

# **Open Submission: Industrial Wind Turbines can Harm Humans**

**Health and Social-economic impacts in Ontario**

*Health Canada Wind Turbine Noise and Health Study*

*Health Impacts and Exposure to Wind Turbine Noise:  
Research Design and Noise Exposure Assessment*

**Submitted by Carmen Krogh, BScPharm**

**November 26, 2012**

Author's Note: This submission is being made on request and on behalf of Ms Barbara Kelly from Ontario. Documentation regarding this submission has been verified by Ms Kelly.

CONFIDENTIAL

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*Health Impacts and Exposure to Wind Turbine Noise: Research  
Design and Noise Exposure Assessment*

**Submitted by Carmen Krogh, BScPharm**

**November 26, 2012**

To:

The Honourable Leona Aglukkaq  
Minister of Health  
Health Canada  
[minister\\_ministre@hc-sc.gc.ca](mailto:minister_ministre@hc-sc.gc.ca)

Copy:

The Right Honourable Stephen Harper  
Prime Minister of Canada  
[pm@pm.gc.ca](mailto:pm@pm.gc.ca)

David S. Michaud, PhD  
Principal Investigator  
[david.michaud@hc-sc.gc.ca](mailto:david.michaud@hc-sc.gc.ca)

November 26, 2012

Dear Minister Aglukkaq,

Re: Health Canada Wind Turbine Noise and Health Study

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Open Submission: Industrial Wind Turbines can Harm Humans  
Health and Social-economic impacts in Ontario  
Submitted by Carmen Krogh, BScPharm  
November 26, 2012  
Any errors or omissions are unintended

## **1 Background**

This submission is being made on behalf of Ms Barbara Kelly from Ontario.

This submission relates to a project which is operational.

## **2 Purpose**

The purpose of this submission is to inform Health Canada, the study team and others about the health and socio-economic issues which have caused disruption to quality of life.

I have provided a copy of my comments to The Right Honourable Stephen Harper, Prime Minister of Canada, Dr. David Michaud, Principle Investigator, Health Canada.

This submission is intended to contribute to study design for the *Health Canada Wind Turbine Noise and Health Study* and to request an inquiry-investigation prior to finalizing the study design and to request that emergency funding be provided to relocate the family to restore their physical, mental and social well-being. Based on the elements of the Auditor General's Report, 2012, there may be an opportunity to obtain funding to take remedial action <sup>1</sup> regarding affected sites.

## **3 Disclaimer**

The contents of this submission should not be used to infer any bias for or against wind energy.

This submission is not to be associated with and/or used to characterize any individual and/or organization.

I have received no financial support for the research, authorship, and/or publication of this submission.

## **4 Introduction**

I am frequently in contact with those reporting the serious health and social-economic consequences that are occurring with the start-up of an industrial wind facility in a quiet rural area and in close proximity to residents.

I have made a number of submissions on behalf of Canadian families both confidential and public. As well, pre-turbine (facilities not yet operational) and post-turbine (facilities operational) submissions have been made in both instances (confidential and public).

This information is being provided at the request of Barbara Kelly.

The harm reported is in conflict with the World Health Organisation's definition of health:

"Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" <sup>2</sup>

Many jurisdictions, including the Canadian federal, provincial, and territorial governments and health officials have accepted WHO's definition of health (Health Canada, 2004, vol. 1, p. 1-1)." <sup>3</sup>

## 5 Particulars

Barbara Kelly reports

"I have two horses that are under the turbines, 24/7, they have had unknown ankle swelling. I moved them 5 miles up the road and it has subsided. I cannot say for sure but my one cat is also affected, she runs and jumps into mid air, has diarrhea, has lost weight, bites at herself and is just not the same. I pray for these turbines to stop and go away.

I live on the border of Grey County and Dufferin County. I am very sick. I basically don't have much memory of what I have done since January of 2012. I know one thing, I am very sick. I have been to 6 specialists, homeopath, naturopath, herbalists, emergency department, mental health, counsellors. They find nothing wrong with me when I am there but when i am at home, this is what I experience: I cannot fall asleep, when I do, I wake up 10 minutes later and this is constant all night. I have heart palpitations, increased pounding heart rate, when I do wake up which is usually 3 to 4 a.m. I absolutely cannot go back to sleep, my stomach is spinning, I cannot drink any milk products as the stomach spinning makes them curdle, and I vomit, I have constant shaking and vibrating in my centre core, mostly stomach. I have constant diarrhea, I have ringing in my ears, vertigo that makes me fall over, my feet are numb, I wretch, I have lost 70 lbs since January 2012. I cannot eat at home, I have to take digestive enzymes, my mind is clouded, memory is poor,

I am agitated, panicked, claustrophobic, depressed, and I feel that my life is over. I have rented a room away from the turbines. When I leave the turbine area about 2 hours later I feel normal, happy, excited. I just got back from the last doctor today and all she can say is, take sleeping pills, take tranquillizers, and take anti depressants, that will make you feel better!!!

