all dams are harmless, just as it would be foolish to look the massive mega-projects at Churchill Falls or at Three Gorges Dam in China—projects which have obliterated communities and ecosystems—and declare that all dams are bad.

Scale is so important as we proceed with these discussions. We have to think about the scale of the machines and of the infrastructure which they require. What impact will they have on this place? Do they fit the human scale of our rural communities, like the mill pond?

Secondly, what is the value of a rural place? What is the value of quiet? What is the value of wilderness? I once lost my cool in a meeting when a lawyer brushed his hand across the top portion of a map of Maine and said casually, “well, as you know, there’s nothing up there ... it’s pretty much empty.” I pretty much cleared

my chair. I stood up and interrupted him with a the list of plant and animal species which went on for several minutes. He took my point. The place may be empty of roads and houses, but it was teeming with life, and all life in our ecosystem is valuable in one way or another. It is not nothing.

People living in rural communities are often doing so because they understand the broader value of the place. They have a relationship with the land. Sometimes it is a working or economic relationship such as agriculture or silviculture; others times, it is a relationship which simply has to do with being in that place, inhabiting and being nurtured by it.

What value does that have? How is that quantifiable? How does it inform our decisions about where to situate industrial developments? You can decide, if you wish, that this unquantifiable thing it is less important than building wind turbines in Kings County, but I promise you, you can't just sweep your hand across the map and dismiss it. It was here before you were. It is.

So here's where we find ourselves: individuals, communities and municipalities are going to have to give careful consideration to their energy needs and develop appropriate sustainable energy solutions which respect these sorts of community values. To succeed, we're going to have to shake off some old habits—habits which got us in this mess in the first place; habits which the corporate world is more than happy to perpetuate, because they are profitable.

One of those habits is thoughtlessly blundering ahead with prefabricated notions of what change looks like.

As the great American forester and proto-ecologist Aldo Leopold once wrote: “to build a road is so much simpler than to think of what the country really needs.”

And this is exactly how I would characterize the present rush to develop large-scale renewable energy projects in this province. It is simpler to grant a large Spanish corporation permission to build a giant wind farm on the North Mountain than it is to develop and implement truly progressive and effective solutions—or what the country really needs. It is much easier for our governments to turn to the tried and true turn-key procurement methods and financial models of the corporate world—to pay large companies to provide large solutions—than it is to work together with hundreds of thousands of individual citizens to enact *real* change at the grassroots level.

As citizens, we all have a responsibility to step up and kick the tires; to assess whether what is being offered really addresses our problems. I look forward to working with all of you on that challenge. Let's rescind these bylaws and get started.

—ANDREW STEEVES, BLACK RIVER ROAD, KINGS COUNTY

Presentation to Kings County
PAC Public Participation Meeting
on
Health Effects of Wind Turbines on Nearby Residents

Carl V. Phillips, MPP, PhD
Populi Health Institute

Kentville NS, 20 June 2012

This document serves as a lightly annotated copy of my slides for this talk. It is intended as an aid for note-taking and recollection for those seeing the talk, though it also includes a few details that are beyond what can be covered in the talk. This document should not be considered a written report on the topic: It is far from comprehensive, and the emphasis in the added text is points that I think will be difficult to communicate in the oral presentation, rather than it is what is most important to know (which I hope will be communicated in the presentation). Some of the notes might not fully make sense to a reader who does not have the context of the talk.

My background and work on IWTs

- was a Professor of Public Health
- particular expertise in interpreting complex bodies of epidemiologic evidence for policy making
- working on health effects of industrial wind turbines (IWTs) for >2 years
 - published article on how to interpret the evidence
 - launching a field study right now at Drexel University
 - have given invited expert testimony for various forums (Ontario, Alberta, U.S., New Zealand, Australia)

My testimony has been about my primary areas of professional expertise in this matter, that the evidence shows that IWTs cause serious health problems. This has focused on the epidemiologic science, though it has also included issues of how to make optimal public health policy. In addition to this expertise, I also have sufficient background in the electricity grid, industrial policy, and environmental protection to understand other issues related to IWTs and IWT policy, though I have not testified as an expert on these subjects.

Outline

- Epidemiologic evidence there are health effects
- Response to claims there are no such effects
- Quantifying the effects
- Public policy strategy

The epidemiologic evidence is clear

- Epidemiology (the science of quantifying diseases and causes in people) is as complicated as it is important
 - there are no simple rules of thumb (though it is sometimes claimed otherwise)

For example, it is sometimes claimed that some particular study types are always more informative than others, but the comparison always depends on what is being studied and what answer is being sought. Scientists know to think these considerations through, but lots of people who do epidemiology do not think like scientists.

- understanding why something is happening (the “causal pathway”) often lags knowing that it is happening

Even the most accepted result in epidemiology, that smoking causes cancer and cardiovascular disease with a very high risk, has not been fully explained in terms of specific causal mechanisms.

- quantifying effects precisely is particularly difficult
- Nevertheless, it is often quite possible to be confident that a particular exposure is causing disease

- How do IWTs cause disease?
 - audible noise
 - low-frequency noise (infrasound)
 - light and shadow effects
 - cyclic nature of all of these

 - these affect stress (a physical and psychological process)
 - there may also be direct vestibular (balance system) or other effects
- The exact reason for the effects is unknown (as is often the case),
- but there are sufficient clear candidate causes that this does not introduce any doubt in itself

That is, we have very plausible candidate causal pathways, from the physical action of the IWT to the body and health problems. If there seemed to be no plausible way that IWTs could cause the observed problems, that would be one argument against the claim of causation. But the fact that we are not sure of the exact mechanism is not such an argument. Cyclic low-frequency noise can definitely cause ongoing stress reactions and directly affect sleep, which can easily explain the commonly observed effects (as well as more subtle dangerous effects). This is the hypothesis I prefer personally, but other hypotheses also have some support, and offer other plausible candidate causal pathways.

- There is overwhelming evidence that many nearby residents suffer diseases caused by IWTs
 - Sleep disorders
 - Difficulty working and concentrating
 - Mood disorders

note: this list should have included headache, but the slides have already been submitted.

- Other stress-related disorders
- Vestibular problems; Tinnitus; Possibly others

- These are very serious diseases
 - Devastating to people’s lives by themselves
 - e.g., enough to make them abandon their homes
 - More serious than most diseases with more tangible presentation
 - Plausibly contribute to cardiovascular disease risk

I do not expect to have time to cover this in the talk, but it is worth observing that some IWT industry proponents have tried to argue that there is something less important or “real” about these diseases because they are difficult to measure. They typically try to denigrate them with the word “subjective”, though this is a misuse of that term – both because the word is not a denigration and because some of these effects can be measured by an outside observer (the actual meaning of “subjective” is that no such outside measurement is possible). More important, such psychological, functional, and mood distress is far more harmful to people’s lives than more measurable physical ailments. Research on quality of life consistently shows that people’s happiness is reduced much more by diseases like these than it is by almost all physical ailments (the exceptions being those physical ailments that have similar effects to these – that keep people from being able to enjoy the company of others or unable to concentrate; it is those effects that ruin people’s lives).

Moreover (another point that I may not be able to make in the allotted time), we have very compelling evidence about how serious these effects often are. Many people have left their property – leaving their homes, sometimes losing their community, and often suffering a major financial loss because they cannot sell a house that is close to an IWT – to get away from the health effects. This means that the cost to them of these effects is greater than these high costs of leaving, an observation known as “revealed preference” in economics. This far more compelling evidence about the importance of the effect than we normally ever get in public health.

- The evidence primarily takes the form of case-crossover studies by individuals reporting their own adverse reactions
 - for some disease (e.g., cancer from a lifetime of smoking) we can only make one observation per person and have to use statistical methods to extract any knowledge
 - but in a few cases we are lucky enough to be able to perform simpler intuitive experiments when the “cases” can “crossover”
- With IWTs and the diseases they cause it is possible:
 - to crossover from “exposed” to “unexposed” and back, many times
 - to know when the exposure status changed
 - for the diseases to go away and return

The individuals’ case-crossover data is a type of “adverse event report” (AER), a type of data that is regularly collected for pharmaceuticals. AERs allow us to detect unexpected bad outcomes from an exposure – indeed, they are largely the only way, since something totally unexpected is not going to be the subject of another type of study. AERs about pharmaceuticals are sufficient for regulators to impose warnings or even pursue removal of the drug from the market, even though AERs alone do not provide much information about what portion of the exposed population will suffer the outcome.

The AERs about IWTs, unlike most of those reported for pharmaceutical use, typically involve multiple crossovers. This makes them far more valuable, as explained in this presentation; but even without that feature, they would be an example of accepted and useful epidemiologic research. They are often referred to as “case studies” or even “anecdotes”, usually as an attempt to denigrate them; they do meet the technical definitions of those terms, but that does not change the fact that they are very useful data.

- Basically a fancy term for the most intuitive kind of science that we all practice – the bedrock of scientific inquiry, both formal and informal
- E.g., “what is making my stomach hurt”

Consider what you do if you think a particular food is hurting your stomach. You first remove it from your diet and see if you feel better. If that works, you probably then try it again to see if the pain returns (or perhaps you accidentally eat it again). The food and the pain can both come and go, and you know when they do, and if they come and go at the same time, time and again, you have a very good reason for concluding the food is causing the pain. This is far more informative than any other method you might use to investigate the causation.

Few exposure-disease combinations work like this, but when they do – as with the effects of IWTs – this method is far better than any alternative for someone to figure out what is causing his health problems.

The epidemiologic evidence is clear

Case-crossover studies

- There are hundreds (perhaps even thousands) of reports by individuals of their experience with IWTs
- They report:
 - onset of these diseases (quite a consistent list) when nearby IWTs first came on line
 - relief from the health problems when away part of the day or the wind is not blowing
 - reduction or elimination of disease when away for days
 - elimination of disease when they move away from their home

Notice in particular that it is possible to match the timing of onset and relief of the diseases. A spurious argument that is sometimes made by IWT industry consultants is that lots of people suffer from sleep disorders, etc., at any given time, and so there is nothing significant about one person's experience, and maybe it is just a coincidence. But this makes the elementary epidemiologic error of confusing *prevalence* (the epidemiology term for how common something is at a point in time) with *incidence* (the epidemiology term for the initiation or initial diagnosis of a disease). Prevalence is indeed moderately high, but incidence is rare (i.e., it is rare for a pattern of sleep disorders, headaches, or concentration problems to start or end *on a particular day* or even a particular week). Thus the confluence of exposure initiation and disease *incidence* will occur only rarely by coincidence. Recall the analogy to the stomach ache caused by a food – it is not the fact that you *ever* (or even often) get stomachaches that would be informative, but the fact that you got them just after eating the particular food.

The epidemiologic evidence is clear

Other evidence

- Several systematic studies (where a representative sample of exposed people is statistically compared to unexposed people)

These are primarily cross-sectional comparisons, wherein people who are exposed to nearby IWTs are compared to similar people without the exposure to estimate their increased rate of disease. Some effort has been made to look at a distance gradient, but the information is limited. There are also some studies underway that will attempt to compare the health of the same people, before and after the installation of nearby IWTs.

- Also, laboratory and occupational studies of exposures to noise of this type
- While the limited nature of these studies means they are not as useful as the case-crossover studies in demonstrating the effect,
- It is very useful to observe that the other evidence does not contradict the conclusions from the case-crossover reports.
- The systematic studies are the best way to quantify the effects

With for AERs of any kind, we can never be sure what portion of the exposed population is proactively reporting their experiences. If 1 in every 10 serious adverse outcomes is reported, say, as opposed to 1 in every 20, we will have twice as many reports for the same total number of outcomes in the population. Also, the systematic studies would be better for estimating the diminishing risk as a function of distance from IWTs, though some of that can be estimated from the AERs. Unfortunately, since neither industry nor government have funded those studies, not enough have been done.

Why are there claims of no effects?

The industry has tried to manufacture doubt

- Claiming that these diseases are somehow not “real”
 - (though they are among the most devastating)
- Claiming that because we cannot establish the exact cause, the evidence does not “count”
 - (but by that standard, smoking does not cause heart disease)
- Claiming that “it is all in their heads”
 - (psychological torment due to an imposed stressor, which then causes disease, does indeed happen in someone’s head – that does not make it any better)

It appears that while the industry has not widely admitted that there is clear evidence of disease, they have realized that it is not credible to keep claiming otherwise. Thus they have started leaning heavily on the last of these points: They have started claiming that people have some kind of irrational fear of IWTs, like is sometimes associated with scary invisible hazards like radiation or toxins, and that fear is causing the problem. Implicitly or explicitly, they claim that if residents would just “get over it” – perhaps with the help of psychological counseling – then all the harms would go away. The problems with these claims are: (a) There is not a bit of evidence (to my knowledge) to support the assertion that people fear IWTs. Since irrational health fears tend to be about invisible possible carcinogens that they do not understand, not simple machines that are inflicting noise and insomnia etc., there is not even a reason to suspect that it would be true. (b) Even if this hypothesis were true, it would not change the impacts and their great human costs. There is no evidence I have seen that the effects can be made to go away with counseling or public relations. So even in the unlikely even that this story is true, it really changes nothing.

