

**CONFIDENTIAL**

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

**Health and Social-economic impacts**

*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**

**August 31, 2012**

Author's Note: This submission is being made on request and on behalf of a family that wishes to remain confidential due to personal circumstances. Documentation regarding this submission has been verified by the family and author. If the identity of the family is required, this can be discussed.

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Design and Noise Exposure Assessment*

**Submitted by Carmen Krogh, BScPharm**

**August 31, 2012**

To:

David S. Michaud, PhD  
Principal Investigator  
Consumer and Clinical Radiation Protection Bureau  
Healthy Environments and Consumer Safety Branch  
Health Canada  
Email: [wind.turbine.health.study@hc-sc.gc.ca](mailto:wind.turbine.health.study@hc-sc.gc.ca) or [david.michaud@hc-sc.gc.ca](mailto:david.michaud@hc-sc.gc.ca)

Copy:

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

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

Dear Dr. Michaud,

Re: Health Canada Wind Turbine Noise and Health Study

Submission: Industrial Wind Turbines can Harm Humans  
Health and Social-economic impacts *Health Canada Wind Turbine Noise and Health Study*  
Submitted by Carmen Krogh, BScPharm  
August 31, 2012

## **1 Purpose**

The purpose of this submission is to inform the Health Canada study team and others about the serious harm that has occurred to a family exposed to a transformer station. The transformer station is sited close to the family home and is part of the infrastructure for a wind energy project.

Due to my concern regarding the family's deteriorated health and quality of life status, I respectfully request that Health Canada take action to resolve the issues regarding this family. Resolution would include emergency funding to relocate the family and its livestock to an area to restore physical, mental and social well being as well as their financial status.

At the request of the family, identities are confidential. The references used to compile this submission have been verified and confirmed by the author and the family.

I have provided a copy of my comments to The Right Honourable Stephen Harper, Prime Minister of Canada, The Honourable Leona Aglukkaq, Minister of Health and the public.

This submission is intended to contribute to the consultation process and study design for the *Health Canada Wind Turbine Noise and Health Study*.

## **2 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.

## **3 Introduction**

I am frequently in contact with those reporting the serious health and social-economic consequences that are occurring when industrial wind facilities are sited in close proximity to residents.

This information is being provided at the request of the family. Supporting documentation has been verified by the family members and the author. If required, the family will consider revealing its identify.

I conducted an interview with members of a family as part of my monitoring the health status of some. I am observing a serious degradation of their health and social-economic status. The lack of resolution associated with the start up of operations of an industrial wind energy facility has led to serious financial, social and health issues.

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>1</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>2</sup>

#### **4 Particulars**

The industrial wind energy facility initiated operations about March 2006.

Prior to the start up of the facility, the family was in good health. It had established a successful farming operation and one family member was also employed full-time.

When the facility first started operating, one transformer was in operation. The family reports the noise was "terrible". Due to a lack of information, the family did not know who to call in order to report the noise issues. It took time to reach the responsible authority and report the noise issues. The developer offered funds to plant trees under the premise this would block the noise and visuals. The family home and laneway was already well "treed" and this offer was not helpful. A second phase was launched and the original transformer removed and replaced with two new ones. As result of an Ontario Municipal Board hearing, the developer had to obtain a Certificate of Approval and perform quarterly noise testing for two years. Investigation by a noise consultant led to an opinion that the trees were causing the noise. Unattended noise testing was done. This varied from one week to ten days. The residents were blamed for creating the noise. The new transformers were supposed to be quieter than the original one. However, the noise varied. The issue was when the transformers turned on, the family residents could feel sensations in their bodies. These varied in intensity. The body sensations occurred the first day of operation. Members of the family report chronic sleep disturbance, headaches, tinnitus (intense), chronic physical and mental exhaustion, inability to concentrate, and body sensations. During the night, they wake up shaking and twitching,

with a racing heart rate. The symptoms are relieved on leaving the home environment and return when back in the home. As well, the family members have noted an increased sensitivity to the impact of their environment as it takes longer to restore their symptoms when away.

The family noted a change in the behaviour of their farm animals. The family dog trembles. Their farm animals do not reproduce as expected, abortions occur and newly born animals are weak at birth.

An investigation revealed that emissions associated with a transformer station were negatively affecting the family members. It was also suspected that their farm animals were negatively affected.

### **5 Actions taken:**

Between 2006 to August, 2012, correspondence by letter, e-mail, telephone, the complaints process, meetings with authorities (representatives of Ontario Ministries), Members of Parliament, Provincial Members of Parliament, consultants, developer(s), investigators and other occurred.