Who do I contact to do something about this?

I cannot live in my own home.

Please help." <sup>4</sup>

A communication by the Landlord, Hydrogen One owned by D. Hacker reports

"I highly object to the power line that you intend to put just south of my property. I already have extreme noise pollution and sight pollution and vibration pollution on my property. It seems as though you intend to do what you intend to do no matter who you harm or who objects to you.

My tenants have had severe health issues since coming to live in one of my apartments on the property. One tenant has already left and the one remaining has not been able to work since 2 months after coming here.

She has had a 70 lb weight loss, extreme anxiety, extreme insomnia, tachycardia, palpitations, shaking, nausea, vomiting, vertigo, panic attacks, depression just to mention a few.

She has seen over 6 doctors and specialists that cannot find anything specific and treatable wrong except the symptoms

She refuses to look at any of the Wind Turbine Controversial web sites that describe the symptoms as she says she doesn't want to adopt any of the suggested affects of the Turbines.

She even says one of her two cats are affected with weight loss and strange behaviour.

I do not understand why you cannot stop the few turbines that line the streets of Corbetton where children, families and animals live. This is horrendous. I also do not

understand why you cannot run the High Voltage Line straight down from the origin along 5th line where it is mostly farmland and not people!!

I will be sending this letter to all authorities.

I have already sent the suggestion to Dufferin Wind and Dillon Consulting and to Transalta with respect to your purchasing this property.

I also do not understand how a foreign owned company, namely Chinese can come here, receive our grants, sell us the hydro and kill our citizens, affect our view, our life, our pleasure, our homes and our economy.

I certainly have not seen a reduction in my hydro bill, if anything it has gone up.

This High Voltage Line must be stopped and the additional Turbines must be stopped.

You mention that Farmowners Association have agreed with this. Who are these Farm Owners? Most of the homes, businesses in this area appear to be for rent and are owned by people of Middle Eastern Descent. I don't consider this to be "Local" Farm Owners as you portray it to be.

I am by no means, discriminating, not at all. I believe you are being extremely deceptive with this point you continue to make.

I do not believe the truth is being given to the residents, land owners, tenants, occupants, neighbours or any one involved. I object with every part of my being. " <sup>5</sup>

## **6 Role of New Experts**

The Krogh-Harrington October 31, 2012 submission to Health Canada discusses the role of New Experts: <sup>6</sup>

""Soundscaping, an acoustic discipline is scientifically established and is becoming standardized under ISO 12913 through the work of ISO TC43/SC1/WG54. Of interest is that the science of Soundscaping development stems from work initiated in the 1960s and subsequently acknowledged in 1977 by the Canadian researcher,

musician, and environmentalist, professor Raymond Murray Schafer from Simon Fraser University, British Columbia.<sup>7</sup>

Soundscaping combines physical and psycho-acoustical measurements with scientific evaluation of perceptual responses to environmental noise.<sup>8</sup> An ISO working group proposes to define Soundscaping as "perception of the acoustic environment as perceived by people in that place, in context".<sup>9</sup>

The concept of Soundscaping, has gained recognition.<sup>10, 11, 12, 13, 14</sup> It is considered to be different from noise control engineering.<sup>15</sup> Soundscaping considers the people living in the environment as local experts,<sup>16</sup> an essential component of the evaluation,<sup>17</sup> and that perception of the soundscape " can provide comfort, tranquility, and needed information to the person concerned or may be a source of annoyance." <sup>18</sup>

With respect to very low frequency noise which may not be audible, humans are being considered as "objective measuring instruments (New Experts), whose reports and descriptions must be taken seriously and quantified by technical measurements." <sup>19</sup>

In a recent conference paper, presented to the Acoustical Society of America regarding very low frequency noise measurement, Bray (2012) states:

"A central tenet of the Soundscape concept is that humans immersed in sonic environments are objective measuring instruments (New Experts), whose reports and descriptions must be taken seriously and quantified by technical measurements.