The industry has tried to manufacture doubt

- Pretending that the case-crossover evidence is not informative
 - hired consultants who do not understand epidemiology (or pretend not to)
 - claim that all epidemiologic evidence consists of three or four study types
 - since in this case the evidence is in a form they do not understand (or pretend not to), it must not really exist
 - But this treats scientific inquiry as if it were some kind of high school debate competition with stylized rules, rather than being about learning everything you can any way you can
 - and, moreover, ignores the epidemiology literature about how useful experiments, like case-crossover studies, are compared to more complicated statistics

As discussed above, the AERs with their many crossovers are actually more convincing science than the more common types of epidemiologic study can provide. We use those other study types not because they are the best conceivable way to learn about the world, but because they are the best we can do under the circumstances. Most exposure-disease combinations that are studied in public health do not have the characteristics that allow for a case-crossover study.

It is certainly true that the systematic studies would help us quantify the effects and better estimate what offset is sufficient to reduce the health impact to an acceptable level (whatever that might be). But that does not make them more informative about the existence of an effect. The case-crossovers remain more informative on that point.

- Ironically, they typically pretend the evidence does not exist, rather than acknowledging it and responding to it
- though often in the same document identify exactly the effects that appear in that body of evidence

This is not a technical scientific point, but it is useful to understand for anyone who has just looked at some of the reviews on the subject that claim there is no evidence of harm. Those reports consistently ignore the scientific value of the AERs, perhaps because their authors do not understand it. Typically they try to claim that there is no scientific knowledge available from any source other than the handful of systematic studies that have been done. They even try to dismiss some of those studies based on some convenient selection criteria they choose, like having been published in a particular way. (Aside: If that short list really were all of the available evidence, the sensible policy would be to wait until we had better evidence.)

Ironically, these reports almost always list the diseases that are associated with IWT exposure. Such lists can only come from the AERs that they then pretend do not exist.

These claims, though often coming from people with scientific titles, are remarkably legalistic. Perhaps there is some good reason to require that for, say, a lawsuit seeking financial compensation for an injury, there need to be rules of engagement that allow only particular forms of evidence. Ultimately such rules might be misguided, but one can understand why they exist. But this contrasts with scientific inquiry – and by extension, trying to make the best public policy based on the science – which seeks the truth via whatever path seems most promising. Put another way, there are no simple “rules of evidence” in epidemiology or any other science. Returning to the food-and-stomach analogy, you might not be able to successfully sue anyone based on your own crossover study showing that a particular food additive causes you injury if there are no studies in medical journals that support the claim, but would you choose to go ahead and keep eating it?

Despite the claims of no effects...

...a conclusion from what appears to be the most thorough review of the topic, the Ontario Environmental Review Tribunal in 2011 (where there was extensive testimony by most of the industry's consultants and report writers)

“This case has successfully shown that the debate should not be simplified to one about whether wind turbines can cause harm to humans. The evidence presented to the Tribunal demonstrates that they can, if facilities are placed too close to residents. The debate has now evolved to one of degree.”

How close is too close? We do not know precisely, but it is interesting that in Ontario itself, with a minimum offset of 550m and decibel-level limits, the following was written and later disclosed following a freedom of information request: “It appears compliance with the minimum setbacks and the noise study approach currently being used to approve the siting of WTGs will result or likely result in adverse effects...” [Ontario Ministry of Environment, memorandum, Ontario Senior Environmental Officer, April 9, 2010]

Quantifying the effects

Difficult to quantify

- The individual reports are great for showing there are effects and what they are,
- But they tell us little about how what portion of people are affected (we can only guess what portion of the adverse events are voluntarily reported), and their characteristics,
- And even less about what characteristics of the exposure matter

We can make some estimates based on the systematic studies and the reports

- **Serious cases of the related diseases occur in roughly 5% of exposed residents**

We have limited information, so this estimate could easily be wrong by a factor of two – up or down – but it gives us a bit of concreteness for understanding the problem. It means that for a typical medium-sized wind farm, there will almost certainly be some serious effects among local residents.

- **Important health effects happen in half or more of those exposed**

Responses to the few systematic studies have suggested results in this range. It is certainly plausible that the noise and other effects sometimes cause sleep or other problems in even people who are not highly susceptible. Perhaps some observers might consider the lesser effects to not be worthy of concern, but they do mean a lot of people suffering some effects.

- So, what is “exposed”?
 - Serious health problems appear to still be disturbingly common at a distance between someone’s home and the nearest IWT of a mile (1600 m.)
 - We cannot be confident there is not substantial risk out to about twice that offset

Making a policy decision in this situation

- Normally, before letting an industry expose thousands of people to a potential health hazard, we require them to study and quantify the potential
 - Without the resulting information, it is difficult to make optimal decisions
- Perhaps no one honestly saw this problem coming
 - but we know about it now
 - yet industry and their supporters in national and provincial government are still not supporting the needed studies

That is, we should not have to be guessing. But the reason we are guessing is because those causing the harm have continued to insist there is no harm, rather than doing what is need to try to understand it.

Making a policy decision in this situation

- I have been asked many times what I would do if I were tasked with making the best public policy decision.
- Given the available information, I would probably require a minimum offset of about 3000m. between a home (or homesite) and an IWT tower, a distance that almost all observers believe reduces the risks to approximately zero
- and then offer to let the industry provide comprehensive evidence that the health effects are still approximately zero at some lesser offset, or that at some lesser offset the benefits exceed the costs
- I would find it unconscionable to allow siting at closer than about 1600m

- But the industry response is to continue to claim:
 - there are no effects (obviously false)
 - that the effects previously observed will not happen with a new technology or if the public relations are handled in a particular way (theoretically possible but not supported by any evidence)
- Moreover, they never honestly argue, “yes, there are health effects, but here is our quantification of those costs, and compared to these quantified benefits, they are acceptable”
 - this would still leave issues of justice and individual rights, but at least it would be a basis for rational discussion
 - but the industry has never even quantified the benefits (as far as I know), let alone compared them to the costs

Most every industrial activity has negative health effects, and sometimes we decide that the benefits warrant those costs. But making an ethical decision to that effect requires a recognition of the costs and quantification of them, as well as a quantification of the benefits. In this case, IWT supporters sometimes claim the benefits justify the costs, but this is never accompanied by a calculation of exactly what the net benefits are, let alone a frank analysis of the costs. These claims seem to be based on the absurd extrapolation that we *sometimes* decide that benefits justify health costs, and therefore that must be the case here. An honest analysis of costs and benefits would be most welcome, and it is difficult to understand why siting goes forward without one.

Making a policy decision in this situation

- Some commentators seem to take the attitude that until there is clear proof about how much health danger exists, we should not impose significant restrictions
- This is completely backwards from most every other health-affecting policy, especially when the exposure is difficult (extremely expensive) to terminate as we learn more
- Give the ample evidence of harm, and a lack of evidence about what is safe enough, we should be extremely conservative about allowing further installations

Carl V. Phillips, MPP, PhD
Populi Health Institute
cvphilo@gmail.com

20 JUNE 20, 2012

I WANT TO THANK YOU MADAME CHAIRMAN, COUNCIL MEMBERS AND FELLOW CITIZENS FOR THIS OPPORTUNITY TO SPEAK..

MY NAME IS ROBERT GANSEL, I AM A SEMI-RETIRED ENGINEER WHO CURRENTLY LIVES ON GOSPEL WOODS ROAD.

I WANT TO SHOW MY SUPPORT TO THE COUNCIL FOR THE MOTION TO RESCIND THE CURRENT BYLAWS WHICH RELATE TO LARGE-SCALE-WIND TURBINES.

MY REASON FOR THIS IS MY HOPE THAT THE ISSUE OF THESE TURBINES BE THOROUGHLY REVIEWED USING A HOLISTIC APPROACH THAT INCLUDES ALL OF THE ISSUES IDENTIFIED ON THE INFORMATION SHEET PROVIDED TO ALL OF THE COUNCIL AND THE PUBLIC.

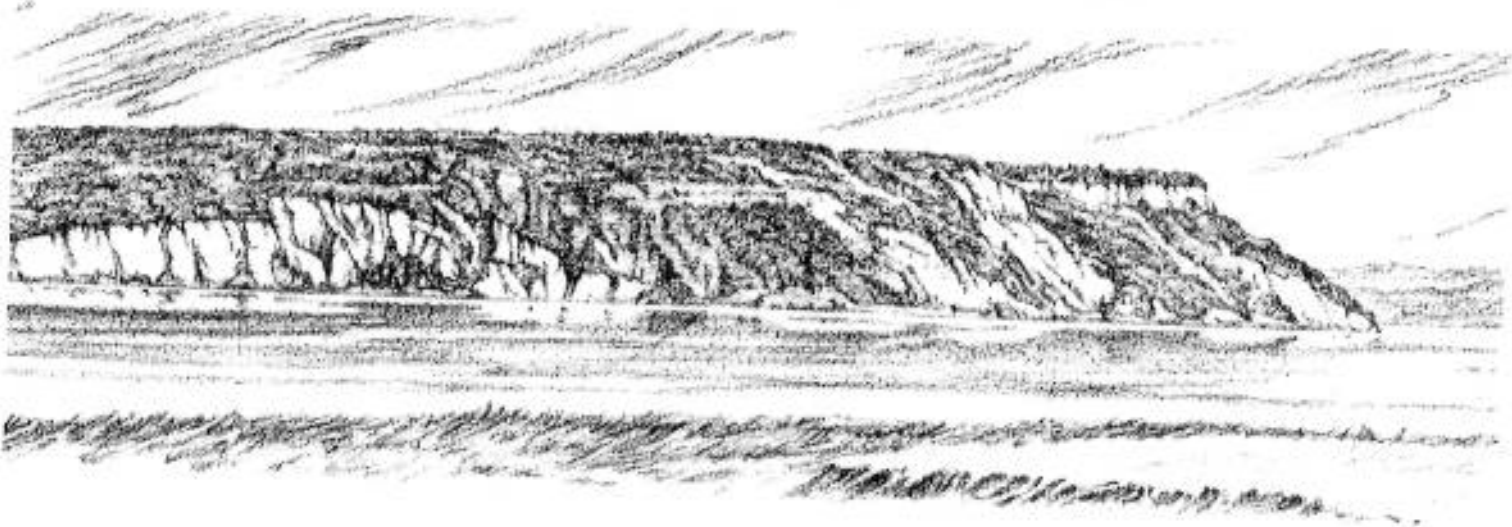
THIS WOULD INCLUDE CONSIDERATION OF OUR HEALTH, ENVIRONMENT IMPACTS, FINANCIAL VIABILITY, TOURISM, LOCAL POWER RATES, CFB GREENWOOD IMPACTS, POWER DISTRIBUTION AND TRANSPORTATION INFRASTRUCTURE UPGRADE REQUIREMENTS, CO2 EMISSIONS IMPACT WITH LARGE-SCALE-WIND-TURBINES, AND THE INVESTIGATION INTO ALTERNATIVES FOR GREENING UP KINGS COUNTY.

I WOULD BE WILLING TO PARTICIPATE IN A CITIZENS GROUP WHICH WOULD ASSIST THIS COUNCIL WITH THIS PROJECT.

PLEASE CONTACT ME FOR MORE INFORMATION OR IF YOU WANT MY ASSISTANCE,

ROBERT (BOB) GANSEL
2042 GOPSEL WOODS ROAD,
RR3
CANNING, NS B0P 1H0
PHONE 902 582-2457
EMAIL BGANSEL@XCOUNTRY.TV

It's About Respect



Faced with the prospect of large industrial wind turbine development in communities on the North and South Mountains of Kings County, rural & urban residents have calmly and clearly asserted their concerns about the siting of large industrial projects in rural communities, reminding elected officials of the intrinsic value of this place and of our collective responsibility to care for this land, and for each other.

Over the last few months the Municipality of Kings has shown its citizens great respect in responding to their concerns. As a result, the Council is entertaining a motion to rescind its large-scale wind turbine policies, an action which would affirm the value of rural communities, local economy, ecology and wellbeing over that of energy politics and corporate profit.

The Council invites your comment at a PUBLIC HEARING:

Wednesday June 20 at 7:00 p.m.

Council Chambers, 87 Cornwallis Street, Kentville

☛ Come and encourage the Council to respect our communities. ☚

Understanding the Motion to Rescind Kings' Wind-Turbine Bylaws

Under the present bylaws in Kings County, a developer is permitted, by right, to erect a Large-Scale Wind Turbine (LSWT) within 700 meters of a rural home, so long as they meet the modest requirements of a municipal building permit. There is no limitation placed on the size of the structures developers can erect and no formal opportunity for the municipality or the public to discuss the projects or influence their outcome.

No matter how you feel about Large-Scale Wind Turbines and the role they might play in our energy future, the present laws in Kings County fail to give the municipality and its residents sufficient oversight into what happens in our communities. For this reason, Kings County councillors unanimously voted to interrupt a review of its LSWT policies in order to debate rescinding (striking down) its flawed LSWT-related bylaws.

Rescinding these bylaws does not mean that there will never be an opportunity for Large-Scale Wind Turbine development in Kings County. It simply means that no developments can proceed until new bylaws are debated and enacted by the Council. And unlike the original bylaws, any new LSWT-related bylaws will be developed and debated with the active participation of an awakened, informed and engaged public.

The motion to rescind these bylaws unanimously passed 'first reading' on May 15. There will be a public hearing in the Council Chambers on **Wednesday, June 20 at 7:00 PM**. Attending at this public hearing is an important opportunity to express your views. Simply stepping up to the microphone, stating your name, and stating that you support the motion to rescind the bylaw is all it takes to let the Council know that you want them to throw out this law and to develop new laws which respect and better protects its residents. The Council will take its deciding vote on this matter at the motion's 'second reading' in July.

What Kinds of Concerns Exist about Large-Scale Wind Turbines?

- How large a setback does it take to safeguard against potential health impacts on humans and livestock, and to ensure that nearby residents are not deprived of the full use and enjoyment of their properties?
- What is the potential impact of shadow flicker, industrial noise & seismic vibration?
- How can nearby landowners be protected against potential negative impact on their property values associated with LSWT development?
- What is the impact on resident and migrating wildlife, and on habitat and watersheds?
- What is the impact of the industrialization of the landscape on the health of rural communities and their local economies (e.g., agriculture & tourism)?
- Are LSWT projects financially viable, and are they in the public's best financial interest?
- Will LSWT projects require public subsidies, fixed tariffs & increased power rates?
- How will turbine interference with radar facilities at CFB Greenwood impact aviation safety and search and rescue capacity?
- Is LSWT technology mechanically efficient?
- Who is legally liable for potential negative impacts, or for the cost of decommissioning defunct or abandoned turbines? The landowners leasing their land for turbines? The municipality?
- What infrastructure upgrades are required to transmission lines, substations and public highways to accommodate LSWT development, and who pays for it?
- Do LSWTs really reduce our CO₂ emissions given that fossil-fuel-burning power plants must be kept 'hot idling' and ready to quickly dispatch electricity to the power grid whenever the wind isn't blowing?
- In densely-populated municipalities like Kings County, are there other approaches to renewable energy which are better-suited, less intrusive & 'greener' than LSWTs?

CONTACT YOUR COUNTY COUNCILLORS AND MLA AND EXPRESS YOUR OPINION ON TURBINES IN KINGS COUNTY
Planning Department: T: 690-6150 E: planning@county.kings.ns.ca *Councillor emails:* www.county.kings.ns.ca/council/directory

Jim Morton, MLA: T: 678-6880 E: jimmorton@kingsnorthmla.ca
Ramona Jennex, MLA: T: 681-3741 E: ramonajennexmla@bellaliant.com

Mada rule

GERALD FULTON

3911 BROOKLYN ST. RR#2 BERWICK, NS BOP 1E0

PHONE: (902) 847-5677 FAX: (902) 538-0664

2012-06-08

*We've sent this the demoral
process already*

Warden Brothers , Council Members,

I would like to take the time to make a few comments on two issues.

One is the process we are involved in here and the 2nd is the actual wind turbine issue.

On the first issue of the process I want to ask what kind of banana republic is this council running here. You are making Kings County the laughing stock of the province.

I ask you what kind of government hires a consultant for \$25000.00, Studies the issues and consults for ³2 years ,adopts a set of rules then cancels them as soon as they think somebody is going to make an application that may pass under these rules.

It's ridiculous. This decision has made the Chronicle Herald editorial and it was a very critical article. Did you not get enough information from the

consultant after 2 years of having worked on the matter at hand. Were you plain not paying attention or did you adopt a set of rules without fully understanding them?

It's decisions like these that scare business away from Kings County and I urge you to stick with the rules that have already been adopted.

On the issue of the turbines although I am not a big supporter because I feel it's a very expensive way to generate electricity but I have traveled through Holland which is smaller than Nova Scotia but a population ten times more.

They have 100 or more years experience

The county side is covered with turbines. Take a drive through California, Indiana and many other places and you will see thousands of turbines.

Maybe there is a noise however not everything is silent. We all live on a road some where and when a vehicle drives by it makes a noise but we aren't going to stop people from traveling because of that noise.

We live in a modern society that requires electricity. Which also requires significant tax dollars to give us the services that we need and want.

The wind farm will indeed provide a significant amount of much needed

tax dollars back into that community & the land owners who chose to rent land for these turbines should receive a nice amount of rent for the use of the land.

In conclusion although I am lukewarm on the subject of wind turbines I strongly object to a government that makes rules and changes them before they are given the chance to be used. It makes it impossible for us to run a business if we have to guess at what the rules will be.

Warden and Councilors

We are Jack & Mary Jane McMaster from Forest Hill, South Mountain.
We have attended all PAC and council meetings relating to wind energy since December 13, 2011.

The most disturbing presentation on **March 20th, 2012** was made by a representative of Acciona Wind Energy — a Spanish multinational.

We were told — since 2007, Acciona has optioned **4500 acres** on North Mountain for a proposed **WIND FARM — SOUNDS AGRICULTURAL! What follows are not farming practices.** Few at that presentation were aware of this activity. The ellipse is it's footprint. Please note the location of **Baxters Harbour and it's proximity to Canning**, it will be referred to later in this presentation.

The Wind Farm would involve **25 to 30 Turbines, the largest 490 ft. high**, the smallest **344 ft.** Also note the proposed sites on South Mountain - Greenfield, Caanan and White Rock Rd.

°°°This is a **490 ft. Turbine** opposite this **518 ft. height of land.**

°°°A **490 ft. Turbine + foundation** weighs approximately **1540 tons.**

There are three — 150 ft. blades, 11 tons each

Hub assembly — 80 tons

The tower — five — 60 ft. sections — 32 tons per section

Foundation — 1200 tons of polymerized concrete and 70 tons of reinforcing steel

°°°The machinery used in a Wind Farm's construction.

°°°What will be the **state of our roads** after completion? **Who will pay?**

°°°An industrial size crane - 330 feet tall is transported to the site on **8 cargo truck loads** then assembled to erect each Turbine.

°°°From **the Acciona presentation** we were told that a **69 KiloVolt transmission line** would be constructed from **the Ridge to the Hillaton Sub-Station, another cut-line! Whose Property is in the way? How is the land acquired?**

°°°**The Digby Neck Wind Farm — 20 — 1.5MW Turbines**, completed in 2010

°°°**750 meters from the Turbine**, soon after the Wind Farm was operational a neighbor - 850 meters from a turbine had to disconnect their clothesline due to the vibration noise through a wall.

°°°**Lowell Mtn. Vermont - 21 - 3MW turbines along 3.5 mile stretch of ridgeline.**
Imagine this view on North Mountain to the valley below.

°°°**Backbone Mtn., West Virginia - 44 - 1.5 MW Turbines along a 5 mile stretch**

°°°**Laurel Mtn., West Virginia - 61 - 1.6MW Turbines along a 13 mile stretch**

°°°**Mars Hill Mtn., Maine - 28 - 1.5MW Turbines along a 3.5 mile stretch of ridge line**

We understand that if a turbine is to be decommissioned the site will be reclaimed to it's original state. **How is that possible?**

We chose those sites to illustrate ridge-line devastation, unlike these settings North & South Mountains are well populated, vibrant, productive communities. Kings County is the 3rd most populated County in NS behind HRM & Sydney with 28 persons per sq. km. The issue is not about renewable energy, it's about proximity to Wind Turbines. THIS IS ABOUT RESPECT, if you haven't read this pamphlet please do so.

°°°**ACCIDENTS** www.caithnesswindfarms.co.uk

The following accident statistics are copyright **Caithness Windfarm Information Forum** presented March 31, 2012 — Caithness, Scotland — caithnesswindfarms.co.uk

Renewable UK confirmed that there had been **1500 Wind Turbine accidents and incidents** in the **UK alone** in the **past 5 years.**

Since 1990 — **185 fire incidents.** I mentioned Baxters Harbour earlier — a resident there called 911 to report a blaze in a neighbors home last year it took the first tanker truck **over 30 minutes** to arrive from Canning.

Fire fighting equipment can't deal with a fire in the turbine's hub and blades because of their height.

A forest fire would be a devastating consequence.

A turbine fire in Scotland, December, 2011

Since the 1970's there have been **89 fatal accidents** causing **102 fatalities.** **80 of those 89 accidents have occurred since 1990.**

Since 1990 — **234 blade failure incidents.**

Pieces of blade are documented as **traveling up to 1.3 km.** **and have penetrated roofs and walls of nearby buildings in Germany.**

Since 1990 **128 structural failure incidents.**

°°°**An Wind Farm in Hawaii, abandoned in 2006.**

°°° **Bird kill is a reality** At the Altamont Pass Windfarm near San Francisco. **2400 protected Golden Eagles** and about **10,000 other protected raptors** have been killed since 1990.

We have to be concerned for our Bald Eagle and Raptor populations!

°°° **A view from South Mountain to Blomidon and North Mountain in the distance**

We ask that council vote to rescind the current Wind Turbine bylaw.

THANK YOU! for the opportunity to make this presentation.

Summary of Wind Turbine Accident data to 31 March 2012

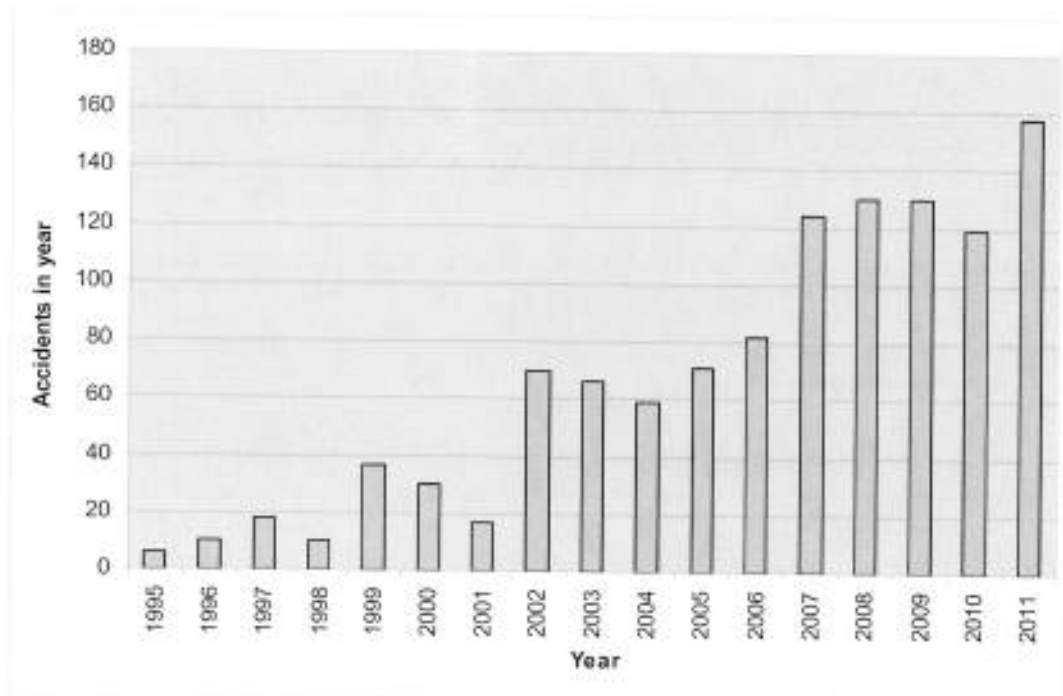
These accident statistics are copyright Caithness Windfarm Information Forum 2012. The data may be used or referred to by groups or individuals, provided that the source (Caithness Windfarm Information Forum) is acknowledged and our URL www.caithnesswindfarms.co.uk quoted at the same time. Caithness Windfarm Information Forum is not responsible for the accuracy of Third Party material or references.

The accompanying detailed table includes all documented cases of wind turbine related accidents which could be found and confirmed through press reports or official information releases up to 31 March 2012. CWIF believe that this compendium of accident information may be the most comprehensive available anywhere.

Data in the detailed table attached is by no means fully comprehensive – CWIF believe that what is attached is only be the “tip of the iceberg” in terms of numbers of accidents and their frequency. Indeed on 11 December 2011 the Daily Telegraph reported that RenewableUK confirmed that there had been 1500 wind turbine accidents and incidents in the UK alone in the past 5 years. Data here reports only 142 UK accidents from 2006-2010 and so the figures here may only represent 9% of actual accidents.

The data does however give an excellent cross-section of the types of accidents which can and do occur, and their consequences. With few exceptions, before about 1997 only data on fatal accidents has been found.

The trend is as expected – as more turbines are built, more accidents occur. Numbers of recorded accidents reflect this, with an average of 6 accidents per year from 1992-96 inclusive; 22 accidents per year from 1997-2001 inclusive; 70 accidents per year from 2002-06 inclusive, and 132 accidents per year from 2007-11 inclusive.



This general trend upward in accident numbers is predicted to continue to escalate unless HSE make some significant changes – in particular to protect the public by declaring a minimum safe distance between new turbine developments and occupied housing and buildings.

Some countries are finally accepting that industrial wind turbines can pose a significant public safety risk. In New Zealand, the government is set to change planning rules to give residents the right to veto wind turbines from being built within 2km of their homes. In Australia, the Victorian government has set guidelines forbidding wind turbine construction closer than 2km to houses. In Scotland, a 2km guideline is also in place between large wind farm developments and communities, though the guideline is often disgracefully ignored by the Scottish government planners. And in Canada, the Ontario Government has declared a moratorium on offshore wind projects and has proposed a reduction of noise from wind turbines from 40dB to 30-32dB, which would effectively extend the setback distance from homes.

Data attached is presented chronologically. It can be broken down as follows:

Number of accidents

Total number of accidents: 1208

By year:

Year	70s	80s	90s	00	01	02	03	04	05	06	07	08	09	10	11	12*
No.	1	9	98	30	17	70	66	59	71	82	124	130	130	119	158	44

* To 31 March 2012 only

Fatal accidents

Number of fatal accidents: 89

By year:

Year	70s	80s	90s	00	01	02	03	04	05	06	07	08	09	10	11	12*
No.	1	8	15	3		1	4	4	4	5	5	10	7	7	13	2

* To 31 March 2012 only

Please note: **There are more fatalities than accidents as some accidents have caused multiple fatalities.**

Of the 102 fatalities :

- 70 were wind industry and direct support workers (construction, maintenance, engineers, etc), or small turbine owner /operators .
- 32 were public fatalities, including workers not directly dependent on the wind industry (e.g. transport workers).

Human injury

102 accidents regarding human injury are documented .

By year:

Year	70s	80s	90s	00	01	02	03	04	05	06	07	08	09	10	11	12*
No.			5	4	1	2	2	2	6	10	16	16	9	14	12	3

* To 31 March 2012 only

84 accidents involved wind industry or construction /maintenance workers, and a further 18 involved members of the public or workers not directly dependent on the wind industry (e.g. fire fighters, transport workers). Six of these injuries to members of the public were in the UK.

Blade failure

By far the biggest number of incidents found was due to blade failure. "Blade failure" can arise from a number of possible sources, and results in either whole blades or pieces of blade being thrown from the turbine. A total of 234 separate incidences were found:

By year:

Year	70s	80s	90s	00	01	02	03	04	05	06	07	08	09	10	11	12*
No.			35	4	6	15	13	15	12	16	22	20	26	20	18	12

* To 31 March 2012 only

Pieces of blade are documented as travelling up to 1300 meters. In Germany, blade pieces have gone through the roofs and walls of nearby buildings. This is why CWIF believe that there should be a minimum distance of at least 2km between turbines and occupied housing or work places, in order to adequately address public safety and other issues including noise and shadow flicker.

Fire

Fire is the second most common accident cause in incidents found. Fire can arise from a number of sources – and some turbine types seem more prone to fire than others. A total of 185 fire incidents were found:

By year:

Year	70s	80s	90s	00	01	02	03	04	05	06	07	08	09	10	11	12*
No.			6	3	2	24	17	15	14	12	21	17	17	13	20	4

* To 31 March 2012 only

The biggest problem with turbine fires is that, because of the turbine height, the fire brigade can do little but watch it burn itself out. While this may be acceptable in reasonably still conditions, in a storm it means burning debris being scattered over a wide area, with obvious consequences. In dry weather there is obviously a wider-area fire risk, especially for those constructed in or close to forest areas and/or close to housing or work places. Two fire accidents have badly burned wind industry workers.

Structural failure

From the data obtained, this is the third most common accident cause, with 128 instances found. "Structural failure" is assumed to be major component failure under conditions which components should be designed to withstand. This mainly concerns storm damage to turbines and tower collapse. However, poor quality control, lack of maintenance and component failure can also be responsible.

By year:

Year	70s	80s	90s	00	01	02	03	04	05	06	07	08	09	10	11	12*
No.		1	14	9	3	9	7	4	7	9	13	9	16	9	11	7

* To 31 March 2012 only

While structural failure is far more damaging (and more expensive) than blade failure, the accident consequences and risks to human health are most likely lower, as risks are confined to within a relatively short distance from the turbine. However, as smaller turbines are now being placed on and around buildings including schools, the accident frequency is expected to rise.

Ice throw

34 incidences of ice throw were found. Some are multiple incidents. These are listed here unless they have caused human injury, in which case they are included under "human injury" above.

By year:

Year	70s	80s	90s	00	01	02	03	04	05	06	07	08	09	10	11	12*
No.			9			2	2	4	4	3		3	4	1	1	1

* To 31 March 2012 only

Ice throw has been reported to 140m. Some Canadian turbine sites have warning signs posted asking people to stay at least 305m from turbines during icy conditions.

These are indeed only a very small fraction of actual incidences – a report* published in 2003 reported 880 icing events between 1990 and 2003 in Germany alone. 33% of these were in the lowlands and on the coastline.

* ("A Statistical Evaluation of Icing Failures in Germany's '250 MW Wind' Programme – Update 2003, M Durstewitz, BOREAS VI 9-11 April 2003 Pyhäjärvi, Finland.)

Additionally one report listed for 2005 includes 94 separate incidences of ice throw and two reports from 2006 include a further 27 such incidences.

Transport

There have been 94 reported accidents – including a 45m turbine section ramming through a house while being transported, a transporter knocking a utility pole through a restaurant, and a turbine section falling off in a tunnel. Transport fatalities and human injuries are included separately. Most accidents involve turbine sections falling from transporters, though turbine sections have also been lost at sea, along with a £50M barge.

By year:

Year	70s	80s	90s	00	01	02	03	04	05	06	07	08	09	10	11	12*
No.						4		3	6	6	19	10	11	11	23	1

* To 31 March 2012 only

Environmental damage (including bird deaths)

108 cases of environmental damage have been reported – the majority since 2007. This is perhaps due to a change in legislation or new reporting requirement. All involved damage to the site itself, or reported damage to or death of wildlife. 44 instances reported here include confirmed deaths of protected species of bird. Deaths, however, are known to be far higher. At the Altamont Pass windfarm alone, 2400 protected golden eagles have been killed in 20 years, and about 10,000 protected raptors (Dr Smallwood, 2004). In Germany, 32 protected white tailed eagles were found dead, killed by wind turbines (Brandenburg State records). In Australia, 22 critically endangered Tasmanian eagles were killed by a single windfarm (Woolnorth). Further detailed information can be found at: www.iberica2000.org/Es/Articulo.asp?id=3071 and at: www.iberica2000.org/Es/Articulo.asp?id=1875

By year:

Year	70s	80s	90s	00	01	02	03	04	05	06	07	08	09	10	11	12*
No.			1		1	1	8	1	6	5	10	21	13	19	17	5

* To 31 March 2012 only

Other (miscellaneous)

234 miscellaneous accidents are also present in the data. Component failure has been reported here if there has been no consequential structural damage. Also included are lack of maintenance, electrical failure (not led to fire or electrocution), etc. Construction and construction support accidents are also included, also lightning strikes when a strike has not resulted in blade damage or fire. A separate 1996 report** quotes 393 reports of lightning strikes from 1992 to 1995 in Germany alone, 124 of those direct to the turbine, the rest are to electrical distribution network.

** (Data from WMEP database; taken from report "External Conditions for Wind Turbine Operation – Results from the German 250 MW Wind Programme", M Durslewitz, et al, European Union Wind Energy Conference, Goeteborg, May 20-24, 1996)

From 2012, human impact will also be included under miscellaneous – for example, reports of shadow flicker, noise investigations and breaches, etc.

By year:

Year	70s	80s	90s	00	01	02	03	04	05	06	07	08	09	10	11	12*
No.			13	7	4	12	13	11	12	16	18	24	27	25	43	9

* To 31 March 2012 only

Att: Kings County Planning Department

PRESENTATION

Rick Graham

20 June 2012

Dwelling Proximity - Sampling

Source - Municipal Map - 700m Wind Turbine Separation

Sample areas - North Mountain

Sample Criteria - 700-1000m Separation Circumference

- A) Bennetts Bay Road / Gospel Road / Black Hole Road: + 149 units
- B) Black Hole Road/ Gospel Road/ Baxters Harbour Road: + 140 units
- C) Baxters Harbour Road/ Gospel Road/ Long Beach Road: + 169 units
- D) Long Beach Road/ Gospel Road/ Highway 359 (Halls Harbour): + 108 units
- E) Gospel Road/ Brow Mountain Road/ Highway 359 (Halls Harbour): + 147 units

Interpretation Act - Chapter 235 of the Revised Statutes An Act Respecting the Form and Interpretation of Statutes

- Includes By-laws
- *Shall* is imperative and *may* is permissive
- Every enactment shall be deemed remedial and interpreted considering:
 - e) The former law, including other enactments upon same of similar subjects
 - f) The consequence of a particular interpretation
- Preamble shall be read as part of an enactment to assist explaining purport and object

Inconsistencies of By-law

- Negates stated intention in preamble to regulate by allowing as-of-right entitlement
- Allows a type of development previously not permitted (e.g. CR & F zones)
- Disregards and reduces previously established non-conforming use procedures and minimum setback distances.
- Does not regulate height and noise levels.
- Eliminates road frontage requirements for all non-conforming uses.
- Is not remedial, i.e. non-diminishing enhancement obligation.

Conclusion

Interpretation Act requires by-law to be read as a whole, giving a plain and ordinary meaning. By-law leads to inconsistent interpretations between sections and is a failure on points of clear direction. Anticipate great difficulty with interpretation pursuant to a challenge.

Madam Warden, Councilors and members of the Public, thank you for the opportunity to share with you the effects of the Industrial Wind Turbines located in my community at Gulliver's Cove, Digby County, Nova Scotia. My name is Judy Van Tassel and my home is located 1,065 metres from the nearest turbine that is situated on the west ridge across from our home. Seven turbines are in a line, with four more scattered along the front.

During the day sometimes you can hear the turbines a lot and sometimes not as much according to the wind speed and direction. My husband and I have experienced times when we have shadow flickering all over our property I'll tell you this doesn't happen all the time but when it does it is terrible to deal with. Just a constant flickering that just doesn't stop. I can't stand it at all; it makes me nauseated, light headed and dizzy.

I am pronounced to be 50% deaf in both ears. I never thought I would say this but I guess this is a good thing because when I lay my head on my pillow at night to go to sleep, all I hear most nights is a hum-hum-hum that never stops. Some nights I don't get any sleep at all. When I get to the point of complete exhaustion I do manage to get about 45 minute intervals of sleep. Lots of mornings when I get up I feel like I've been on a boat all night. And I feel seasick.

Never being a person with headaches but now when I am at home I have a pressure on the front of my forehead, my eyes feel like their going to pop out of my head and my ears sometimes even ring. My body feels like it is being taken over by some kind of force that I can't explain. I just know life is not the same anymore, when the turbines are going full force in the right direction.

My blood pressure and sugars continue to go up when I am at home. My mind seems to be leaving me; here I am trying to keep quiet, don't stir up trouble and try to cope with the situation put before me.

Please make sure that you know with complete confidence that this will not happen to you and your families; because the symptoms are real and they don't go away!

Thank you.

Judy Van Tassel

Madam Warden, Councilors and members of the Public: My name is Debi Van Tassel and I reside at Gulliver's Cove, Digby County.

My husband Davey and I own Ocean Breeze Emu Farm in Gulliver's Cove, NS. Emus are similar to ostrich.

In the fall of 2007, five test towers (met towers) were erected and began operating in our area. Between mid November '07 and January 2008 our emu pairs were enclosed in their stalls to breed. Unfortunately, in a short while our breeders were dying of no apparent cause. An individual from the Turo Agricultural Lab told us that they had died of fear.

In the sixteen years of running this farm we never had unexplained emu deaths. Later, we were informed that these towers emitted a high-pitched frequency. As the pairs tried to protect each other from this unknown invasion, we would find them huddled together dead. Often with their heads half-buried in the dirt. This was heartbreaking for us and we felt helpless—not knowing how to remedy this problem. We tried classical music in the barn—we heard of a lady who wore a headset and listened to music so she could not hear the noise of the Industrial Wind Turbines near her. This seemed to work as long as the power did not go out. By the fall of 2010, our 38 emus (10 of which were breeders) had diminished to eight emus... and no breeders remained. During this period we did not have any eggs, chicks, oil or product to sell.

The winter of 2010–2011 we opened the runs to one large area and did not pen in the emus. We had no more loses, but the behavior of the emus changed...they now no longer lay down in the evening as is their habit; they continuously run, are agitated and quarrel with each other.

When the Digby Wind Power Project, consisting of twenty 1.5MW industrial wind turbines, became fully operational in December 2010, we encountered other problems. With the building of this industrial wind project, the trees and soil that had protected us from heavy rainfall had been removed, and our home and barn are now flooded by the run-off water.

The flickering from the turbine blades has turned our home and property into a strobbing light show, not only from the sun but also from the moonlight.

At first, we did not immediately feel the full impact—the turbines were operating sporadically. But after a few months the headaches started, the pressure around my forehead temples—feeling as if my head was going to explode and my eyes were going to pop out of my head, and the ringing in my ears became so intense that I thought I might go insane.

Soon the sleeplessness started. Waking up around 1 AM, from the constant humming, bumping and grinding; Not being able to sleep, just walking the floors. Outside the noise can be louder. Many days this constant noise drives me

indoors, away from my gardening that I love. The quality of life that I had enjoyed has disappeared forever and I feel sad, lifeless and trapped in a hopeless situation.

I am an avid reader, but my ability to concentrate on what I am reading became very difficult. I noticed that my cognitive ability to carry on a conversation was becoming more and more difficult...words will not come to me... I have difficulty remembering things, little things like where I put items. I spend a lot of time looking for things that I cannot remember where I last had them. I started to fear early onset dementia.

One day I attending a meeting at Judy's home and as it happened the turbines were not operating that morning. As the conversation progressed, the turbines started turning and in no time at all I felt pressure like my head was being squeezed and it started to throb, the pressure was making it impossible for me to think like I was in a fog and couldn't find the right words and unable to even complete a sentence.

After always having excellent blood pressure, I have been diagnosed with high blood pressure and my asthma has become chronically worse (from using my inhalers once in a while to using them twice a day or more). This could be misconstrued as just declining health through age if not for my recent experience.

With permission to enter the Digby Neck Wind Project to access a cove on Bay of Fundy shore, we crossed the turbine area by truck and walked a short distance from the road to the shore. My chest began to feel as if it was being squeezed and soon became uncomfortably tight, it became harder and harder to breath and I thought I was having an asthma attack. Then dizziness, my ears felt like they would explode, my heart was laboring; I thought maybe it's a heart attack. I prayed, "Please God do not let me die here under these turbines."

I learned that day that God does answer prayer, we struggled to reach the road and as my lips were turning numb and black spots were floating in front of my eyes, my father-in-law came driving down the road. We drove down the mountain, getting further and further away from the turbines, I could feel my chest easing and my head clearing. I realized on that day just how harmful these industrial wind turbines can be and what kind of impact they can have on the health of anyone living too close.

These are some of things I experience everyday and night and the only relief is to leave and go to town far away from the turbines. Once away from the turbines all symptoms disappear as we found out when we went on vacation. I felt my old self again: happy, full of energy—all symptoms had gone. I truly dreaded coming home.

We live approximately 940 metres from the closest IWT, much, much too close, but directly under 5 turbines. We know the impact of this close proximity and pray that no one will ever have to live with this devastation.

As you consider all the facts before you, I pray that the right decision is made for the people of your community.

Thank you.

Debi Van Tassel

Jo Currie
(902) 678-6273
jocurrie@xcountry.tv

June 20 Wind Presentation (Council copy)

The last time I spoke in this room, I argued that we were looking at the beginning of the end of the large-scale wind turbine industry.

Now I want to look at **why** this industry is so unpopular that ordinary citizens like you and me are fighting back all over the world – and winning.

Oddly enough, the best answers I found came not from opponents but from proponents – thinkers who believe that wind energy itself has a wonderful future, but also believe that the wind turbine industry is largely responsible for its own misfortunes.

Robert Righter is a historian at Southern Methodist University in Dallas, Texas, and this is his second book on wind energy. He's a real believer in wind – but he's very critical of wind developers.

Jim Cummings is a consultant to the wind energy industry and writes for the Acoustic Ecology Institute. He also sees a bright future for wind energy – but only if the **wind energy industry** can change the way it operates.

So...with their help, I've compiled a list of "rules" for wind companies...that is, for wind companies that would like to be still in business 10 or 20 years from now.

- ① **First rule: stop exaggerating.** When you read the Web pages of the **many** wind industry lobby groups, you read that wind power is going to, more or less singlehandedly, save the world. The trouble is, as an ordinary, fairly intelligent person, you simply don't believe it.

Robert Righter says, "*Most of the large turbine manufacturers and wind farm developers make claims about saving the world in their advertisements and lobbying efforts, but their objectives are all about the bottom line, and the public knows it. The days of innocence are over.*" (p. 93)

Besides, if you exaggerate **too** much, the odds are you're going to get caught. A couple of years ago the British Wind Energy Association was forced to admit that the environmental benefits of wind power in reducing carbon emissions was only half as big as they'd been claiming previously. This meant, of course, that twice as many wind turbines would be needed to provide the same degree of carbon reduction...and since the Brits were already getting fed up with the wind turbines blanketing their fairly small island, you can imagine how impressed they were.

(www.telegraph.co.uk/earth/energy/windpower/3867232)

So, Rule # 1: Don't exaggerate the benefits of wind power, and don't downplay the problems. If you're honest about the pros and cons, you just might get some credibility.

Speaking of credibility. **Stop claiming wind farms generate tourism!** This claim is right there on the website of the **Canadian** Wind Energy Association – it's point #9

under the heading of Wind Facts: ***“Wind energy generates tourism for local communities.”*** Do we believe that? Ten or 15 years ago, maybe. But with wind turbines blanketing big chunks of the world, you have to ask who’s going to come to Kings County to see a whole lot more of them. **So – out with that tourism claim.**

(www.canwea.ca/wind-energey/windfacts_e.php)

② **Okay, Rule 2: Beware of overly simplistic comparisons of sound levels.**

I find that sentence hard to say, but it comes straight from the sound consultant, Jim Cummings. He’s taking issue with the **American** Wind Energy Association’s fact sheet on noise, which claims that *“Today, an operating wind farm at a distance of 750 to 1,000 feet is no noisier than a kitchen refrigerator.”* He thinks that comparison is not only inaccurate, but irrelevant.

(Acoustic Ecology Institute Fact Sheet: Wind Energy Noise Impacts;
www.acousticecology.org }

In fact, there’s a remarkable similarity in the way **real** people living near turbines describe the noise, and they don’t mention refrigerators. The most frequent comparison you read is to a jet airplane – one that circles and circles but never gets any further away, and never lands. I’ve also read that it’s like heavy items in a clothes dryer, thumping around and around. But of course the difference is, you can turn the dryer off.

So: don’t fudge the sound issue.

③ **Rule 3: Stop claiming you know in advance exactly how much noise a given turbine array will make.**

Here’s Jim Cummings again: *“As turbines get bigger, their noise can be deceptively hard to predict. They can be quieter at their bases than at some distance away, and temperature inversions, wind layers, and other atmospheric effects can lead to surprisingly distant sound impacts.”*

Topography makes a difference too. Apparently, noise levels can be predicted fairly accurately on flat land, but not in hilly or mountainous terrain – like the North and South Mountains, for instance. Hard ground complicates the issue. So does vegetation, or the lack of it.

So, wind developers, Rule 3 is, don’t claim your noise models are accurate – because they probably aren’t.

4 **Rule 4: Don't belittle, deny, or dismiss the experiences of unhappy homeowners living near wind turbines.**

Here's a story from last just month, from an Australian newspaper. It's a public meeting, between a community relations manager for the wind company – which happens to be Acciona – and a number of residents who are unhappy about living near Acciona's 128-turbine wind farm at Waubra, Australia.

Here's what one resident says. (Sorry I can't do the Australian accent.)

"This chap over here from Acciona," said Mr. Thomas, indicating Mr. Clarke, "was in my parents' kitchen just recently. He called myself and a neighbour 'whingers,' and then he insulted my mother by asking whether the stove was giving her a headache."

Now, you'd have to question whether Mr. Clarke, Acciona's community relations manager for Australia, is in the right line of work. But unfortunately, you keep running into stories like this!

Cummings urges companies to take noise complaints seriously, rather than ignoring, fighting, or ridiculing them, and say the ones that do will come to be known as **good corporate citizens** – which also happens to be good for the bottom line.

(www.windaction.org/news/30930)

5 **Rule 5: About property values!** There are **huge** debates around the question of whether wind turbine projects lower property values. Professional real estate appraisers have written **massive** reports on both sides of the question. But I won't bore you with numbers, because there's a simple solution, called a **property value guarantee**.

Essentially, a wind turbine company agrees to buy a homeowner's property, for a fair market value that's established **before** the wind turbines go up. It's a pretty simple legal document – as legal documents go – and it's nothing new, it's been used before, around controversial projects like landfills, and quarries – and for that matter, wind farms.

So, Rule 5: Put your money where your mouth is, with a guarantee! If you're right, and the turbine project doesn't lower property values, you don't lose a cent.

([mccann-appraisal-lic-review-of-lbni-wind-farm-property-vale280a61\(1\).pdf](#) (Page 6))

6 **Rule 6 follows on Rule 5.** If homeowners near wind turbines **do** find it impossible to live there – and you buy them out – **be transparent about it.**

Two examples, out of many: Last year, Acciona and Suncor very quietly bought out four properties that were near the Ripley Wind Project in Ontario. And also last year, Acciona bought out eleven farms and seven other houses in Waubra, Australia.

In both these cases, the homeowners had to sign “confidentiality agreements” in order to get their money. They had to agree not to disclose the price they received, and not to talk about the problems they had with the turbines. I’m not just picking on Acciona, by the way – apparently, these agreements, which some people call “gag orders,” are the rule rather than the exception.

So they’re standard practice – but are they good business practice? After all, land sales are a matter of public record, and they usually include the price. So the news gets out eventually. And then the turbine company looks – well, sneaky, I suppose. Not good, anyway.

www.kincardinews.com/ArticleDisplay.aspx?e=3101991

www.windaction.org/news/30930

⑦ **Rule 7:** And speaking of sneaky. Here in Kings County, starting in 2007, Acciona bought leases on 4,500 acres of the North Mountain for a wind project. We **presume** that the landowners had to sign those gag orders – because nobody else was aware of what was happening until March 2012, when Acciona made its presentation to Council.

At that point, according to the *Chronicle Herald*, Acciona’s community relations manager Paul Austin said: *“We want to collaborate with the community.”*

Well, guess what, fellas...a lot of us think that collaboration should have started five years ago.

Here’s Robert Righter, the historian: *“If they are to be fair, developers must be open, revealing their plans and the conditions of landowner leases. Nothing can be more destructive to community than secrecy. Initially, covert lease contracts seem attractive to wind developers. However, over the long run, as disparities are inevitably revealed, hard feelings will be the harvest.”*

Indeed.

[Righter also considers it completely unfair that landowners with turbines on their land are the ones that get all the money. This situation is what has caused much of the ruckus in Britain, the U.S., and here in Canada. But there are other, fairer ways to do it. He says that in France, adjacent landowners receive 30 percent of the royalties, because planning authorities believe that neighbours, who have no choice but to see and hear the turbines, should be compensated. Other jurisdictions have other arrangements for sharing both the benefits, and the risks.]

So, that’s Rule 7: Don’t sneak around. [And do share the wealth.]

8 **Last but not least, Rule 8: Don't go where you're not wanted.**

On May 10th, this Council voted unanimously on a first motion to rescind the current bylaws regarding large-scale wind turbines, because they came to believe that for many reasons, **large-scale** turbines were simply not appropriate to our **small-scale**, and surprisingly densely populated, rural landscape.

But on May 18th, The *Chronicle Herald* quoted Acciona's product development manager, Hemanth Shankar, as saying the North Mountain project will go ahead anyway.

Robert Righter again: "*Wind developers should give serious consideration to not insisting on raising turbines where they are not wanted. The United States has an energy advantage over England and Europe: we have vast stretches of windy, largely vacant land, waiting to become part of our energy solution.*" (page 126)

Well...here in Canada, we have even more land, and about a tenth of the population.

Just one quick thing before I close: a respectful suggestion for our planning department.

When the bylaws regarding large-scale wind turbines eventually **do** get rewritten, perhaps they could incorporate some of these rules? That way, only those wind developers who are prepared to **really** collaborate with the community will bother to come here.

Thank you.

(By the way, I've listed all my sources in the copy of this presentation I'm turning over to the Municipal Planners. If anyone else would like the list, just give me your e-mail address and I'll get them to you as well.)

KINGS COUNTY LARGE SCALE WIND

NOTES for JUNE 20th

My name is John Colton, resident of Greenfield, South Mountain

I'm speaking briefly from several different perspectives:

- Resident of Greenfield
- I was a member of the provincial renewable energy steering committee that made the renewable energy target recommendations for 2015 and 2020 ([Wheeler Report](#))
- I'm a faculty member at Acadia University where I focus on community development and engagement...(hands on typically).

I'm optimistic that renewable energy (wind, tidal, other) can provide real alternatives to our energy needs...but I believe as well that the right type of investment and the right type of community process can strengthen our community along the way. What is proposed does not strengthen our communities and it does little for Kings County's vision for sustainability.

In our report on the renewable energy target recommendations we were clear that:

- Citizens had to be thoughtfully respected by developers and governments in the process of renewable energy development.

Why was this pointed out?

Because most often community engagement is a box to be checked off, it's often the least funded portion of any development strategy.... it's a hurdle...small or large to overcome.

I know that in the process of developing bylaws and the larger MPS associated with wind energy development; the typical public consultations were held. But this is not typical; renewable energy development is not typical. It's a game changer and in this case the engagement needs to move beyond consultation to **collaboration**.

At this moment there is a real opportunity and I'm grateful that the council and staff and the community have brought us to the point where we can respectfully and thoughtfully discuss the most appropriate way to manage wind energy development in Kings County. In my opinion we are at the place where real engagement can begin. We have access to information, research, and a place to voice our concerns and to listen to others respectfully.

The Kings County 2050 project aims to guide long-term sustainable development in the county. There is an opportunity to rework renewable energy related bylaws like those related to wind energy into this process. I understand that the Kings 2050 project is about real significant community engagement and collaboration.

Part of this could include what's an appropriate scale of development?

- In the Orkney Islands and the Highlands of Scotland, you can see what I mean by scale. It's typical to see wind turbines in and near communities...but these are small, do not dominate the landscape of the community and they are locally owned generating profit for communities and municipalities. People did not want big wind farms in or near the communities and they were listened to...
 - Rural communities were respected, in fact there has been some discussion about to what extent the wind is a public good
- Outside the communities, areas were zoned as commercial wind and here you saw significant development of wind farms...at an appropriate distance from rural communities

I want to finally add:

- Once the bylaws are rescinded and people are not threatened by large scale wind development near their homes and communities, it's pretty typical that public involvement in the issue will wane, people will not be inclined to attend more meetings, folks will have felt they won to a certain extent...and to some extent they have won. But it will be short-lived if this does not grow into a larger opportunity for involvement and collaborative decision-making.
- In rescinding these bylaws I hope the county goes a step further soon before many of us go back home and our other routines. How can we become actively engaged in thinking about our energy future in Kings County? To what extent can we explore local government and community ownership of renewable energy? How can we take the energy from this group of people in this room and put it into collectively and collaboratively thinking about our future?

Thank You.

Andrew Steeves

From: Soren Bondrup-Nielsen <soren@bondrup.com>
Sent: June-20-12 2:46 PM
To: andrew@gaspereau.com
Subject: *10* Fwd: Presentation to Kings Council on wind power.

Soren Bondrup-Nielsen
Head, Biology
Acadia University

www.bondrup.com

*delivered by Gary Boates
resident of Kentville, Kings Co.*

Begin forwarded message:

From: Soren Bondrup Nielsen <sorenbondrupnielsen@me.com>
Date: 19 June, 2012 2:47:20 PM ADT
To: "soren@bondrup.com" <soren@bondrup.com>
Subject: Presentation to Kings Council on wind power.

Presentation to Kings Council on wind power.

Prior to my winter...

Soren I was born in 1951. At that time there were 2.5 billion people in the world. In the late seventies, some 30 years later, the population had doubled to 5 billion. It had taken 100 years to double to 2.5 billion from 1.25 billion in 1850. If I live into my nineties the worlds population will have doubled again to 10 billion.

We live in an unprecedented time where within one life time the worlds population has doubled twice. Never again in human history will this be possible.

During this period our use of fossil energy has grown even more dramatically. The ecological impact from this growth in people and energy use is astounding and if not checked will end in the demise of the human species.

So, turning to "green" energy such as wind seems obvious - how can anyone possible be against this!

But wait a minute.

The problem is with our current economic model, the assumed dependence on growth and the resulting belief in mega projects to solve our woes. However, growth as fundamentally measured by GDP is not a measure of progress or quality of life.

The problem with mega Watts wind projects as with all other mega projects is that they depend on people consuming resources. The more we consume the more money a few people earn but the ecological costs are enormous.

The ecological footprint of these mega projects, in terms of habitat eliminated for wildlife, is huge. The more turbines erected the greater the direct loss of habitat and this is one of the major ecological concerns we should have. The organisms that lived there are doomed as they have no

where to go. The more wind mills the greater the habitat loss. We are nickel and dimming the habitat away with the resulting extinction of countless of species.

It doesn't matter where the windmills are placed, close to people or far away, habitat is lost. So what are we to do?

We hear the terms reduce, reuse and recycle. We seldom focus on the first term - reduce. With past cheap energy we use it far too inefficiently. I moved to Alberta in the late seventies. Just prior to that Alberta was thinking about building a nuclear power plant. An analysis was made. If the dollars that it would cost to build the plant were used to insulate houses within the area serviced by the nuclear power plant there would be a net saving of energy and under current production there would be an excess of energy which could be sold. The nuclear power plant was never built.

We need a sensible energy strategy for Nova Scotia which first and foremost focuses on reducing energy use. Then we can look at green energy, solar and wind, but look at generating it on a small scale where it is needed. There is no reason why each household, whether in the country or in the city, could not generate a large part of their own energy. If you produce your own energy you will also use it responsibly.

The Ford Motor Company started up with the motto that each household should be able to afford a car. Could this motto, but focused on energy production, not be applied today?

Finally, if I have dinner guests over and someone does not want the Brussels sprouts and someone else will not eat meat I do not force them to eat these items. I accept their desire and I do not have to be given excuses as to why they do not prefer whatever it is. Likewise, if people who have moved to the country for the peace and quiet and thus do not want a mega wind field in their backyard so people in the city can use power generated irresponsibly, do they have to come up with all kinds of reasons why they do not want them?

Soren Bondrup-Nielsen
Head, Biology
Acadia University

www.bondrup.com

Submission to the Public Hearing: Large-scale Wind Turbines File P12-01
Amendments to the Municipal Planning Strategy and Land Use Bylaw
The Municipality of the County of Kings

Dr. Mary Lou Harley
Port Williams, NS
June 20, 2012

In January 2011¹, and in April 2011², I made submissions of concerns and recommended amendments to the large-scale wind turbine regulations being drafted at that time. During this 2012 review of the regulations, I have spoken briefly several times.

I am an educator. I have taught and published in the fields of chemistry and biology. As a research scientist and consultant, I have extensive experience in scientific, technical, and health-risk literature research and particular skills in addressing contradictory information in controversial industrial issues. Further, my work in the past 20 years has had a focus on the application of ethical principles including accounting for levels of uncertainty and the role of the precautionary principle.

I applaud the Council's carefully considered proposal to amend Bylaw #56 and Bylaw #75 concerning large-scale wind turbines to indicate "that Council intends to further review the issues and in the meantime not permit large-scale wind turbines in any area of Kings County."³

In the review to date by Council, while many aspects of wind power have been addressed in submissions, the dominant consideration has been concern about the appropriate siting of industrial wind turbines. Promotion of wind energy led to significant increases in the scale of wind development, both in the size of individual turbines and in the number of turbines in an array, before potential impacts that might arise from that increased scale were studied.

¹ M.L. Harley. January, 2011. "Large Scale Wind Turbine Policies." Submission to Planning Advisory Committee, Municipality of the County of Kings.

² M.L. Harley. April, 2011. "Amendments for Large-scale Wind Turbines." Submission to the Council of the Municipality of the County of Kings.

³ Report from Planning Staff to the Municipal Council for June 20 Public Hearing (http://www.county.kings.ns.ca/upload/All_Uploads/Comdev/Planning/windturbines/Reports/2012.06.20%20Public%20Hearing%20Report.pdf)

Decision-making on appropriate regulation of large-scale wind turbines is hampered by a number of factors including:

- the limited research available on critical issues;
- conflicting conclusions in literature reviews often based on the same research;
- the controversy in countries with experience in industrial wind energy over separation distances, relevant sound pressure ranges for concern, methodology in modeling, procedures for enforcement of regulations, and other aspects resulting in reconsideration of regulations.

At the centre of the controversy about how best to regulate the siting of large-scale wind turbines is the issue of the potential safety and health risks to humans and animals associated with industrial wind turbines.

Council sought answers to the core questions on health and safety risks and on regulations for adequate levels of protection. In general terms, the aspects of large-scale wind turbine development associated with possible safety and health risks for humans and animals have been identified during this review, but the levels of uncertainty in the risks remain high. Further, assessment of scientific papers, expert testimony, and reports on health impacts, and regulations from various jurisdictions to address sound, and setback and separation distances, have not given the necessary guidance to establish regulation for adequate levels of protection.

In support of the wisdom of the proposed amendments, I point to the example of the concerns raised on technical and health issues related to sound, and the body of literature presenting apparently conflicting conclusions. This conflict is not just the limitations of our best understanding at this time of scientifically-documented, probable, and possible health impacts and the inherent uncertainty. Added to these factors in some reviews of the literature are underlying assumptions, potentially misleading nuance in wording, inconsistency of their conclusions with those of their cited literature, inadequate standard of their cited literature, and inadequacy in the methodology and analysis to support the conclusions.

For example, the potentially misleading conclusion in some reviews is a statement of "no evidence of harm" that gets interpreted as "evidence of no harm" when in fact the body of the review shows that there has been *insufficient research to allow a conclusion* but abundant indirect evidence to warrant concern. Also, several reviews of health impacts of large-scale wind turbines conclude that there are no "direct" health impacts, implying no impacts, whereas the "indirect" health impacts must not be dismissed. As WHO stated: *The recognition of the noise as a serious health hazard as opposed to a nuisance is a recent development and the health effects of the*

*hazardous noise exposure are now considered to be an increasingly important public health problem.*⁴

Direct causal relation concerning the effects of noise from a particular industry on health is rarely available, which is the case for industrial wind turbines. That is why the WHO guidelines also use indirect evidence, such as the effects of noise on sleep and the relations between sleep and health. The advantage of this approach is that a lot of medical evidence is available on the relation between sleep and health, and detailed information also exists on sleep disturbance by noise. In this way, the direct effect of the industry on the noise level can be linked to an intermediate effect of physiological changes which lead to the adverse health effects⁵.

The Municipal Council has demonstrated consideration for the health and safety risks viewed from the perspective of the technical assessment of potential harm and the social acceptability of risk. On the continuum of levels of precaution, it would be reckless to proceed with defining regulations for siting industry wind turbines at this time. The Council has wisely recognized the need for further review as more information becomes available.

⁴ WHO community noise fact sheet

⁵ WHO 2011 Night Noise Guidelines For Europe.

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I would like for this council to deal with the bylaws now that would change setbacks to a minimum distance that would assure will not cause harm to the residents of the area affected nor reduce property values .

Eugene Pothier

Eugene Pothier
285 White Rock Rd.
Kings Co. N.S.
B4N 4K1
678-6482

Kelly Lee from Long Beach Road.

My family has settled on the North Mountain because it's a beautiful place and it was important to us to raise our children in the country. Which is why not only were we devastated that our home could now be in the middle of an industrial wind project but confused to learn how there is no protection in the county by laws to allow this from happen to us.

We have stopped our plans to build another home on Long Beach Road and have had our entire lives on hold hoping this bylaw gets fixed. The current bylaw is riddled with issues that do not give proper protection or respect to the land owners surrounding the turbines in Kings County. I think it should be taken into consideration that families will be forced to move, because of the current law.

I absolutely support the motion to rescind.

Jaden Keizer from Long Beach Road.

I've displayed this turbine before showing to scale the size compared to an average home and feel you need to see it again when considering fixing this bylaw ~~to~~ so I know you fully understand what we are talking about. I hope you find a way to produce cleaner energy, we all know it's a problem but I don't feel scattering these machines across the north and south mountain and ruining the landscape is the answer.

I also have family and friends in the military and feel the concerns at Greenwood base need to be respected, those people protect us, I hope you do as well and fix this law.

I support the motion to rescind the bylaw.

John Griffiths – English Mountain Road, Canaan

- I have the same concerns as was reflected at the May 10, 2012 Public Participation Meeting.
- We were asked if we wanted to have the useless bylaw currently in place thrown out; the sooner we get rid of it the better so we don't end up in court.
- It is not compatible with our own bylaws.
- The purpose of this meeting is to decide whether or not to throw out the bylaws; most have said "yes".
- My main concern is that so many of us seem to think that the place for anything offensive is to be used to pollute one of our quiet places.
- Maybe the District of Guysborough should be warned of the possible hazards in using wind turbine devices.
- We need to clean up the bylaws and when we start to look at them again we need the energy that is here tonight to make sure we do it right the next time.

The Real Health Risks of Large Scale Wind Turbines - 20th June 2012

Governments and Municipalities around the world have relied on the assumption that a large scale wind turbine (LSWT) installations will be safe and will not cause the local residents any physical, emotional, financial harm if they set sound pressure limits to a particular level. LSWT companies have objected to these limits every time.

However, in spite of these stated limits, more and more governments and municipalities are finding that in spite of their expectations, significant numbers of the their residents are indeed suffering because of the installations.

There are two main reasons for this:

1. The LSWT installations rarely meet the predictions of their estimated sound levels due to incorrect assumptions and failure to account for measurement error. This has led to large underestimates of the separation distances between dwellings and the turbines required to prevent adverse effects. e.g. at Pubnico levels were predicted to be a maximum of 49dBA, but were found to be 54dBA when measured(Health Canada, 2009). Note that this is 9dB over the current Health Canada recommendations, which would necessitate an increased separation of 2.6km, as will be seen in the calculations below.

2. There is more and more scientific evidence that the presumed safe limits are not safe at all and that adverse health effects are present at far lower levels.

"there are peer-reviewed scientific articles indicating that wind turbines may have an adverse impact of human health" (Health Canada, 2009)

There have been further studies since 2009 that continue to confirm both adverse effects and probable mechanisms for adverse effects.

Problems with the predicted sound levels – measurement assumptions.

Standard procedure in all scientific and technical documents is to provide error bars on any measurement, to account for sources of variation.

Some of these sources of variation were mentioned in the commissioned report but were not included in the risk assessment. No justification is provided by the experts for omitting this stage of the risk assessment.

The authors of the commissioned report acknowledged WHO data that 30dB indoor noise (bedroom) should be met. They suggest that a 700m setback from a dwelling will meet this requirement. There are no references for the calculation of this figure given in the report. The report states that 1km – 1.5km is too conservative but again no references given, clearly because this is scientifically implausible.

The impact of these errors on safety distances should be clearly stated as the planners, public and councillors are not familiar with the mathematical procedures necessary to convert the various applicable errors and variations into safety distances. The absence of this analysis is a major flaw which should lead to rejection of the report as useless for the purposes for which it was commissioned.

Problems with the predicted sound levels – measurement assumptions

dB measurement

-3dB is a well recognized measurement error in all sound level meters. Further errors occur if the SPL at low frequencies is estimated from dBA measurements.

It is important to note that a measurement error of -3dB means an individual measurement can be up to 6dB different from the average value.

Attenuation assumption

It has been assumed that a dwelling with slightly open windows will provide an attenuation of 10 dB. However it has been shown that, due to the significant low frequency component of wind turbine noise, the presence of a dwelling actually increases the sound level by 10dB.

This “chamber” effect is basic Physics, is well known and is made use of in some industrial processes. It has been measured and reported at LSWT sites, when care has been taken to locate the areas of maximum sound level in a room.

Standard measurements are typically performed at standard indoor locations which are not where the maximum sound occurs, which would account for the discrepancies in reported audibility and measurements of the sound.

Helmholz resonance can further increase the level of sound indoors.

Day/Night effects

Cooling effects at night results in a more stable atmosphere i.e. less turbulence. This results in increased wind speeds at the height of the turbine hubs combined with quieter conditions on the ground. A further 5dB penalty must be applied to account for this increase in noise output and annoyance.

Phase locking

When the turbines operate in together (in phase or synchronously) the sound levels can increase by 3dB (2 turbines) – 5dB (3 turbines).

Adverse health effects

Nature of sound

The 30dB indoor limit set by the WHO is provided for broad band noise only i.e. that it contains equal components across all frequencies and that it is not pulsatile. The allowable limits should be reduced by 5 dB if the noise is tonal and by a further 5dB if the noise is pulsatile. The noise from wind turbines is both tonal and contains short duration repetitive sound (pulsatile), reducing the allowable limit by 10dB.

Tonal and pulsatile sound patterns from LSWT have been recorded in many countries including Canada, Germany, Australia and Holland.

Nature of adverse health effects

Adverse health effects are typically indirect. Repetitive noise, particularly during sleep, but also during wakefulness has been shown to cause disease. The indirect nature does not negate the well demonstrated, statistically validated negative health outcomes. These are documented at great length in the WHO (2012) report.

Burden of Disease from Environmental Noise WHO 2011:

- 61,000 years lost to ischemic heart disease
- 903,000 years lost due to sleep disturbance
- 45,000 years lost due to cognitive impairment of children
- 22,000 years lost due to tinnitus
- 654,000 years lost due to "annoyance"
- Overall 1,000,000 years of healthy life lost per year to traffic noise because planners put roads and houses too close together

The 30dB SPL indoor requirement, recommended by the WHO, is not met by the current Health Canada safety limit of 45dB (outside a dwelling), since Health Canada assumes an attenuation factor that is not demonstrated in real dwellings. It is reasonable to expect that Health Canada will soon lower its limits for allowable sound levels, similar to other countries around the world.

Direct effects of low frequency noise on the internal ear and brain are well demonstrated, further illustrating the incompleteness and inadequate nature of the commissioned report.

Adverse health effects

Night time effect

Sleep disturbance at night due to noise cannot be compensated for at other times of the day, leading to a 10dB penalty. This is recognised in the commissioned report as well as all textbooks of noise control and international noise regulations.

Rural effect

The targeted North and South Mountain areas are not near Highway 101 and therefore the 10dB adjustment, recommended by Health Canada for quiet rural areas should be applied.

Turbines are not "community noise" they are industrial machines providing industrial noise.

Summary of dB changes:

dB Measurement error	3dB
Attenuation assumption	0dB(or 10dB)
Phase locking	5dB
Day/Night atmospheric effects	5dB
Tonal sound	5dB
Pulsatile sound	5dB
Night time annoyance (sleep disturbance)	10dB
Rural annoyance	10dB

Sound level vs distance

There are two ways to decrease the sound pressure level received. One is to turn the sound down, the second is to move further away from it.

Sound levels decrease as the distance from the source is increased, unless a resonant environment that effectively traps the energy and prevents it from dispersing, which will cause an increase in sound levels.

The general model for sound dispersion, without a resonant environment, assumes a point source for the noise i.e. an infinitely small, uniform source in a uniform environment. This model, useful for physics calculations only, gives a uniform spherical dispersion pattern to the noise which results in a 6dB sound pressure level change for every doubling of distance. The model has very limited use in predicting sound dispersion in real world situations

Nobody could imagine that a wind turbine is represented well as a point source and therefore it comes as no surprise that wind turbines have been shown, in real world measurements, to have a more complicated sound dispersal pattern which is closer to a cylinder, giving a 3dB sound pressure level change for every doubling of distance i.e. twice the value of the 6dB model

The following table shows the increase in separation distance that are equivalent to sound level changes. The purpose of the table is to demonstrate that very small increases in the decibel measurement used to represent sound pressure level are in fact equivalent to very large distances when safety limits are being studied.

The commissioned report states that a 700m setback represents an acceptable sound pressure level, therefore we have use 700m as the baseline. This table shows changes in the sound pressure level would increase the required setback distance, for those not used to making this calculation, which unfortunately the report omits. For example, if there is a 3dB error then the setback would have to be increased to 980m-1400m.

dB SPL change	Spherical assumption 6dB/double distance	Cylindrical model 3dB/double distance
0 (no error calculations included)	700m	700m
3	980m	1400m
6	1400m	2800m
9	1960m	5600m
12	2800m	11200m
18	3920m	
24	5600m	

Minimum Separation Distances from dwellings

The experts own model, with allowances added for model error (3dB), night time annoyance(10dB), and rural allowance (10dB) would increase the rated noise level by 23dB - to a total of 68dB, a totally unacceptable noise level for a bedroom.

A minimum separation distance of at least 5.6km (spherical model) is required to reduce the noise levels to the current health safety goals of the Health Canada limit (45dB) but not to the accepted health safety limits of 30dB in the bedroom(WHO).

This calculation is done using the experts own data. No justification is provided by the expert for omitting this stage of the risk assessment.

The inclusion of the other factors will add at least a further 20dB (or 30dB), to take the 45dB level recommend by Health Canada to a potential total of 88dB. This hugely exceeds the safety allowances and in addition the experts themselves acknowledge that this is likely to bring complaints and strong opposition, in other words universal, permanent uproar.

Risk Assessment

The authors of the commissioned report suggest that because "all life has risks" such as the use of pesticides, it is reasonable for us, not them, to accept the risk posed by a LSWT development. They do not conduct a risk-benefit analysis on behalf of the North and South Mountain residents. The residents will have risk imposed upon them against their will.

They have stated that a 30dB indoor noise level exposure represents a limited and acceptable risk to all the things we hold dear - our health, our security, our environment. This is not the same as saying it is safe.

An estimate of acceptable risk may be appropriate for industrial employees who choose to work in dangerous trades despite the availability of safer work. However the economic calculation of acceptable risk in the context of such an employee is entirely inappropriate when one considers the imposition of the risk on an unwilling population against their expressed choice. It is wrong for the experts to suggest that it is an acceptable safety standard that 5% or 10% of the exposed population to find their dwellings unusable due to sleep disruption and ill health. This would not be ethical even in the situation of worker in dangerous trades who have chosen to bear this risk. In the case of inevitable damage to an unwilling population the suggestion itself shows that the authors of the report misunderstand their ethical obligation.

In order to ask someone to accept a risk you are obliged to describe it as accurately as possible and not exclude any substantiated findings of sources of variations. The statement that a 700m setback will result in an indoor sound level of 30dB is not correct. The figures given above show that it is not remotely possible to reasonably ensure an indoor sound pressure level of 30dB unless the setbacks are at least 5.6km away.

Therefore the risk is not acceptable.

Comments For Public Hearing – LSWT Bylaws Rescission
Kings County Council Meeting
Wednesday, June 20th, 2012

Since November 2011 we have been in a process of discovery regarding Large-Scale Wind Turbine industrial facilities proposed for development in Kings County.

There has been a tremendous amount of time and energy spent on research, evaluation and analysis concerning the many serious and legitimate issues associated with LSWT's being placed in rural communities. This work has been carried out by residents of the North and South Mountain rural communities, the Councilors and the Planning Staff of Kings County. This educational process has provided a wealth of very pertinent information which allows for a better understanding of the issues and the ability to make informed and responsible decisions.

The process of discovery is an excellent example of due diligence, which can be defined as: 'care that a responsible person exercises to avoid harm to other persons or their property'.

What we can be proud about is the fact that we are applying the principles of procedural and distributive justice as we work our way through a multi-faceted and complex matter.

At the 15th of May Council Meeting, when the motion to rescind the LSWT bylaws unanimously passed 'first reading', I heard two concerns that were expressed and feel it is important to comment on them.

One concern was a question asked about opposition to small-scale wind turbines. My understanding is that there is no issue with small-scale wind turbines which are limited to an output rating of 100 kilowatts (that's 1/10 of a 1 megawatt large-scale turbine). The fundamental difference between large-scale and small-scale wind turbines is that small-scale turbines are designed for individual homes or businesses and the fluctuating output can be regulated by batteries and a back-up gas generator because of the "scale" of the system. A home system may, at times, require power from the grid or may provide power to the grid. The scale of the home system is entirely different compared to a LSWT industrial facility which is designed solely for supplying intermittent power to the provincial grid. Due to the scale of the facility there is no capacity for electrical energy storage.

The other concern expressed was that we don't want to appear as if we aren't open for business with regards to renewable energy. When you consider the individual use of biomass, solar heating & domestic hot water, and most importantly, energy conservation and efficiency upgrades, there are many opportunities for local businesses to be involved with home owners who wish to reduce their dependence and demand on heating and electrical needs.

Today we are participating in a public hearing regarding the motion to rescind the LSWT bylaws which unanimously passed 'first reading' on May 15, 2012. My understanding then and now is that the current LSWT bylaws are inadequate with regards to the protection of the rural community quality of life, the diversified local economy, natural and built heritage, and well-being of the families living in this densely populated municipality of Kings County.

In closing, I wish to state publicly that I am very committed to staying engaged and working with our representative councilors to ensure that the drafting of new by-laws for the development of LSWT industrial facilities will enshrine the fundamental duty of care for the municipality and its residents. It is my understanding that there is a large contingent of citizens who carry the same commitment.

There is much work that has yet to be carried out to assess the remaining concerns and issues and complete the process of discovery, before preparing new bylaws.

Rescinding the flawed LSWT bylaws is the responsible action to take at this time.

A handwritten signature in black ink, appearing to read 'Warren Peck', written in a cursive style.

Warren Peck
2328 Black River Rd.

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bylaw

From: amy pothier (amy_pothier@hotmail.com)
Sent: June-16-12 11:13:40 AM
To: amy pothier (amy_pothier@hotmail.com)

I would like the current bylaw, regarding Wind Turbines, rescinded. The effects of these monstrosities on peoples health and well being should be further studied before you allow them to be put up in our county and our neighbourhoods. The devaluation of peoples homes and properties should also be taken into account. When you vote on this bylaw, please think to yourself if you would like to have one of these things in your yard, near your family, without knowing fully what effect it is going to have on them. Put your selves in our place when you make your vote. Thank you.



PRESENTATION TO COUNCIL concerning WIND-TURBINE BYLAWS

The emerging negativity surrounding wind farms is a concern to us, especially since a lot of false information has been spread. Our family has always been a strong supporter of wind energy, but with the increased negative information about the unbearable noise and health issues, we began to have some doubts. Then, to top it off we became aware of the alarming news about infra-sound – you can't hear it, but you might feel it in your bones? Yikes – it was time to check it out.

There are 2 wind fields fairly close by: one at Gulliver's Cove near Digby – 20 Turbines since 2011 and another one at West Pubnico – 17 turbines established ~ 2005 through the initiative of a few local residents and land owners. First I contacted a property owner in G C whose home & tourist cottages are ~700m away from the closest wind mill. She felt that was too close as the turbine gets too noisy at times, especially at night. So far, the owner could not report any loss of business due to the close proximity. Unfortunately, both cottages were already rented out for the month of June. So, Paul & I decided on a trip to Pubnico for our fact-finding mission. There, the closest accommodation is the Red Cap Motel & Restaurant (which we can highly recommend) and it is ~4km away from the wind field. The turbines (1.8 mw Vestas, 118m total height) are set up along the last 2.5 km on one side of a narrow strip of land (2 – 3 km wide) jutting out into the ocean. They produce the equivalent energy for 12000 homes and displace 90.000t of CO₂. The specially developed access road cuts through the length of that piece of land right down to the sea shore. The 17 turbines are sitting in rows on the right hand side. The left side (only ~600m at the widest) was retained by local property owners for building lots and is now being developed as such by 2 local families. These lots are within 600m of a turbine. 3 properties before or north of the wind farm are also within 600 m of the nearest turbine. More dwellings are within the 700 - 1000m range and many more beyond. Everybody we talked to (especially the people within close range) said they adjusted well to the close proximity and do not feel affected by the "swoosh", that can be more prominent at times. Sleep has not been affected; they do not feel they have to close their windows at night. Some said the sound is similar to the sound of the wind and waves

they are used to. One person said a wind mill is 10 xs better than a barking dog in the neighbourhood, and I like to add that it should also be 10x better than a neighbor who is obsessed with his garden AND power equipment. The houses closest to the wind mills had content looking dogs in the yard; there was a horse at one property and an alpaca farm at another. The owner could not report any negative symptoms for themselves or for their animals. Behavior, reproduction, and health with the alpacas has been normal. We could hear and see birds in the wind field, deer and other wildlife is abundant according to a local resident who walks the road to the point regularly. The indifference of the animals should be an excellent indicator, since their hearing is so much more acute.

The 2 km dirt road from the beginning of the wind field to the point at the shore is a favorite walking route for the locals. We walked it as well, starting 2 km before to find out when we would actually hear the first "swoosh". At about 1000 m distance we could detect the first faint sound, but only when standing still and being absolutely attentive. At ~700 m it was a bit more noticeable, but again only when paying attention to it. Walking on that access road one is within 400 m at all times, which can be noisy as the wind amplifies the swoosh. Our own dog, a Bull-Mastiff got uncomfortable when within a 200 m distance, but relaxed completely when outside that range. Walking in close proximity of the wind mills felt a bit deafening, even so we could still talk normally to each other. We thought it had more to do with the strong wind blowing past our ears. I have felt the same kind of numbing sensation which can give me an ear ache or a head ache at times when walking in other windy locations with no wind mills present. (I had neither those days, nor thereafter).

In conclusion: 700m seemed to be an acceptable distance for us on that location. We walked one evening at low wind and the next morning at fairly strong wind. None of the local people we talked to had anything negative to say, nor had they heard of any problems from other residents. But they did tell us about one family being negatively affected after the turbines started operating. Apparently, this family had opposed the project from the beginning. They sold their house and left the area in 2006. Their property was less than 600 m away from the nearest turbine. The house was

purchased last year by a couple from the community who had lived 8 km away before. We did not have a chance to talk to them. From the conversation with the G C resident I got the understanding that the layout of the land, where your property is situated in relation to the wind mill as well as to other occurring noise sources has a lot of influence on the noise intensity one may experience. She also said noise studies should be done several times and at different times of the year, when natural occurring noise is not as prominent, e.g. not at the time of the peepers in spring.

We also went hiking in the Dalhousie Mountains recently, where at present ~ 16 wind mills are operating. From only a little distance these giant wind generators look majestic and elegant and fit well into a landscape, certainly much better than high-voltage power lines. Nobody has to live or walk right underneath them. The residents of the Pubnicos seem to feel proud of their wind field and rightly so. Wind mills emit hope that a greener more sustainable future might be possible, and do we ever need that hope!

Yes, I have read independent, peer reviewed studies on the efficiencies & effects of large scale wind turbines. So far, I have not come across the overly negative facts the no-side is presenting. Still, I have no doubt that certain people can be negatively affected in the presence of these power generators, but so are people living under or very close to high-voltage power lines or in the vicinity of coal fired power plants. There must be 1000s of people affected in some ways. Do we ask them how they feel or where the plants or lines should be located to produce and transmit the power we need living in the country side? I also have no doubt that the folks on either side of the argument prop up the facts in their favour to justify their cause. Yet, the mounting misinformation presented as facts, mostly without points of reference is going a bit too far. What counts for us is a real site and the exchange with real people, and that was absolutely positive in West-Pubnico.

I would just like to state a few more important facts:

- The large majority of people have no health issues.

- 4
- Considering all the facts for other modes of energy production wind energy is the safest and cleanest we can produce.
 - A turbine site is 100% reclaimable and there is no site contamination
 - The WHO does not recommend a distance of 10km. They recommend 40 dB as a nighttime noise guideline.

Support
rescinding
present
bylaws.

We are not sure why rescinding the present bylaws would be necessary since most of the issues mentioned in the flyer have been addressed by numerous jurisdictions in this country and many others, but I guess that will happen anyway. What I am trying to prevent with this presentation is a moratorium on the development of wind farms as has been suggested by some. Appropriate setbacks, trustworthy maintenance and proper regulations for the afterlife of these turbines should be investigated and discussed, but a moratorium would be a major setback en route to clean energy development. Maybe the citizens of Kings County should also make use of NS's comFIT program and get their very own windmills like Tatamagouche. We hope the competent staff at the planning department can sort out fact from fiction and advise our council accordingly. Since we all need power and consume more & more of it, we have an obligation to produce safe and clean power when & wherever possible. Not in my backyard is not an option.

Thank You

Paul & Irmgard Lipp, Black Rock Rd, Grafton, NS (half-way up the North Mountain)

June 20, 2012

Dear Member of Council: Re Bylaw 58 + T's

I am in support of rescinding the present bylaws for industrial wind turbines in King County. I live on Arnold Rd, Woodville.

Reasons as follows:

- ① setbacks of 70m to meet a distance from nearest property in that health concern could arise.
- ② Negative impacts to property value. We do not want industrial sites near our farm.
- ③ Use of agricultural land for industrial purposes
- ④ Concern that turbine company will soon follow current turbine installation with additional applications for more turbines - which could be even larger than the ones being considered now for King County.

We & my husband do, in fact, encourage wind turbine development for Nova Scotia. In King County, we have too many residents living all over & around the best sites for turbine development. We are in favor, therefore, of small-scale wind turbines with increased setbacks. We also encourage limitations be placed on turbine developments from applying for further turbine installation within several years and only if the turbines maintain the same kilowatt power production.

Yours Truly,
Marilyn Cameron
409 Arnold Rd Woodville N.S.

June 20th, 2012

Re. Proposed Amendments to the Municipal Planning Strategy and Land Use Bylaw 1
for Large-scale Wind Turbines
- File P12-01

Dear members of Kings County Council:

I am in favour of the proposed amendments to the MPS and Land Use Bylaw for Large-scale Wind Turbines. The 700 metre setback in the bylaw is too short.

My family lives at the foot of the North Mountain in Grafton. Our land runs from Arnold Road up into the face of the mountain for a distance of approximately 700 metres. Quite literally we could have a tower on top of us. Therefore one of our concerns is decreased property value. You would be extremely naive or a liar if thought that property values would not decrease.

Another concern is damage to our water source. Our domestic water comes from a spring-fed creek on the mountain. There have been at least three attempts by previous owners to get good well water but all have failed due what was been described as extremely hard water.

We moved to Grafton from Greenwich to get away from development. With the wind turbines comes industrial infrastructure. With some turbines will come more turbines. When did I lose the right to object to living next to an industrial site?

I will conclude with a quote: "The customer is always right. Our customer, in the end, is the public." That quote is from the Acciona mission statement. I guess they may have add "except in Kings County, NS".

Please vote for the amendment.

Thank you.

Sincerely,



Paul Cameron
409 Arnold Road
County of Kings

Public Hearing - LSWT Bylaw Rescission
Kings County Council Meeting, June 20th, 2012

June 6, 2012 marked the 10th anniversary of the International Maritime Organization's adoption of re-routed shipping lanes in the Bay of Fundy, a precedent setting initiative achieved through the collaboration of industry, led by Irving Oil, scientists from New England Aquarium, government, academics and environmental groups. WHY ? To protect the world's most endangered whale species, the North American Right whale.

This collaboration between science, and industry approached regulators to re-route the shipping lanes away from the Right whales' feeding grounds and habitat, reducing the risk of collisions with the rare species by 90%. It was the first time, anywhere in the world that shipping lanes were re-routed for the protection of an endangered species.

There are at least 12 species of whales that make their home in the Bay of Fundy during the summer months. Rich feeding grounds, a preferred birthing and nursery area for their young and a safe play area are the main reasons.

"Seismologists say wind turbines produce airborne infrasound plus ground-borne vibration *up to 6.8 miles from the wind farm (Italy)*. In Pierpont's book, "*Wind Turbine Syndrome*" it is stated that the vestibular organs in the inner ear, which evolved over millions of years, detect ground-borne low frequency vibrations. Although this is a known fact, it remains unclear as to the exact range of sensitivity.

From the paper "*Infrasound hazards for the environment and the ways of protection*" by D. Gizas and R. Virsilas in Lithuania, the two scientists make reference to the fact that the impact of infrasound on the individual and other environmental organisms has been studied insufficiently. They go on to cite certain behaviours of animals reacting up to 15 hours prior to an earthquake... whales, for example put out to the open ocean.

The North Mountain Ridge that forms the coast of the Bay of Fundy from Digby Neck to Cape Blomidon, is composed of basalt and also creates the bedrock of the bay's ocean floor. Do we know how the infrasound vibrations travel through this bedrock and into the waters of the Bay of Fundy? Can we be absolutely sure that our marine life, which includes the 12 species of whales, is not going to be negatively impacted? Are we prepared to risk destroying all that industry, science, government and environment have worked diligently to put in place over the past ten years through their re-routing of shipping lanes to protect these mammals?

I'm not and this is yet another justifiable reason to rescind the existing bylaw.

Nancy Denton-Peck
2328 Black River Road

JACQUI BROWN
North Mountain

Pubnico - Survey

Shortly after the Pubnico Point Wind Farm went on-line a survey of 216 windfarm neighbours was conducted and later filed with Natural Resources Canada.

Survey Question 1:

Is it your opinion that the Pubnico Point wind farm is located too close to residential housing ?

Response: **98.6 % answered Yes**

Survey Question 2:

Is it your opinion that Pubnico Point wind farm is excessively noisy and creating a nuisance for the closest neighbours ?

Response: **96.4% answered Yes**

Survey Question 3:

Would you say that you were properly notified about the negative impacts the Pubnico Point wind farm could have on the local community (eg. Proximity to housing, excessive audible noise, low frequency noise, ice and blade throws, impact on birds, traffic during construction, etc) ?

Response: **86.5% answered No**

GARY K. STEWART INSURANCE BROKERS LIMITED

347 St. George St. S.,
DRESDEN, Ont. N0P 1M0
Ph. 519-683-6248 • Fax 519-683-2166

5 Gregory Drive East,
CHATHAM, Ont. N7L 2R2
Ph. 519-351-1484 • Fax 519-351-4461

36 Main St. E.,
RIDGETOWN, Ont. N0P 2C0
Ph. 519-674-0221

335 St. Main St.,
BOTHWELL, Ont. N0P 1C0
Ph. 519-695-5718

April 24, 2012

Dear

On speaking with the Western General Insurance Company in regard to your inquiry about the installation of wind turbines on your property at

Sarnia, Ontario, the Company has advised that should a wind turbine be erected on the property, the Western General would not insure same and they would no longer remain on risk at that property, and your policy would therefore be cancelled.

The Company has also stated that once the units are erected, you, the owner of the property lose some control on people coming onto the property for repairs or maintenance, along with some injury risk the units could cause, leaving yourself and the Company open to potential liability losses.

Yours very truly



Laurie E. Maclean, A.I.I.C., C.I.P.
Principal/Partner

Gary K. STEWART INSURANCE BROKERS
Limited

LM



An Independent Insurance Broker
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Wind Turbines

Warden Brothers

Madam Chair; members of council

My name is Gerald Dickie of Halls Harbour

I would like to commend the council for deciding to place a ~~3 yr.~~ moratorium on wind turbine projects. *for the present time.*

There are too many unanswered questions about their effects on human health and the lands surrounding the structures.

I do like the idea of renewable energy but not at the cost of our health, our lands or putting units up that are only 20 – 30% efficient. The cost does not justify the return.

Thank you