Examples are (not limited to):

#### *Ontario*

- § Ontario Ministers and Deputy Ministers (Health and Long Term Care; Energy and Infrastructure; Environment (former and present))
- § Ontario Chief Medical Officer of Health
- § Ontario Ministry of Environment:
  - Spills Action Line complaints process
  - Senior Field Officers
- § Ontario Public Health Office (local)
- § Hydro One, Ontario Energy Board, Electrical Safety Authority, Ontario Municipal Board
- § Municipality
- § Representative of the wind energy developer
- § Consultants (hired by the wind energy developer and township)
- § Ontario Research Chair in Renewable Energy Technologies and Health
- § Commissioner of the Environment

Correspondence from the Ontario Minister of Environment in response to concerns by the local Member of Provincial Parliament:

"As Minister of the Environment, I recognize the concerns expressed by the [*family name deleted for privacy*] with regard to this situation." <sup>3</sup>

Correspondence from the Ontario Ministry of Environment provides a summary:

"From 2006 to present, you have brought to the attention of the ministry various issues associated with the nearby step-up transformer (e.g. noise, vibration, and stray voltage) that are alleged to be causing health impacts, such as lack of sleep." <sup>4</sup>

*Canada*

A meeting and correspondence has occurred with the local Member of Parliament.

Indications are Health Canada is aware of the issues. <sup>5</sup>

## **6 Ontario Ministry responses to actions taken:**

*Monitoring and testing of noise and vibration*

Correspondence from the Ontario Ministry of Environment briefly summaries its response to the actions taken:

"Over a number of years since 2008, our ministry has conducted extensive monitoring and testing for noise and vibration levels at the residences near to the transformer station showing the station to be in compliance with the noise and vibration levels. Hydro One Networks Inc. has also monitored for stray voltage and harmonic distortion neat the transformer station and their reading indicated levels are in compliance with applicable standards."

...

In addition to all of the ongoing testing and monitoring conducted by the ministry to ensure compliance over the last 3-4 years, the ministry decided to conduct an internal engineering assessment by three separate ministry engineers of the Certificate of Approval application package submitted by the applicant..." <sup>6</sup>

*Plan 1: Ontario Ministry of Environment Action*

The Ontario Ministry of Environment initiated a series of meetings with affected families.<sup>7</sup> The purpose of the meetings was to establish a plan to investigate and resolve the issues being reported. Discussions included the temporary relocation or short term accommodation for one of the affected families.

A number of meetings were cancelled<sup>8</sup> but meetings resumed again.<sup>9</sup>

Initiatives included:

- § Detailed records including medical provided to the ministry by the family
- § Formation of a working group to investigate and evaluate<sup>10</sup>
- § A draft work and resolution plan<sup>11, 12</sup>
- § A draft business case to engage an electronic engineer expert<sup>13</sup>

The draft business case noted that:

“...some have moved out of their homes, particularly due to reported night time discomfort that interrupts their sleep.”<sup>14</sup>

...

“There is an urgency to address this issue as the stressed residents fear for their and their farm animals’ health and well being.”<sup>15</sup>

...

**“Reason for Single Sourcing this Work:**

This work is urgently needed to address the issue of unknown emissions that are outside of ministry expertise, resulting in a serious impact on the local residents health. For this reason there is an immediate need to find remediation solutions as soon as possible. As this work is outside the usual ministry practice and experience, it will require a specially trained electronic expert to determine the cause of the concerns, and develop recommendations that will be satisfactory to all concerned. It is anticipated that new information will be forthcoming that may be very useful in further protecting the environment and human health by determining future compliance requirements to transmission substations.”<sup>16</sup>

## *Plan 2: Ontario Ministry of Environment New Direction*

About mid-March, it was indicated to the family that a new direction was to be undertaken. Meetings were led by an Assistant Deputy of Minister (Ontario Ministry of Environment).<sup>17</sup>

The purpose of these meetings was:

"...to assist in finding potential areas of research outside of the Ministry of the Environment regarding your concern about electromagnetic frequency. As electromagnetic frequency is not an area the ministry regulates or has technical expertise in, we have investigated whether there are opportunities to have your case examined by the public health and university sectors."<sup>18</sup>

It was suggested that:

"... Health Canada along with the World Health Organization monitors scientific research on electromagnetic frequency and human health. As part of Health Canada's mission to help Canadians maintain and improve their health, the information at <http://www.hc-sc.gc.ca/hi-vs/iyh-vsv/environon/magnet-eng.php> may be of interest to you."<sup>19</sup>

Correspondence concluded:

"The ministry now considers noise and vibration measuring at your residence to be complete."<sup>20</sup>

## **7 Results and Consequences**

Since 2006, the family has been exposed to a harmful dose of noise and electro-magnetic emissions.

