

**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 24, 2012**

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

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**November 24, 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  
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November 24, 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 24, 2012  
Any errors or omissions are unintended

## **1 Background**

This submission is being made on behalf of Mr. Brent Green from Ontario.

This submission relates to a project which has been operational since 2008.

## **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**

As some Health Canada representatives are aware, 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.

This information is being provided at the request of Mr. Brent Green of Corbetton, Ontario.

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

The family reports:

"Hello my name is Brent Green I live in melancthon township in the village of corbetton I have been here 17 years loved living here until the nightmare started when they turned the turbines on In 2008 shortly after they were up and running I realized I was being woke up during the night the turbines were waking me and keeping me awake I had to go on medication now life is hell living here and nobody cares I am an innocent resident I know this is not fair that my life could be so disrupted by green energy please help because someday I would like to get back to a normal life without medication brought on by the Turbines." <sup>4</sup>

"I have lived in my home for 17 years and for 13 years there were no problems. Then the wind turbines started operation and I have been unable to sleep. I am not sleeping and am run down. I am depressed and stressed. When I wake up, I wake up angry and frustrated. I don't enjoy my property any more. This was not normal for me as I have always been energetic.

My quality of life has been lost. We wanted to renovate our home to our dream home but I have no motivation to finish the renovations. I don't enjoy my property anymore and never go outside.

I have to take medication. I started at a low dose but had to build up to 4 times the dose to keep me going. I managed to get it back to the original dose but now I am back to 2 times the dose again. I can't sleep without my medications and have been taking them for 3 years now.

I would love to sell our home. I don't want compensation for the years of misery but would like to relocate to a home of equal value. Every time I think of selling, my conscience bothers me. How can I sell to someone and just walk away knowing what I know? I wouldn't want a young family living here.

Our township has not helped. After years of fighting for relief I know that no one cares. Our governments just don't care. No one cares." <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 a family 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. The Melancthon wind energy project is one of those that received federal funding. 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, on behalf of Mr. Green, I am requesting that emergency funding be considered to relocate Mr. Green to restore his physical, mental and social well-being until resolution has been achieved to his satisfaction.

Respectfully submitted on behalf of Mr. Brent Green from Ontario,

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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> Personal interview by Krogh, November 24, 2012

<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 Soundscapes 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-soundscapes-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>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)
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- <sup>30</sup> Renewable Energy (Electricity) Amendment (Excessive Noise from Wind Farms) Bill (2012), Australia, <https://senate.aph.gov.au/submissions/pages/index.aspx>
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