

# Who's protecting our health?

## Risks of harm associated with energy facilities

A commentary by Carmen Krogh, BScPharm

February 8, 2013

### Introduction

Since January 2009, I am frequently in contact with those reporting serious health and social-economic consequences when industrial wind facilities are either operating or proposed in a quiet rural area and in close proximity to residents.

Canadians have asked me "who is protecting our health" and "how can the government do this to us?"

Others have commented they can't believe the governments continue to approve projects.

The purpose of this commentary is to briefly explore the expectations of the public, the role of the government of Canada and the provinces regarding renewable energy development; and the impact on rural Canadians when their living environment has been negatively altered.

This commentary is divided into four parts:

- § Part I: Expectations of the Public
- § Part II: Government Feedback (federal and provincial)
- § Part III: Government of Canada activities
- § Part IV: Consequences to quiet rural communities
- § Part V: Conclusion

### Executive Summary

- § There are expectations that federal and provincial systems are in place to protect health;
- § Canada has subscribed to several overarching international principles which affirm rights to health;

- § The federal government states the “installation and siting of wind turbines in Canada falls within the purview of the provincial and territorial governments”;
- § Canadians seeking remedy or resolution to negative effects of wind energy facilities are “bounced’ from one bureaucratic process to another;
- § Indications are that policy supersedes health protection;
- § Once the wind energy facilities start operating, there does not appear to be remedy or resolution and both federal and provincial governments, are perceived as indifferent to those reporting negative health and social-economic impacts;
- § Subjecting non-consenting individuals to an exposure which is known or suspected to have adverse health effects and then studying these individuals while exposing them to the contaminant raises ethical issues;
- § The assurance that the “government is committed to protecting health of Canadians with respect to renewable energy sources” do not seem to be implemented to the satisfaction of those negatively affected.

## **Part I: Expectations of the Public**

In 1948, the World Health Organization (WHO) defines health as “...a state of complete physical, mental and social well-being...”. It acknowledges: “The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being...” <sup>1</sup>

### **CONSTITUTION OF THE WORLD HEALTH ORGANIZATION<sup>1</sup>**

THE STATES Parties to this Constitution declare, in conformity with the Charter of the United Nations, that the following principles are basic to the happiness, harmonious relations and security of all peoples:

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition.

Health Canada indicates the WHO definition of health has been accepted by many jurisdictions including the Canadian federal, provincial and territorial governments and health officials. <sup>2</sup>

In July 2012, the Public Health Agency of Canada confirmed that Canada, including both Health Canada and the Public Health Agency of Canada, continues to support the WHO definition of health [excerpt]:

Public Health Agency of Canada	Agence de la santé publique du Canada
Chief Public Health Officer	Administrateur en chef de la santé publique

JUL 11 2012

Canada, including both Health Canada and the Public Health Agency of Canada, continues to support the definition of health established by the WHO's constitution in 1948: Health is "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."

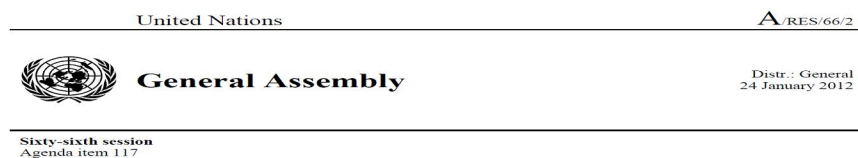
Sincerely,



David Butler-Jones, MD  
MHSc, CCFP, FRCPC, FACPM

## Canada

On January 24, 2012, the United Nations General Assembly reaffirmed "the right of everyone to the enjoyment of the highest attainable standard of physical and mental health":<sup>3</sup>



5. Reaffirm the right of everyone to the enjoyment of the highest attainable standard of physical and mental health;

On November 21<sup>st</sup> 1986, the (WHO) Ottawa Charter for Health Promotion, held in Ottawa declared:

"to acknowledge people as the main health resource; to support and enable them to keep themselves, their families and friends healthy through financial and other

means, and to accept the community as the essential voice in matters of its health, living conditions and well-being;"<sup>4</sup>

The acknowledgement that people are the main health resource and the community is the "essential voice in matters of health, living conditions and well-being" indicates support for the significant role of the New Experts where people "are objective measuring instruments..."<sup>5</sup>

The role of New Experts has been described in other submissions to Health Canada (*see Krogh and Harrington October 31, 2012 submission to Health Canada*)<sup>6</sup>

Health Canada's "Mission and Vision" states:

"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>7</sup>

Health Canada's "Objectives" state:

"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>8</sup>

As a result of these commitments, many expect that Health Canada, as the highest health authority in Canada, would take action to protect the health of Canadians associated with the introduction of technologies such as wind energy facilities.

However, based on correspondence received from Canadian federal and some provincial authorities about the risk of harm to human health, when wind energy facilities are sited too close to residents, many Canadians are not reassured regarding health protection.

## Part II: Government Feedback (federal and provincial)

### *2011: Prime Minister's Office*

An Ontario resident wrote the Prime Minister in 2011 expressing concern about the issues associated with wind energy development [excerpt]:

Canada is always intervening in countries elsewhere when peoples' democratic rights are violated or to work toward a democratic society if none exists. You are currently sending planes to Libya to rescue Canadians. The rural people of Ontario, in this instance the plight of the residents of Mapleton township, need to be rescued from a liberal government who ignores our voices and is intent in putting us in harm's way.

The Prime Minister's Office referred the resident to the appropriate provincial authority:

---- Original Message ----

From: Prime Minister/Premier ministre <pm@pm.gc.ca>  
Sent: Tue, Apr 5, 2011 9:00 pm  
Subject: Office of the Prime Minister / Cabinet du Premier ministre

On behalf of the Right Honourable Stephen Harper, I would like to acknowledge receipt of your e-mail.

While you may be assured that careful consideration has been given to the situation you have described, the matter you have raised does not fall within the jurisdiction of the federal government. You would be best advised, therefore, to pursue your enquiries with the appropriate provincial authority.

I regret that I am unable to provide you with a more favourable response.

P. Monteith  
Executive Correspondence Officer  
for the Prime Minister's Office  
Agent de correspondance  
de la haute direction  
pour le Cabinet du Premier ministre

### *2009: The Public Health Agency of Canada*

In 2009, the Public Health Agency of Canada advises it lacks jurisdictional authority to conduct research and to contact the Chief Medical Officer of Health (Ontario) of a local Medical Officer of Health [excerpt]:

From: cpho-acsp <cpho-acsp@phac-aspc.gc.ca>  
To: krogh@email.toast.net  
Date: 06/18/2009 12:12 PM  
Subject: Correspondence

Ms. Carmen Krogh

Who's protecting our health? Risks of harm and wind energy facilities  
A commentary by Carmen Krogh, BScPharm  
February 8 2013  
Any errors or omissions are unintended

As a federal entity the Public Health Agency of Canada (PHAC) does not have the jurisdictional authority to initiate and conduct environmental investigations, including epidemiological studies in the provinces and territories. In order for PHAC to assist in an epidemiological investigation in Ontario, the request would need to be initiated by the Ontario Medical Officer of Health. To this end, you may wish to contact your local Medical Officer of Health. The Acting Chief Medical Officer of Health for Ontario is Dr. David C. Williams, who can be reached at the Ministry of Health and Long-Term Care, Province of Ontario, Hepburn Block, 11th Floor, 80 Grosvenor Street, Toronto, Ontario, M7A 1R3, and by telephone at 416-212-3831.

David Butler-Jones, MD  
MHSc, CCFP, FRCPC, FACPM  
Chief Public Health Officer  
Public Health Agency of Canada

### *2012: Health Canada*

In 2012, the Health Canada Minister advises the "installation and siting of wind turbines in Canada falls within the purview of the provincial and territorial governments," and suggests contacting the provincial or territorial minister of the environment [excerpt]:

Minister of Health



Ministre de la Santé

Ottawa, Canada K1A 0K9

APR 13 2012

Thank you for your correspondence of January 23, 2012, concerning wind turbines.

The installation and siting of wind turbines in Canada falls within the purview of the provincial and territorial governments. Noise is regulated through provincial and territorial legislation, guidelines, and/or municipal by-laws, which may apply broadly or to specific project types or sections. Therefore, you may wish to contact your provincial or territorial minister of the environment.

Sincerely,

A handwritten signature in black ink, appearing to read "Leona Aglukkaq".

Leona Aglukkaq

What happens when residents contact the provincial ministry of environment or the public health unit?

*2010: Ministry of Environment (Ontario)*

In a communication 2009, the former Minister of Environment of Ontario, Mr John Gerretsen states the MOE is committed to siting and operation of facilities in a manner that is protective of human health and it is an offence to violate a condition set out in a CofA (Certificate of Approval) [excerpt]:

----- Original Message -----

From: Minister, MOE (ENE)

To: beth.harrington@sympatico.ca

Sent: Thursday, September 10, 2009 10:37 AM

Subject: wind turbines

ENV1283MC-2009-3814

With regard to operating wind turbines, the MOE is committed to ensuring that renewable energy generation facilities are sited and operated in a manner that is protective of human health and the environment. District Offices throughout the province have the authority to inspect facilities and ensure compliance with approvals and legislative requirements. Where non-compliance is found, actions will be taken and orders can be issued to bring the facility into compliance. While new approval requirements will not apply to existing facilities, the ministry will continue to assess compliance with the legislation the ministry administers and approvals issued to the owners and operators of existing facilities. A Certificate of Approval (CofA) is currently required for wind farms, and it is an offence to violate a condition set out in a CofA.

Sincerely,

John Gerretsen

Minister

An Ontario, Canada Freedom of Information request reveals [excerpt]:

“It appears compliance with the minimum setbacks and the noise study approach currently being used to approve the siting of WTGs will result or likely result in adverse effects contrary to subsection 14(1) of the EPA.” [Ontario Ministry of Environment, memorandum, Ontario Senior Environmental Officer, April 9, 2010]

Contact with the Ministry of Environment in 2009, requesting an individual EA (Environmental Assessment) was forwarded to the wind energy developer for review to assist the ministry in its review [excerpt]:

**Ministry  
of the  
Environment**

2 St. Clair Ave. West  
Toronto ON M4V 1L5

**Ministère  
de  
l'Environnement**

2, avenue St. Clair Ouest  
Toronto ON M4V 1L5




September 4, 2009

Ms. Carmen Krogh

Staff at this ministry will review the issues and concerns you have cited as reasons for which an individual EA should be prepared. Your request will be forwarded to AIM PowerGen. AIM PowerGen will be directed to review your request and to provide any Project documentation and other information necessary to assist this ministry in its review of your request. This information will be considered by the Director of the EAAB when making a decision about the request. Where required, ministry technical staff and staff at other agencies may also review the matter.

Yours very truly,

A handwritten signature in black ink, appearing to read "Millicent Dixon".

 Millicent Dixon  
Manager, Client Services Section  
Environmental Assessment and Approvals Branch

c: Ansar Gafur, Vice President, External Relations, AIM PowerGen  
Mark Kozak, Project Manager, Stantec Consulting Ltd.

### ***2009: Ontario Public Health Unit and Boards***

During 2009, some had requested support from the local public health officials. When some took the advice of the Minister of Health, Health Canada; the Chief Public Health Officer of the Public Health Agency of Canada; and the Ministry of Environment to report their



adverse effects associated with the start up of wind energy facilities to the Chief Medical Officer of Health Ontario and/or their local public health unit, the following are examples of some of the replies.

On April 4 2009, the outcome from contact with a local public health unit:

“I empathize with your concern about the neighboring wind turbines and the ineffectiveness of various agencies to legitimize your grievance.

Unfortunately your request that our public health unit be able to take some action on this matter does not align with the current reality. I apologize for any false impressions I may have relayed to you about any type of regulatory capacity we may have but to do so would only give you false hope and perhaps undermine any legitimate avenue of appeal you are trying to seek through the appropriate provincial agency or court action.

Our public health unit does not have the recourse, resources or expertise to monitor the health effects of turbines and seek the type of remedy you are looking for. To circumvent or intervene with the processes already in place, however, would be foolhardy and wasteful on our part given our mandate.

I am sorry that you feel you have been undermined by these very processes but we are unequivocal in our principles to fully practice protecting the public’s health in an effective manner with the tools and guidelines

we have. To stray from this course, by pursuing such avenues, would be highly problematic for effectively serving the public in accordance with our public health protocols and directives.”<sup>9</sup>

### ***2012: Ontario Public Health Unit and Boards***

Indications are the role of local public health units is limited.

For example, the Whitworth family is now in its seventh year regarding issues with a transformer station. A number of submissions have been made to Health Canada which indicates the lack of resolution or remedy in spite of all their efforts to work within the system.<sup>10, 11, 12, 13</sup>

A 2009 information note from a Senior Environmental Officer states [excerpt]:

"There are also complaints that the operation of the wind turbines and the step-up transformer(s) have an associated low, and near low frequency "hum" that is disruptive to sleep (as it is much more evident/noticeable at night time), and on occasion causes sympathetic vibration of the complainant's homes." <sup>14</sup>

In August 2009, an abatement plan was proposed [excerpt]: <sup>15</sup>

**Sent:** August 21, 2009 5:30 PM

**To:** Bardswick, Bill (ENE)

**Cc:** Glassco, Jane (ENE); Hall, Cameron (ENE)

**Subject:** Canadian Hydro Developers Noise Abatement Plan

Bill:

Further to our telephone conversation this afternoon, below is the abatement plan we discussed to address the Canadian Hydro Developers wind turbine and transformer noise complaints in Dufferin County. As we discussed I have identified the issues and challenges we are faced with, as well as the proposed strategy and the abatement plan itself.

Excerpts of the plan include:

3.1.5 MOE District Provincial Officers have attended at several of the complainants residences and have confirmed that the noise emissions from the Melancthon EcoPower Center are causing an adverse effect to the complainants.

3.1.6 At least two families have moved out of their homes, (i.e. do not sleep there any more), as a result of the noise emissions impacting on them during the night time hours. Reasonable people do not leave their homes to sleep elsewhere for frivolous reasons.

3.5 As it has been verified by MOE Provincial Officers that an adverse effect is occurring, and therefore a contravention of S.14(1) EPA is occurring, that appropriate abatement action must occur forthwith, and if necessary be made mandatory via a Provincial Officer Order.

About mid-March, 2012 meetings were chaired by an Assistant Deputy of Minister (Ontario Ministry of Environment) regarding the transformer station issues [excerpts]. <sup>16</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>17</sup>

August 3, 2012, it was suggested to contact Health Canada as part of its mission to help Canadians maintain and improve their health:

“... 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.

“The ministry now considers noise and vibration measuring at your residence to be complete.”<sup>18</sup>

On October 9, 2012, the Whitworths met with their local public health unit. It was clarified the public health unit had no authority to resolve their situation.



**TransAlta Amaranth Transformer Station Meeting  
Meeting Summary  
Location: WDGPH Fergus Office – Conference Room  
Date & Time: October 9, 2012 at 11:00am**

**Present:** Ted Whitworth, Cheryl Whitworth, Carmen Krogh, Shawn Zentner, Bo Cheyne  
**Prepared by:** Bo Cheyne

T. Whitworth asked if health unit could have the facility shut down. S. Zentner said we could not.

***2013: Ontario Public Health Unit and Boards***

Correspondence received March 30, 2013 regarding Krogh’s deputation made to a board of health on behalf of residents where a project was being proposed stated:<sup>19</sup>



30 March 2012

Ms. Carmen Krogh

The Board understands the concerns of the island residents, particularly around siting. This clearly is an issue that the Ministry of the Environment needs to deal with, as they have been given the authority by the Government of Ontario to deal with this matter. As you are aware, neither local municipalities nor Boards of Health have any discretion in this issue. We trust that you will have some success in your discussions with them on the issue of sitings.

Yours truly,



Beth Pater, Chair  
KFL&A Board of Health

Copy to: Board of Health Members

### *2012: Back to the Ontario Ministry of Environment*

In the meantime, September 10, 2012, the Ontario Ministry of Environment advised the suggested course of action to report a problem was to contact the Local Medical Officer of Health [excerpt]:

#### **Ministry of the Environment**

Environmental Approvals Access and  
Service Integration Branch

September 10, 2012

*If a resident wants to report a problem to a senior government official or politician with noise, vibration, electrical problems or other related to a wind project, who should they be contacting...?*

I would suggest that health related matters be addressed to the Local Medical Officer of Health. If anyone wants to report a problem with an operating wind energy project please refer to the REA wind Compliance and Enforcement section of the MOE website  
[http://www.ene.gov.on.ca/environment/en/subject/wind\\_energy/STDPROD\\_089073.html](http://www.ene.gov.on.ca/environment/en/subject/wind_energy/STDPROD_089073.html)

*...If a resident is having a health problem, has a health question in general or would like to submit any health information relating to wind turbines should they be contacting: the Ministry of the Environment, Health, Energy, the CMOH, their MOH...?*

I would suggest that health related matters be addressed to the local Medical Officer of Health. The MOE does not deal directly with individual health issues/concerns. We are committed to ensuring that the rules regarding wind farms continue to reflect current environmental standards that are protective of human health.

Yours sincerely,



Doris Dumais  
Director  
Environmental Approvals Access and Service Integration Branch

*2009: Ministry of Health (Ontario)*

In correspondence received August 11, 2009 from the Ministry, in order to ensure a coordinated response, MOE (Ministry of Environment) was being asked to respond to all questions:

“From: Ikura, Sophia (MOH)  
To: Beth Harrington  
Cc: Mack, Heather (MOH) ; Romain, Tess (MOH)  
Sent: Tuesday, August 11, 2009 1:36 PM  
Subject: RE: Hello

Hi Beth,

Yes the Minister is aware of the work that you have undertaken. We have had a number of internal conversations and have agreed that MOE is the lead as they are considering all of the evidence, including the possible health implications of the wind technology in their consideration of the appropriate setbacks. In order to ensure a coordinated response, we are asking MOE to respond to all questions.

Take care,

Sophia”

*2011: Ministry of Health (Ontario)*

“From: **Barbara Ashbee**  
Date: Wed, Nov 9, 2011 at 7:42 AM  
Subject: Re: Please acknowledge receipt of this email.  
To: [dmatthews.mpp@liberal.ola.org](mailto:dmatthews.mpp@liberal.ola.org), [dmatthews.mpp.co@liberal.ola.org](mailto:dmatthews.mpp.co@liberal.ola.org),  
[ccu.moh@ontario.ca](mailto:ccu.moh@ontario.ca)  
Cc: "Jones, Sylvia" <[sylvia.jones@pc.ola.org](mailto:sylvia.jones@pc.ola.org)>  
Minister Matthews,

I wanted to let you know I have not heard from anyone besides your constituency office acknowledging receipt of my email. They assured me that you would get the message.

I called and left two messages last Wednesday and Friday with your scheduling staff and neither has called back. I would like to know when I can schedule an appointment.

You are aware of the concerns I have which I outlined below and from my previous communications to you. Your government has just approved another wind project for Brooke-Alvinston which is causing great distress not only to those who will be living amongst the turbines but also to the existing families who have been asking for help and continue to be ignored.

People do not understand why our government, our own health ministry, is not listening to what is happening to them in their homes after the turbine projects become operational. To think that their experience is not being taken seriously is incredibly hurtful. The erosion of trust in our government leadership, especially when it comes to the health of the public, can have very serious consequences.

Clearly there is a huge problem and your apparent choice to dismiss and evade the issue is deeply concerning for all Ontarians.”

### *2012: Nova Scotia Environment*

A request for assistance from a family reporting health effects received the following response that Health Canada and others state “wind turbines are safe from a human health perspective”.

**Sent:** Wednesday, August 01, 2012 2:18 PM

**To:** cheryllk@eastlink.ca

**Subject:** