# Health Canada and Wind Turbines: Too little too late?

CMAJ • November 28, 2014 • 19 Comments



[http://cmajblogs.com/wp-content/uploads/2014/11/wind-turbines.jpg] **Carmen Krogh**, BScPharm (retired), is a peer reviewed IWT *health researcher* and former *Director of Publications* and *Editor-in-Chief* of the CPS.

**R Y McMurtry** is *Professor Emeritus* (Surgery) of Western University (formerly University of Western Ontario). Dr. McMurtry was also an *ADM* at Health Canada 2000-02

Industrial wind turbines (IWTs) are being erected at rapid pace around the world. Coinciding with the introduction of IWTs, some individuals living in proximity to IWTs report adverse health effects including annoyance, sleep disturbance, stress-related health impacts and reduced quality of life. [i] [#\_edn1] ,[ii] [#\_edn2] ,[iii] [#\_edn3] ,[iv] [#\_edn4] ,[v] [#\_edn5] ,[vi] [#\_edn6] ,[vii] [#\_edn7] ,[viii] [#\_edn8] ,[ix] [#\_edn9] ,[x] [#\_edn10] ,[xi] [#\_edn11] ,[xii] [#\_edn12] In some cases Canadian families reporting adverse health effects have abandoned their homes, been billeted away from their homes or hired legal counsel to successfully reach a financial agreement with the wind energy developer.[xiii] [#\_edn13]

To help address public concern over these health effects Health Canada (HC) announced the *Health Canada Wind Turbine Noise and Health Study* [http://www.hc-sc.gc.ca/ewh-semt/alt\_formats/pdf/noise-bruit/turbine-eoliennes/pamphlet-brochure-eng.pdf] (HC Study) 2 years ago and brought forth preliminary results November 6,

Here we briefly comment on the HC Study results and provide some historical context.

Acknowledgement of IWT adverse health effects is not new. The term "annoyance" frequently appears when discussing IWT health effects.

In a 2009 letter the Honourable Rona Ambrose, disclosed:

"Health Canada provides advice on the health effect of noise and low-frequency electric and magnetic fields from proposed wind turbine projects...To date, their examination of the scientific literature on wind turbine noise is that the only health effect conclusively demonstrated from exposure to wind turbine noise is an increase of self-reported general annoyance and complaints (i.e., headaches, nausea, tinnitus, vertigo)." [xiv] [#\_edn14]

In 2009, the Canadian Wind Energy Association (CanWEA [http://canwea.ca/] ) sponsored a literature review which acknowledges the reported symptoms such as headaches, nausea, tinnitus, vertigo and state they "... are not new and have been published previously in the context of "annoyance"..." and are the "... well-known stress effects of exposure to noise ..."[xv] [#\_edn15]

In 2011, a health survey of people exposed to IWTs in Ontario reported altered quality of life, sleep disturbance, excessive tiredness, headaches, stress and distress. [xvi] [#\_edn16]

In the same year, CanWEA posted a media release which advised those impacted by wind turbine annoyance stating "The association has always acknowledged that a small percentage of people can be annoyed by wind turbines in their vicinity. ... When annoyance has a significant impact on an individual's quality of life, it is important that they consult their doctor."[xvii] [#\_edn17]

It turns out it's not a small percentage of people annoyed by wind turbines. An Ontario

Government report concluded a non-trivial percentage of persons are expected to be highly annoyed.

The December 2011 report prepared by a member of CanWEA for the Ontario Ministry of Environment states in the conclusions:

"The audible sound from wind turbines, at the levels experienced at typical receptor distances in Ontario, is nonetheless expected to result in a non-trivial percentage of persons being highly annoyed. As with sounds from many sources, research has shown that annoyance associated with sound from wind turbines can be expected to contribute to stress related health impacts in some persons."[xviii] [#\_edn18]

The World Health Organization (WHO) acknowledges noise induced annoyance to be a health effect [xix] [#\_edn19] and the results of WHO research "...confirmed, on an epidemiological level, an increased health risk from chronic noise annoyance..."[xx] [#\_edn20]

HC also acknowledges noise induced annoyance to be an adverse health effect. [xxi] [#\_edn21] ,[xxii] [#\_edn22] The Principal Investigator of the recent HC Study also states "noise-induced annoyance is an adverse health effect". [xxiii] [#\_edn23]

Canadian Government sponsored research has found statistically significant relationships from IWT noise exposure.

A 2014 review article in the Canadian Journal of Rural Medicine reports:

"In 2013, research funded by the Ontario Ministry of the Environment indicated a statistically significant relation between residents' distance from the turbine and the symptoms of disturbed sleep, vertigo and tinnitus, and recommended that future research focus on the effects of wind turbine noise on sleep disturbance and symptoms of inner ear problems." [xxiv] [#\_edn24]

Recently on November 6, 2014, HC posted on its website preliminary results of its HC

Study[xxv] [#\_edn25]. Wind turbine noise ".... annoyance was found to be statistically related to several self-reporting health effects including, but not limited to, blood pressure, migraines, tinnitus, dizziness, scores on the PSQI, and perceived stress" as well as related to "measured hair cortisol, systolic and diastolic blood pressure."

These troubling results come as no surprise. Since at least 2007 HC employees including the Principal Investigator of the HC Study recommended wind turbine noise criteria which they predict will result in adverse health effects. (i.e. result in an increase percentage highly annoyed).[xxvi] [#\_edn26],[xxvii] [#\_edn27],[xxviii] [#\_edn28]

Then turbines were built and HC spent 2.1 million dollars to find out it appears to have under predicted the impact of IWT noise. HC's IWT noise criteria does not use a dose response based on IWT noise but rather road noise. But of course IWTs are not cars and peer-reviewed studies consistently document that IWTs produce sound that is perceived to be more annoying than transportation or industrial noise at comparable sound pressure levels. [xxix] [#\_edn29],[xxx] [#\_edn30]

IWT noise annoyance starts at dBA sound pressure levels in the low 30s and rises sharply at 35 dBA as compared to road noise which starts at 55 dBA. These findings are further supported by the HC Study's preliminary results. [xxxi] [#\_edn31]

IWT noise characteristics that are identified as plausible causes for reported health effects include amplitude modulation, audible low- frequency noise (LFN), infrasound, tonal noise, impulse noise and night-time noise. [xxxii] [#\_edn32]

The logical solution would be to develop IWT noise criteria which will protect human health but that would present a barrier to wind energy development. Noise limits impacts IWT siting, cost of energy produced [xxxiii] [#\_edn33] and by extension corporate profits. The wind energy industry has actively lobbied governments to be granted IWT noise exposure limits which benefit their industry.

Canadians trying to understand this should be mindful the Government of Canada has invested and distributed significant amounts of public money to attract and support

the wind energy industry. [xxxiv] [#\_edn34],[xxxv] [#\_edn35],[xxxvi] [#\_edn36], [xxxvii] [#\_edn37],[xxxviii] [#\_edn38],[xxxix] [#\_edn39],[xl] [#\_edn40],[xli] [#\_edn41] In addition to providing funding, the Government of Canada in collaboration with wind industry stakeholders has developed the Wind Technology Road Map (Wind TRM) [xlii] [#\_edn42] which Natural Resources Canada defined to be an "...industry-led, government supported initiative that has developed a long-term vision for the Canadian wind energy industry ...".[xliii] [#\_edn43]

Canada's Wind TRM states "Members of the Steering Committee, government and our industry will be using this roadmap to direct the actions that are necessary for Canada to develop its vast wind resources." [xliv] [#\_edn44] HC is a member of the Interdepartmental Wind Technology Road Map Committee [xlv] [#\_edn45] which was created to assist in the implementation of Canada's Wind TRM. [xlvi] [#\_edn46] One of the "key action items" detailed in the Wind TRM calls for Government and Industry collaboration to develop and maintain government documents that address concerns raised about wind energy projects including that of noise, infrasound and other. [xlvii] [#\_edn47]

Some jurisdictions are trying to take action to protect their residents. For example, several municipalities in Ontario are trying to establish bylaws that protect from IWT noise. In Wisconsin, on October 14, 2014 the Brown County Board of Health unanimously approved a motion to declare the IWTs at a local project a Human Health Hazard. [xlviii] [#\_edn48]

It would appear HC's research effort is too little too late. A non-trivial percentage of Canadians continue to experience adverse health effects. HC now has additional scientific evidence of the "conclusively demonstrated" effects from exposure to IWT noise. It is time for HC to take action to help Canadians maintain and improve their health.

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# 19 thoughts on "Health Canada and Wind Turbines: Too little too late?"



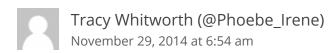
# B Ashbee

November 28, 2014 at 3:11 pm

It was heartbreaking to a lot of the people suffering when the Health Canada summary was posted implying there was no connection between wind turbine projects and impaired health. The impact and upset of these projects have been vigorously expressed by those living in rural turbine zone communities for years. Independent research and testimony from those impacted are widespread in Canada and internationally.

The second most heartbreaking thing is that many of us have lost all faith and trust in both levels of government by authorities who appear to have deemed our lives as not worthy of the safety and humanity that other residents receive.

I cannot understand it.



What the Green Energy Act has done to the people of Ontario is criminal.

What happened to "due diligence"? Our Constitution has as much as been thrown out the window.

Shame on our government. Shame on the people of Ontario. The disrespect shown for those who went to war for our country is unacceptable.

It's time Ontarians shed the cloak of ignorance and entitlement and developed a respectable set of values. Nothing is for free. In the end, we all pay. Those responsible and associated with this act of criminal negligence will be held accountable. The truth will prevail.

Tracy Whitworth



After the first round of industrial wind turbines and the accompanying transformer stations went up in rural Ontario, a group of us asked to hear from people (in proximity to the installations) who thought they might be experiencing difficulty. All we had to do was ask. I received a stream of written reports and phone calls weekly, sometimes daily, from people who were suffering terribly with the advent of turbines starting up nearby. Some had been marginalized for speaking up, some still struggled to believe it could be happening to them; that government agencies surely would not have left them in this position. Some sought relief by leaving beloved homes in order to regain health. Some are trapped (often due to financial constraints) with health continuing to fail.

Many who find out a turbine project is slated nearby become aware of the health problems but tell themselves they will be fine because they are strong and healthy.

We will see the start up of several more turbines this December (2014) and I expect there will be another rash of people who find themselves in homes too toxic to live in anymore.

Health Canada could easily have done before and after sampling in any number of areas where turbines are being built and still could since more turbines continue to be approved for erection in this province. It appears that the energy policy overrides the safety and well being of rural residents in this matter. I think that is reflected in statements from Health Canada about industrial wind turbines that are not far from product promotion



I am sorry to say, that the Government has committed a great injustice to the citizens suffering from the effects of the wind turbines far too close to their homes. Had we conducted a study on cigarettes, the same way their study was done on wind turbines, we would have come up with the same erroneous conclusion. No DIRECT health effects.

I have been fighting the Gov't for over 2 years, to acknowledge the harm they will cause my special needs son, if they allow huge industrial wind turbines to be erected surrounding our home, the closest at 550m from our home. They simply ignore the facts, and after passing me on from Ministry to Ministry, they stop responding, altogether. Completely negligent, on their part.

My son suffers from severe sensory processing issues. The noise emitted from the wind turbines would be very harmful to my son, and all others like him. That is a fact that has already been proven, but, instead of dealing with the situation, they choose to ignore the truth! The government and the wind industry, know that what they are doing is very harmful to a non-trivial percentage of the population. The tragedy is, that in order to avoid accountability, they ignore the issues entirely. That is disgraceful. I will never stop fighting this injustice, on behalf of my son, and all the others suffering needlessly at the hands of our own governments.

People pushing these wind turbines are using the Health Canada Study as a way to justify their irresponsible handling of this situation. This needs to be stopped.....immediately!

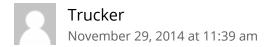


I am greatly disappointed in the results of the Health Canada Study, and the way the entire study was handled. It was obviously conducted in a way, that it would benefit the wind industry, and not protect the innocent people suffering from these irresponsibly placed machines. Had we conducted the cigarette studies, the same way they conducted the wind turbine studies, the results would have been the same, NO direct effects, from cigarettes. It is irresponsible for Health Canada to release a study that is being used by the people pushing these wind turbines, to continue to abuse rural residents, with impunity.

I know for a fact, that the noise from wind turbines will harm my son, and others like him. His specialist has written a letter, to support this claim. Joey has severe sensory processing issues, which means that his brain processes noise, much differently, than a "normal" brain. They plan to surround our home with 624 ft, 3MW industrial wind turbines, the largest ever installed in North America. The closest one would be 550m northwest of the center of our home. If they do this, they will cause great harm to my son, who is in his first year of high school, and needs to be able to concentrate, and sleep, in order to succeed.

Health Canada, and the Federal Government need to pull back their study, and retract their opinions,

until PROPER, conclusive studies, can be done. A moratorium on these turbines should be enacted, until such a time, as they are able to do this. People everywhere are suffering. It is NOT responsible for our government, to continue to allow this.



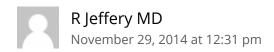
The over 30 Environmental Review Tribunals are deciding on the health and safety of people living near the wind turbine developments The Ministry of the Environment have admitted they do not have any medical people on staff when they approve an Industrial Wind Turbine project close to people's homes. Generally engineers are making health decisions in the absence of Medical Associations Assoc involvement when Industrial Wind Projects receive their Renewable Energy Approval. There is no medical evidence that provided by Wind Turbine Developers as to the Health or safety effects of Industrial Wind Turbines

In addition Dr. Arlene King former Chief Medical Officer of Health for Ontario in her 2010 report said there were data gaps in the effects of Industrial Wind Turbine. She failed on behalf of the Ontario Government and the residents to protect their health and safety. She appealed her Superior Court order refusing to talk about her report further putting the report into question even though Wind Turbine Developers are still using it to say no adverse health effects.

In addition there are very few doctors trained to diagnose the indirect effects of turbines on their patients. However, a few doctors have advised their patients to leave their homes to get relief from the adverse affects on their health.

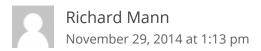
There is enough evidence of adverse health effects of noise, low frequency sound and infra-sound causing adverse health effects over many years. I suggest it is up to the Medical Profession to publicize and set up a regime for diagnosis of Wind Turbine Syndrome or what ever the illness is called

The courts in Ontario have identified the lack of a Medical Diagnosis in recent Court Cases as an issue.



Krogh and McMurtry shed some helpful background light on some issues I have had with the recent

Health Canada Study. My main concern has been that the study appears to take limited data which itself is overstated then overextended to reach conclusions that are not supported. This would suggest significant bias. The suspicion of bias is further supported by the way the study results were presented to and by the media. The catchy headline used by most of the media outlets was that the study showed that there were no health effects of IWT's where the exact opposite was closer to the truth. I despair for the truth when it is left to the government and the media.



I first became aware of health issues after reading Carmen Krogh's paper in Canadian Family Physician in May 2013 [1].

I was surprised to find no specifications or guidelines for infra sound (low frequency noise and vibration) from Industrial Wind Turbines. Further, acoustics experts were reporting infra sound, but their concerns were being dismissed by the Ontario Ministry of the Environment and Wind energy proponents. As recently as March 2014, Public Health Ontario dismissed the impacts of infra sound, yet failed to provide any measurements to justify this conclusion [2]. This is truly shocking.

Since August 2013 I have been working with colleagues (Physics, University of Waterloo) to record and measure infra sound from wind turbines. Infrasound measurement is challenging because wind turbines do not operate at a fixed speed. Further, we need a way to isolate a single wind turbine from other turbines and from (random) wind noise. Our method uses an optical telescope fitted with a photodetector to obtain reference blade passage periods, recording these together with the microphone infrasound signal. Using signal processing we are able to isolate the infra sound from a single turbine. We have successfully measured infra sound from several different turbines in Ontario. We have just submitted our work for publication and a draft is available online [3].

I join the many scientists and experts worldwide asking for a thorough investigation of wind turbine noise before more wind turbines are erected in Ontario. In particular, I am looking to Health Canada for guidance on acceptable levels of infra sound exposure in our communities and workplaces.

Richard Mann Associate Professor (Computer Science) University of Waterloo.

[1] Roy D. Jeffery, Carmen Krogh, Brett Horner. "Adverse health effects of industrial wind turbines",

Canadian Family Physican. May 2013 vol. 59 no. 5 473-475

[2] OEH Seminar: "Don't tell me about the science!" Wind turbines and human health: An emotional topic. Dr Loren Knopper. Thursday, March 20, 2014 08:00 am to 09:00 am http://www.publichealthontario.ca/en/LearningAndDevelopment/Events/Pages/OEH\_Seminar\_Wind\_Turbines\_Human\_Health.aspx

[3] J. Vanderkooy and R. Mann. "Measuring Wind Turbine Coherent Infrasound". Submitted to: Wind Turbine Noise 2015, INCE/EUROPE, Monday 20th April to Thursday 23rd April 2015. Glasgow, Scotland. A draft is available at: https://uwaterloo.ca/audio-research-group/sites/ca.audio-research-group/files/uploads/files/coherent\_wt\_measurement\_0.pdf.



Several plausible mechanisms of action for infra sound from Industrial Wind Turbines have been proposed, including inner ear fluid mechanics, motion sickness and vestibular systems, and vibroacoustic disease.

A.N. Salt and T.E. Hullar, "Responses of the ear to low frequency sounds, infrasound and wind turbines", Hearing Research 2010, Sept 1; 268(1-2):p.12-21.

Paul D. Schomer, John Erdreich, James Boyle, Pranav Pamidighantam. "A proposed theory to explain some adverse physiological effects of the infrasonic emissions at some wind farm sites". International Conference on Wind Turbine Noise. Denver. August 2013.

Castelo Branco N, Alves-Pereira M. Vibroacoustic disease. Noise and Health. (6):3-20. 2004.

Added 9th December 2014:

Here is one final reference.

"Symptoms, Diseases and Aberrant Behaviours Attributed to Wind Turbine Exposure"

Simon Chapman AO PhD FASSA Professor of Public Health School of Public Health University of Sydney 2013 Australian Skeptic of the Year

Link: http://ses.library.usyd.edu.au/handle/2123/10501

The paper contains 236 correspondences received, sorted by health condition.



"Too little too late" is a phrase that resonates "very well" with my unfortunate ears. Had the authorities heeded to the early warnings, the impacts of low frequency noise would have been investigated, researched and identified. In particular the scope of harm could have been comprehended better: the problems of low frequency noise do not stop at one or two kilometres.

I had my life turned upside-down three years ago when a wind development went up down the horizon. Individuals like myself do not find wind turbines visually offensive because they do not form part of my immediate landscape. Unlike natural sources of low frequency noise, the ability of wind turbines to emit offensive low frequency noise at great distance is a something I have discussed here: https://www.wind-watch.org/documents/wind-turbines-and-low-frequency-noise-implications-for-human-health/

As a consequence I no longer permanently reside at my once peaceful and beautiful rural property. I avoid spending time in regions with significant numbers of wind turbines. I also now find myself sensitised to other low frequency noise sources which was not the case before the local wind farm went up. I was however fortunate to be in circumstances that allowed me to identify that my rumbling "tinnitus" and highly uncomfortable vibrating head sensations were related to low frequency noise and not some mysterious inexplicable condition.



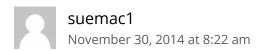
Wind turbines create negative reactions, disrupt the comfort of people's lifestyle and generate claims of noise nuisance and poor health on an international scale.

There is sufficient evidence that wind turbines harm human health. As demonstrated in the article by

Krogh and McMurtry, even wind industry funded literature reviews certainly do acknowledge that there is a problem.

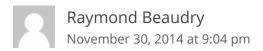
The Health Canada document takes a different course by refining the matter of wind turbines and health to a precise legal argument: are wind turbines directly (as opposed to indirectly) responsible for harming human health. The precision of that argument, however, misses the real target: the real goal and purpose of a public health agency is to protect public health, not an industry.

There is no shortage of testimony against this industry with reference to harm to human health, and that testimony is consistent, particularly to low frequency noise intrusion that turns a once peaceful living environment into a sonically unhealthy 24 hour industrial zone of no precedent.



I work directly beside the first Industrial Wind Farm in Ontario, Huron Wind. It was was commissioned in November 2002. When I first saw the 5 massive turbines in operation, I thought they looked rather graceful. Within a short period of time, I started developing migraine headaches, nausea, dizziness and visual disturbances ... not making any initial connection to the IWTs. This only happened to me during the daylight hours and mostly through the week and not on the weekends. Driving through the midst of the turbines at night with their alternately blinking red lights causes me to become a bit disoriented as I drive – I find myself drifting L and R as my body wants to respond to the blinking lights all while I try to ignore them and only look at the centre lane ahead of me – this stops when I am beyond their range and back out in the clear – it also happens during the day time because of the movement of the blades - my brain cannot filter out what my eyes are seeing. It was only after seeing several health care providers and while trying to pinpoint the changes in my health, as well as declining quality of ability to sleep that things seemed to narrow in the coincidence of the Industrial Wind Farm and what I experienced. I wasn't entirely sure this was the case. I ended up taking another position at work for 3 years that took me at least 5 km away from the ITWs and the 110 others that sprouted up in the area over. I was almost entirely symptom free from the symptoms (only 2 episodes in 3 years, instead of 2 or more a week) while I worked in the other location. Almost two years ago, I returned to my former work location and had to move my work station location away from the windows (had to move the visual aspect of the IWTs from my line and peripheral vision) to an area where I couldn't see them. I still suffer the symptoms from time-to-time, but certainly not with the frequency I did prior to moving away from the windows – the blinds on the windows weren't much help, either. It seems a shame that it took 12 years for me to get all of this figured out that the common denominator is the IWT. Life before and after them at work is very different for me. Thank goodness I don't have to live with this 24-7 at home, but

am also very afraid of the effects the 3 MW turbine that is being constructed as I write this and going up within 550m of my house will bring. The Liberal government through its entirely undemocratic Green Energy Act took away my right to work and live safely in this province and I really did try to embrace and give this form of energy a chance, but I feel I have been duped and damaged by a government that doesn't care and is doing everything it can to save face. Worse yet, my entire former Township of Kincardine is due for another 100+ of these turbines to go up ... there is nowhere safe for me to go!



These projects as witnessed here on Manitoulin Island by the 20,000 acre, 24 turbine, Northland Power MMWLP (Mcleans Mountain Wind Limited Partnership) placed in key habitat divide friends, families, First Nation and Non First Nation Communities.

Fighting the wind industry and government propoganda in support of the push for these projects without the peer reviewed evidence for safe setbacks in the environment has been an uphill battle for those that are impacted at their homes and properties.

The government has created an illusion that the public has a say in these projects but the opposite is true as legislation is rewritten to override any opposition. Stress and feelings of helplessness occur before the construction even begins.

Once projects are up and running the community divided does not end or heal.

These projects and the implementation process are not in the interest of the greater good.

Even noise complaints filed have no resolution as industry influenced government legislation for noise complaints does not address noise complaint concerns through the noise protocol document.

Below is an example.

Calling the after hours Spills Action Centre (1-800-268-6060) on our 43rd noise complaint from the wind turbines next to our home on Sat. Nov 29th resulted in some interesting information.

The noise complaint included peaking sound modulation, heavy wind shear sounding like low flying jet aircraft noise, with an annoyance of 7 out of 10.I reported it was the first sound one hears when going outside and certainly noticeable.

Mentioned the blades are in the clouds and a humidity of about 100% though the approval was given with the noise models done at 73% which is totally inadequate. As long as they are within their modelling it seems no followup will occur.

Being asked how far the nearest turbine was from our home, which reply was about 8 or 900 meteres though we were never informed by the wind industry. I did not mention the other 3 turbines within two kilometers.

The online map the noise study has, has our receptor location number hidden to which I relayed to the MOE. The distance is unknown to ourselves.

The spills rep informed me the local district office addresses the complaints. I asked why Sudbury isn't doing more noise compliance. They have been here twice and not back since. When they came to our home the weather was calm though we could hear the nacelles turning. They also average down their measurements. The condtions were nothing similar to when the complaints was filed.

I informed the spills rep that we were informed the equipment isn't in Northern Ontario to measure compliance under the noise protocol. Also the noise specialist and the local rep could not get their schedules together to do more studies.

This question was asked to the MOE spills rep. Why they are allowing a spill to continue to occur? Clarification was sought as he thought there was another spill.

My reply was a spill, this wind turbine noise spill was reported into the environment and the MOE is allowing it to continue.

#### NOTE:

The MOE reply was: This reported spill is not a pollutant but is a contaminant that is allowed as per the legislation.

My request for their wind turbine noise complaint process was denied as well as the legislation reference.

#### Also;

As a note I wish to add that the MOE will not address any complaints to our vacant Managed Forest Woodlot where the turbine 17 was one of three in this project that were given less than recommended provincial setbacks from fencelines with no consultation.

The proponent, though asked through the MOE, will not identify the safe limit on our woodlot for future building outside the 550 m danger zone. Their reply was it would set a precedant.

My next recourse would be to ask the MOE to physically identify the safe zone where one can build which I am sure will be the same result.

The MOE states there is no restriction of a non participating resident to build within a 550 m or 40 db limit danger zone of a turbine. One measurement may be greater than the other.

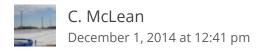
The MOE also states a resident is allowed to build within the danger setback zone after the turbines are up though they do not issue the build permits.

The township states there is no legislation that does not restrict them from issueing a build permit in that physically unidentified danger zone. Then who would want to.

The safe zone should be identified by the approving authority in my view.

Either way, expropriation has taken place. Injurious affection.

The peer reviewed studies of a safe setbacks should never be allowed to cross fencelines or properties of the lands being leased.



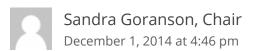
My views on the HC report from the perspective of a resident who participated in the study:

- -The study wasn't designed to find causal links, this would have required extensive monitoring of more than BP and hair cortisol levels while turbines are running.
- -The study was criticized for not addressing this but HC went ahead anyway.
- -I did participate in the study and found that many of the questions did not relate to the quality of your health BEFORE turbines arrived.... many of the questions related to your symptoms with the last month.
- -The study took place during the summer months which I generally find to have fewer problems with noise.
- -The important point was that a Statistically significant exposure-response relationships was found between increasing WTN [Wind Turbine Noise] levels and the prevalence of reporting high annoyance.

- -noise monitoring took place separately from when the resident was being monitored for sleep quality (during the time one is wearing a wrist monitor supplied in the study)
- -the study did establish "annoyance" and this kind of annoyance is not the same kind where it's a problem that one can get over
- -The study seems to have an underlying purpose of wanting to establish that it's in people's heads and the problem lies with residents if they have High BP and sleep disturbances
- -they did not shut off turbines for a month and allow people to regain their health and then take measurements.
- -Many of the questions asked related to quality of life (do you feel depressed, are you happy with your home life etc) In addition many of these same questions tried to link the noise problem with noises coming from other sources like ag. equipment etc.
- I found it offensive that questions asking about body image where included. These kinds of questions felt like they were trying to get into my head
- the study seems to have a purpose of putting a cap on residents' complaints by trivializing ones symptoms.
- I believe the majority of people are always second guessing their symptoms but the question remains why is this happening now
- -what many forget is that many who are living with turbines, originally wanted to see this kind of development and are now being labelled as NIMBY's which is so wrong
- It appears from my own collection of reports worldwide on <a href="http://www.illwind.org">http://www.illwind.org</a> the majority are reporting sleep deprivation
- we need to remember that annoyance is linked to health and the study did make that link
- I am not surprised by the HC report because it falls in line exactly with my experiences of dealing with wind energy development for the past 8 years
- My experience has been that when dealing with the wind turbine issue, the wind proponents love to manipulate the message to the public and point fingers for eg. I'm often told that if I don't want turbines than maybe I would like to have coal or a nuclear plant in my backyard. This point is irrelevant, because wind can never replace the need for coal or nuclear because there is substantial independent evidence, that show how wind energy is so inefficient, so unreliable, so intermittent and so expensive. They cannot replace the need for our conventional forms of energy, and wind provides minimal return on emissions @ very high cost for the investment.
- -The message is always so manipulated from the wind industry that people get sucked into the supposed positive effects
- -It appears to me from this report that my gov't is not interested in protecting my health, or the health of my neighbours, and family. The language of the report leaves the public to conclude that the symptoms are the result of the residents own fears & anxieties rather than fully investigating why there is this faction of people who are hurting
- -The only reason I see why this is happening is that there is some kind of collusion going on where some are making a lots of money or are so heavily invested into the promotion of "renewable" energy,

they cannot backtrack their actions; for fear of reprisals and the requirement for substantial compensations to those who are affected.

-In my everyday conversations with those who are living with turbines, it is clear to me that many have given up hope of ever finding a fair answer to their situation, therefore are instead finding methods to cope by refusing to speak out which allows them to avoid the discomfort of reporting to officials who treat them as having psychosomatic problems.



Impacts of low frequency noise (LFN) on animals have been clinically researched for decades. Results indicate that long term exposure to LFN causes many physical and biological responses in a variety of species. i,ii,iii,iv

Current research and anecdotal reports indicate that the noise emissions from industrial wind turbines are more likely than not leading to birth defects, stillbirths and multiple miscarriages in animals and humans. v.vi

For those concerned about protecting the natural environment from the emissions of wind turbines many have turned to experts such as the World Wildlife Fund and the Audubon Society which strongly urges that wind turbines are not permitted in protected wildlife areas or in Important Bird Area migration corridors.vii, viii

In Ontario Canada a permit to kill harm and harass endangered Blanding's turtles with the construction and operation of a wind project was revoked by the government of Ontario Environmental Review Tribunal which acknowledged the "serious and irreversible harm" this project would cause. ix

Sadly the Environment Ministry is now challenging in court to overturn this wise decision by its own tribunal in support of the wind company and the wind industry lobby against environmental groups.

The chronic exposure of any living being to the severe and unnatural pulsing emissions radiating from wind turbines has been demonstrated clinically, anecdotally and scientifically to be harmful both physiologically and biologically.x The harm is so severe in some cases that people are driven from their homes while animals are reported to flee up to a 10 km radius of industrial scale turbines.

Such results are critical enough to harm wildlife communities permanently by destroying habitat and fragile ecosystems. The size of the newest wind turbines is up to 600ft in height and an enormous blade

sweep. With this in mind one can only speculate how much more risk will be imposed on all living species too close and too exposed to these emissions.

Sandra Goranson

Chair

Prince Edward County South Shore Conservancy

i http://archive.defra.gov.uk/environment/quality/noise/research/lowfrequency/documents/lowfreqnoise.pdf

ii http://www.ncbi.nlm.nih.gov/pubmed/15190429

iii http://apps.szu.cz/svi/cejph/archiv/2006-1-09-full.pdf

iv http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4158595/

v DOI 10.2478/pjvs-2013-0096

vi http://wcfn.org/2014/07/10/denmark-wind-turbines-disrupt-menstruation/

vii http://policy.audubon.org/wind-power-overview-0

viii http://bst.sagepub.com/content/31/5/377.refs

ix http://www.ert.gov.on.ca/english/decisions/index.htm

x http://www.batsandwind.org/pdf/baerwald%20et%20al%20current%20biology%202008.pdf



http://www.scienceadvice.ca/en/assessments/in-progress/wind-turbines.aspx

"Wind Turbine Noise and Human Health

The Minister of Health, on behalf of Health Canada, has asked the Council of Canadian Academies to assess the evidence as it pertains to a causal association between wind turbine noise and the

development of adverse human health effects."

The Minister of Health has asked the CCA to assess the evidence. I do have a concern about possible conflict of interest noting that Mr. Howe of HGC is part of the panel. Mr. Howe is a longstanding member of the Canadian Wind Energy Association, a prominent registered lobby group in favour of wind energy and has also done much work for and paid for by large wind companies.

Mr. Howe and I know each other, as he attended our house and the homes many other people that I have met who are/were having similar problems.

If this is considered an independent review then I think that at least should be stated in his bio.

# A thought:

Were the Health Canada team to reach out to those affected, they would bring a wealth of knowledge about the impacts and consequences of flawed regulations and process gaps that this policy holds. With no offense intended, the people who have lived through it and with it because of the imposition of noise, vibration and infrasound are the true "experts".

Along with these experts, are independent researchers who have researched and conducted studies focused on wind energy impacts for the last five an more years. Similar to the victim residents, they too are being left out of the discussion. This valuable information and input is being left untapped.

After personally having lived with the noise – the loud, cyclical nature of the noise, the vibration that penetrated our home and the infrasound that made us sick and drove us from our home (we are just one of many families) I find it astonishing that Health Canada, the Ministers of Health Canada and Ontario, the Premier of Ontario and the Prime Minister are not interested in talking with the people affected who have been reaching out for many years. The thousands of complaints lodged in Ontario alone have never been reviewed and yet project approvals continue. This should be of concern to all Canadians.

Many people that have already been affected have been asking to participate to share our experience with the hopes of saving others the same fate.

It is pretty frustrating that we have no meaningful voice.

Rest assured, the emissions from wind turbines show no bias when it comes to affecting the health of living beings in their path including the most vulnerable – those already dealing with pre-turbine health challenges, seniors, children, our pets and livestock.

The Health Canada Wind Turbine Noise and Health Study results imply that the 33 industrial wind turbines erected within a 3 km radius of our home did not really negatively affect the lives of the people in my family. The headaches, sleeplessness, nausea etc. that started after the turbines were turned on and that disappeared when we were away from the turbines are proof to us that the audible noise, low frequency noise and infrasound ruined our lives for 3 years. After 3 years of asking for, of begging for help, our only option was to leave our home in the country. Once the turbines started whirling, our home in the quiet country was transformed to a house, a building in a noisy industrial area where we could no longer live in the healthy environment that once was our home. We left that beautiful quiet country house previously surrounded by soothing nature sounds. The countryside was transformed to a factory, an industrial wasteland of noisy, sickening industrial wind turbines.

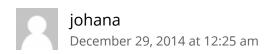
My mother, in her 80's, lived with us and after about 18 months had to move away to live by herself in a one – bedroom apartment. In her presence, we were very careful not to discuss the problems caused by the turbines but one morning she told us that she was having trouble sleeping and that she could not figure out why her bed was vibrating. She thought that there were earthquakes in the area. As a family, we decided that it was best for her to move away. Her bed in her apartment does not vibrate and she sleeps well.

When the turbines were turned on and our problems began, I was confident that I simply needed to contact the authorities and the glitches with the turbines would be fixed. I was so wrong! After over 400 complaints via telephone, email and Canada Post, to various Provincial Ministers, to the Spills Action Centre, to various Federal Ministers, to the Ontario Premier, to the Federal Premier to the MOE, to the Federal and Provincial Health Ministers and to the turbine corporation...there was no real help. By chance, I saw Minister of Health Leona Aglukkaq at the Yellowknife Airport in July 2011. I approached her and was hopeful that if she could see that there are real people like myself living in Ontario who are suffering because of the Industrial Wind Turbines, that she would surely provide help or at least advice of what to do to make it so that we could once again live in a healthy environment called home. I was told to contact her office and when I explained that her office had been contacted numerous times she visibly became uncomfortable and said that she would not discuss the matter with me. Here are snippets of a follow up letter I sent to her afterwards: "I am not sure if you remember but I am the person who met you at the Yellowknife Airport on July 9, 2011. After introducing myself to you, I brought up the topic of Industrial Wind turbines and it was clear that you did not wish to discuss the subject... I have not had success in getting answers to my questions nor in getting solutions to solve my health concerns and problems from the Ontario government nor from the Federal Government... This is a very serious issue for many Ontarians and Canadians and one that needs to be addressed now to protect the health of those who have been forced to live near these turbines...I thought that if you could look into my eyes, you could see that there are real people and families that are negatively affected by turbines. My family is as important to me as yours is to you... Please take the time to read this email carefully and please give it your attention as soon as you can. People are suffering now. Also, please take the time to respond to my request. It would be wonderful if you could find the time to meet with me for a few minutes. I could meet with you anywhere or anytime at your convenience. I have read your biography online and you have done such wonderful things to help protect human beings in the past, please take the time to protect human beings from the negative health effects of Industrial Wind Turbines..." On July 15, 2011 someone in her office sent this: 'Confimation of e-mail received." The Health Canada Wind Turbine Noise and Health Study is not helping those in need. In my opinion, the people making the decisions in this study are suggesting that this did not really happen to my family and me and that it is not happening to others, contrary to the inconvenient truths that have been presented to them, and to the list I mentioned above, within the last several years. Perhaps they are suggesting that it is ok to have this happen to innocent people. It is too late for my family and me and now it seems that the lives of those still suffering are not worth saving.

It is my understanding that The Council of Canadians should be independent but in my opinion, there is perceived conflict, as Brian Howe is a member. He is an acoustician who is a member of CanWEA, and has worked for many years for the wind industry. Why is there a peer review after the public release of the study instead of before? As I see it, industry and corporations are afforded more rights than individuals. Why must Industrial Wind Turbines continue to harm so many? They are truly ruining the lives of so many.



There is something very wrong with an energy policy that allows installation of power generation complexes which have resulted in consistent reports of adverse health complaints. Symptoms which can be so severe, that the only remedy is to leave the environs of the wind power installation. Protection and prevention of harm to health has been ignored by all levels of responsible governance. Treatment to evoke respite of intolerable symptoms has resulted in the advice given to avoid exposure. Avoidance as a remedy has meant the abandonment of farms and or homes. It is time for action to protect against such a serious harm to health.



In 1999, Prof. J. McMurtry described "The Cancer Stage of Capitalism" where disease agents in the form of tabloid columnists, corporate think tanks, bankers, financed politicians, corporate media, speculators, stock market apparatchiks, speculators, policy servants, corporate board members, economists: the collaborating humans, who are the mediating agents of invading carcinogens which represent the Global Corporate Market System/Programme.

Comparing the disease state in individuals to that in the civic body, governments were described as not functioning in their mandated role of protectors of human health and the 4th estate [be it journals, radio, newspapers, TV, film...] as no longer true to its original purpose to tell the whole truth and nothing but the truth.

Once people understood that governments were no longer by/of/for the people and that the 4th estate had been overtaken by the Global Corporate Market System/Programme, searching for ways to reverse the process, Eleanor Roosevelt's dictum "The PRICE of FREEDOM is ETERNAL VIGILANCE" CAME TO MIND.

So, our life preserving purpose is to be or [our choice] not to be one of ETERNAL VIGILANCE in sensing, recognizing and RESPONDING to pathogenic intrusion and growth of carcinogens in ouir civic body.

Our challenge is to EXPOSE further destruction of our democratic governments caused by the Global Corporate Market System/Programme, the Industrial Wind Turbine Corporations and Wind Energy Associations which are enabling serious harm to our health and environment.

Our democratic rights are being abrogated by a part of our judicial system, the Environmental Review Tribunals whose decisions:

- \* don't treat citizens as equals to corporate agents
- \* don't probe for truth and accuracy or possible deletions in presented evidence
- \* don't give those most impacted by judicial decisions equal, fair and just representation
- \* and are not in accord with principles of fundamental justice, moral and ethical values.

Our Legal, Medical and Engineering Professionals are hereby challenged to live up to their responsibilities when they vowed to devote themselves to the cause of preserving human health and the environment.

And the challenge to the 4th estate is that it keeps our civil society up to date and informed of the actions of the above professionals.