The Soundscape concept centering on human responses, New Experts, is as important and applicable to responses to effects from sound as it is to responses to directly audible sound. In a wider sense, this is a new sound quality and psychoacoustic issue." <sup>20</sup>

Bray (2012) elaborates:

"Soundscaping integrates two relationships of sound and people: that people are the ultimate analysts or data sources about their responses to sound because it is they who are immersed in it or make it, and that sounds

(receptions by people) are always part of human contexts; panoramas involving other senses, the environments in which people live or work, and the people's cognitive as well as sensory circumstances.

Sounds must be "taken out from under the microphone" where they have historically been studied in isolation, and put into the "big and anthropocentric sound field" – the soundscape.

At present a growing number of people are reporting sleep deprivation, unease and even illness which they most often ascribe to low frequency sound either near the hearing threshold or, more frequently, sub audible. Such reports are most frequent in rural or quiet suburban areas following the installation of large wind turbines, a new sound source without historic acoustic reference. " <sup>21</sup>

Ambrose et al (2012) state:

"The best acoustic analyzer for determining human response is the human listening. This research shows it is not appropriate to use unattended sound measurement instruments." <sup>22</sup>

Krogh et al reports on human perception to noise:

"Reviewed literature, case reports, freedom of information documents and expert testimony are presented which support the conclusion sound that is perceived and considered "unwanted" can result in serious negative effects.

Perception can be defined as: "... awareness of one's environment through physical sensation...". Human perception of sound can result in a number of responses which can be positive (music), negative (noise) or neutral. Presence of sound does not necessarily signify the presence of noise. "Physically, there is no distinction between sound and noise. Sound is a sensory perception and the complex pattern of sound waves is labeled noise, music, speech etc. Noise is thus defined as unwanted sound." Sound meters can assess sound; however, humans assess "noise". Sound becomes a risk to human health when it is considered to be noise." " <sup>23</sup>



## 7 Closing statements <sup>24</sup>

A Canada-wide Wind Vigilance monitoring and long term surveillance systems are lacking.

To date, the voices of those adversely affected by operating and proposed wind turbine facilities in rural Canada have not been heard. An inquiry to investigate wind turbines and the health and social-economic issues would provide the opportunity to obtain first hand knowledge from the "New Experts" who are currently exposed; who have been exposed in the past; or will be exposed in the future; to wind energy facilities.

This submission on behalf of Barbara Kelly is an example of the urgent requirement to consult with the New Experts prior to finalizing the Health Canada study design.

Research indicates New Experts i.e. humans, "are objective measuring instruments...".

As the result of the anticipated proliferation in the future <sup>25</sup> of industrial wind turbine facilities in Canada, it is expected more Canadians will be at risk of harm.

Indications are that more than 12 wind energy projects in Ontario are supported with ecoENERGY contracts from NRCan. Indications are EcoENERGY funding has been provided in other provinces. The lack of disclosure by Health Canada of this information is of concern. An issue regarding the Health Canada study design includes perceived conflict of interest.

The Report of the Commissioner of the Environment and Sustainable Development to the House of Commons 2012 states that regarding federally funded initiatives:

"Some of the thousands of contaminated sites are a testament to poor planning, the failure of initial assessments to anticipate and avoid future environmental and human health problems, and a lack of ongoing mitigation to lower the environmental risks during operations." <sup>26</sup>

This submission and those made on behalf of other families that were provided in confidence to Health Canada are examples of an urgent requirement to convene an inquiry-investigation and to assist resolving the issues reported to Health Canada.

Other jurisdictions have conducted a public inquiry-investigation to better understand the health and socio-economic impact of wind energy development. <sup>27 28 29 30</sup>

In addition to the advantages of a public inquiry-investigation described in the Krogh and Harrington submissions of September 5, 2012 and October 31, 2012, "New Expert" testimony would provide expert advice regarding health, social well-being and social-economic impacts and would assist with the study design.

Until guidelines are established that protect human health and social-economic viability, no further development of wind energy facilities should occur and existing sites reporting health issues should be resolved to the satisfaction of the New Experts.

Action by Health Canada would support its "Mission and Vision":

"Health Canada is the federal department responsible for helping the people of Canada maintain and improve their health.

Health Canada is committed to improving the lives of all of Canada's people and to making this country's population among the healthiest in the world as measured by longevity, lifestyle and effective use of the public health care system." <sup>31</sup>

And Health Canada's "Objectives":

"By working with others in a manner that fosters the trust of Canadians, Health Canada strives to:

- Prevent and reduce risks to individual health and the overall environment;
- Promote healthier lifestyles;
- Ensure high quality health services that are efficient and accessible;
- Integrate renewal of the health care system with longer term plans in the areas of prevention, health promotion and protection;
- Reduce health inequalities in Canadian society; and
- Provide health information to help Canadians make informed decisions." <sup>32</sup>

Others with similar concerns may not have identified themselves to Health Canada. However, I am aware of other families reporting similar issues.

Based on the elements of the Auditor General's Report, 2012, there may be an opportunity to obtain funding to take remedial action <sup>33</sup> regarding affected sites.

Until guidelines are established that protect human health and social-economic viability, no further development of wind energy facilities should occur and existing sites reporting health issues should be resolved to the satisfaction of the New Experts.

I would appreciate any assistance that Health Canada could offer to many of those reporting health effects associated with the start up of operations of industrial wind energy facilities.

Resolution would include pausing before constructing wind energy facilities until siting guidelines are protective of human health to ensure physical, mental and social well being.

In the meantime, due to my concern for Ms Kelly's reported circumstances, I am requesting that emergency funding be provided to Ms Kelly to restore her physical, mental and social well-being and that resolution be achieved to her satisfaction.

Ms Kelly reports:

"I as of next week will be renting a room 12 km's away for \$500.00 per month, hoping my life will return to normal, I have spent much money on natural supplements, special diets, time travelling to diagnostic appointments, blood tests, specialists that are not covered under OHIP, but who can possibly repay me for losing a year of my life. In frustration driving to my son's home just to escape going mad. There is no amount of money that can reimburse me for my suffering. I have spent quite a bit on medications but suffering who can pay for that??? I would love it if someone could just buy this place and just use it for an office and business but not to sleep and live here."

Respectfully submitted on behalf of Barbara Kelly, from Corbetton, Ontario,

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Ontario, Canada  
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<sup>1</sup> 2012 Spring Report of the Commissioner of the Environment and Sustainable Development

[http://www.oagbvg.gc.ca/internet/English/parl\\_cesd\\_201205\\_03\\_e\\_36775.html#ex5](http://www.oagbvg.gc.ca/internet/English/parl_cesd_201205_03_e_36775.html#ex5)

<sup>2</sup> World Health Organization. (1948). Preamble to the constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June, 1946; signed on 22 July 1946 by the representatives of 61 States (Official records of the World Health Organization, no. 2, p. 100) and entered into force on 7 April 1948. Cited Krogh, CME, (2011), Industrial Wind Turbine Development and Loss of Social Justice? Bulletin of Science Technology & Society 2011 31: 321, DOI: 10.1177/0270467611412550, <http://bst.sagepub.com/content/31/4/321>

<sup>3</sup> World Health Organization. (1948). Preamble to the constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June, 1946; signed on 22 July 1946 by the representatives of 61 States (Official records of the World Health Organization, no. 2, p. 100) and entered into force on 7 April 1948. Cited Krogh, CME, (2011), Industrial Wind Turbine Development and Loss of Social Justice? Bulletin of Science Technology & Society 2011 31: 321, DOI: 10.1177/0270467611412550, <http://bst.sagepub.com/content/31/4/321>

<sup>4</sup> Correspondence November 20, 2012

<sup>5</sup> Correspondence November 6, 2012, To Dufferin Wind Power, Dillon Consultants by David Hacker

<sup>6</sup> Open Submission, Update: Proposal for an Inquiry-Investigation into the Health including Socio-Economic Impacts of Industrial Wind Turbines in Rural Canada, Health Canada Wind Turbine Noise and Health Study Health Impacts and Exposure to Wind Turbine Noise: Research Design and Noise Exposure Assessment, October 31, 2012, Submitted by Carmen Krogh, BScPharm and Beth Harrington, BMus

<sup>7</sup> The World Soundscape Project (WSP), <http://www.sfu.ca/~truax/wsp.html>

<sup>8</sup> Schulte-Fortkamp, Brigitte, Vehicle exterior noise from the view point of new experts. The Journal of the Acoustical Society of America. 06/2008; 123(5):3134.