The project in question received subsidy funding under the Natural Resources Canada Ecofund. It is assumed that Health Canada provided advice regarding the risks of health associated with the Environmental Assessment process.

During 2011, over 15 meetings were held with the family and the representatives of the Ontario Ministry of Environment. Of significance are the agenda references for relocating or for temporary relocation of the affected family.

In early 2012, it appears the ministry changed its direction.

The family's physician <sup>21</sup> provided a letter regarding their symptoms and the major improvement achieved regarding these upon short absences from their home; the financial stress; a professional opinion regarding the exposure and evidence; and the lack of responsiveness by local and provincial officials as well as that of the developer. The physician concludes "I have strongly recommended ... move from their farm as soon as possible to avoid further illness."

The family operates a farming operation with pedigree stock. A letter from their veterinarian states "... their [*deleted the affected animal to protect privacy*] have experienced undiagnosed reproductive failure." And "approximately 1/3 of their breeding [*deleted the affected animal to protect privacy*] ...are also not pregnant..." <sup>22</sup>

The ministry representatives declined to accept the letter from the family physician. However, the letter from the veterinarian was included in a package of material provided to the ministry. <sup>23</sup>

Based on a monitoring follow up interview with the family, the exposure over the more than six years has taken its toll. They are ill, despondent, and have lost their livelihood. They are financially, physically and emotionally depleted. <sup>24</sup>

The ministry representatives declined to accept the letter from the family physician. However, the letter from the veterinarian was included in a package of material provided to the ministry. <sup>25</sup>

The reports regarding electro pollution associated with industrial wind development indicates there are issues that require investigation.

Conducting an investigation early and prior to finalizing the study design would assist with determining the study design. As well, the Health Canada health study should consider the harm currently being reported and future risks expected with the proliferation of more wind energy projects.

Indications are the *Radiation Emitting Devices Act* gives Health Canada authority regarding this issue.

I note that Health Canada's "Mission and Vision" includes:

"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>26</sup>

And that Health Canada's "Objectives" include:

"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>27</sup>

Due to my concern regarding this family, I respectfully request that Health Canada take action to resolve the issues regarding this family. I propose an investigation and emergency funding to relocate the family and its livestock to an area to restore physical, mental and social well being as well as their financial status.

Respectfully submitted on behalf of the family,

Carmen Krogh, BScPharm  
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<sup>1</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>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

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Justice? *Bulletin of Science Technology & Society* 2011 31: 321, DOI: 10.1177/0270467611412550,  
<http://bst.sagepub.com/content/31/4/321>

<sup>3</sup> Correspondence received from the Minister of Environment, August 8, 2011

<sup>4</sup> Correspondence received from the Ministry of Environment, August 3, 2012

<sup>5</sup> Health Canada, communications Greg Gujda, February 2011 (Personal interview records)

<sup>6</sup> Correspondence received from the Ministry of Environment, August 3, 2012

<sup>7</sup> 2011: Meeting MOE in person August 15; Teleconferences August 24, September 1, September 8, September 22, September 29, October 6, October 14, October 20, October 28, November 3, November 9, November 18, November 24, December 1

<sup>8</sup> 2011: Cancelled meetings December 8, December 12, December 14, December 15. 2012: January 5, January 12

<sup>9</sup> 2012: Resumption of meetings January 23, February 2

<sup>10</sup> Working Group draft membership August 19, 2011

<sup>11</sup> Work plan draft August 17, 2011

<sup>12</sup> Work plan draft August 25, 2012

<sup>13</sup> Ministry of the Environment: Business case draft September 15, 2011

<sup>14</sup> Ministry of the Environment: Business case draft September 15, 2011

<sup>15</sup> Ministry of the Environment: Business case draft September 15, 2011

<sup>16</sup> Ministry of the Environment: Business case draft September 15, 2011

<sup>17</sup> 2012: Teleconference: April 12, April 25. Face to face: May 10. Teleconference: May 24, June 6, June 26, July 25, August 24

<sup>18</sup> Correspondence received from the Ministry of Environment, August 3, 2012

<sup>19</sup> Correspondence received from the Ministry of Environment, August 3, 2012

<sup>20</sup> Correspondence received from the Ministry of Environment, August 3, 2012

<sup>21</sup> Author's note: The physician states credentials including a form Medical Officer of Health, Certification in Community Health and an epidemiologist.

<sup>22</sup> Veterinarian September 10, 2011

<sup>23</sup> Interview conducted by Krogh, August 19, 2012

<sup>24</sup> Interview conducted by Krogh, August 19, 2012

<sup>25</sup> Interview conducted by Krogh, August 19, 2012

<sup>26</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

<sup>27</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