<sup>9</sup> Weber, Miriam, Quiet Urban Areas: repositioning local noise policy approaches – questioning visitors on soundscape and environmental quality. DCMR Environmental Protection Agency, the Netherlands

<sup>10</sup> Call for Papers on Soundscape in Journal of the Acoustical Society of America (JASA) | The World Listening Project. Cited 29/10/2012

<http://www.worldlisteningproject.org/cal-lfor-papers-on-soundscape-in-journal-of-the-acoustical-society-of-america-jasa/>

<sup>11</sup> Hot topics in soundscapes, COST action TD0804: “Soundscape of European Cities and Landscapes” workshop, Edinburgh UK, Novotel, 80 Lauriston Place, Thursday 29th – Friday 30th 2009, <http://www.cost.est.org>

<sup>12</sup> Bert De Coensel, Annelies Bockstael, Luc Dekoninck, Dick Botteldooren, Brigitte Schulte-Fortkamp, Jian Kang, Mats E. Nilsson, The Soundscape Approach for Early Stage Urban Planning: A Case Study, InterNoise 2012, Lisbon, Portugal (Invited Paper)

<sup>13</sup> Soundscape. An environment of sound (or sonic environment) with emphasis on the way it is perceived and understood by the individual, or by a society. Truax, B. (1999). Handbook for Acoustic Ecology (2ndEd.). Cambridge Street Publishing

<sup>14</sup> Axelsson, Östen, Introducing soundscape, AESOP, 2012, 26<sup>th</sup> Annual Congress, July 11-15, Ankara, Turkey

<sup>15</sup> Brigitte Schulte-Fortkamp, Jian Kang, Soundscape research in networking across countries: COST Action, The Journal of the Acoustical Society of America. 03/2010; 127(3):1801.

<sup>16</sup> B. Schulte-Fortkamp, “The tuning of noise pollution with respect of the expertise of people’s mind”, proceedings InterNoise, (2010) Lisbon Portugal, 13-13 June 2010

<sup>17</sup> Brigitte Schulte-Fortkamp, Bennett Brooks, Interventions through the soundscape approach. The Journal of the Acoustical Society of America. 10/2010; 128(4):2370.

<sup>18</sup> Brigitte Schulte-Fortkamp, Bennett Brooks, Better soundscapes for all workshops on continuing development of soundscape techniques standardization: Workshop introduction. The Journal of the Acoustical Society of America. 11/2008; 124(4):2552.

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- <sup>19</sup> Bray Wade, Acoustical Society of America 164th Meeting, Kansas City, MO 22 - 26 October, 2012, 2aNS6, Relevance and applicability of the Soundscape concept to physiological or behavioural effects caused by noise at very low frequencies which may not be audible. [www.acoustics.org/press/164th/Bray\\_2aNS6.html](http://www.acoustics.org/press/164th/Bray_2aNS6.html)
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- <sup>22</sup> Ambrose Stephen E., Rand Robert W., Krogh Carmen M. E., Falmouth, Massachusetts wind turbine infrasound and low frequency noise measurements Invited paper presented at Inter-noise 2012 New York City, NY
- <sup>23</sup> Krogh Carmen ME, Jeffery Roy D, Aramini Jeff, Horner Brett, Wind turbine noise perception, pathways and effects: a case study, InterNoise 2012, New York City, NY, August 19 -23
- <sup>24</sup> Closing statements by Krogh
- <sup>25</sup> Science Advisory Board Meeting, Proceedings - Science Advisory Board (SAB), February 1-2, 2012
- <sup>26</sup> 2012 Spring Report of the Commissioner of the Environment and Sustainable Development [http://www.oagbvg.gc.ca/internet/English/parl\\_cesd\\_201205\\_03\\_e\\_36775.html#ex5](http://www.oagbvg.gc.ca/internet/English/parl_cesd_201205_03_e_36775.html#ex5)
- <sup>27</sup> New South Wales. Parliament. Legislative Council. General Purpose Standing Committee No. 5, Rural Wind Farms, 2009
- <sup>28</sup> The social and economic impact of rural wind farms: Public hearing before the Senate Community Affairs References Committee, Commonwealth of Australia (2011, May 17). Retrieved from [http://www.aph.gov.au/senate/committee/clac\\_ctte/impact\\_rural\\_wind\\_farms/index.htm](http://www.aph.gov.au/senate/committee/clac_ctte/impact_rural_wind_farms/index.htm)
- <sup>29</sup> Falmouth Board of Health, Correspondence June 11, 2012, Falmouth, Massachusetts USA, Massachusetts Department of Public Health (MASS DPH)
- <sup>30</sup> Renewable Energy (Electricity) Amendment (Excessive Noise from Wind Farms) Bill (2012), Australia, <https://senate.aph.gov.au/submissions/pages/index.aspx>
- <sup>31</sup> Health Canada, About Health Canada, About Mission, Values, Activities, Retrieved from <http://www.hc-sc.gc.ca/ahc-asc/activit/about-apropos/index-eng.php>, Cited August 24, 2012
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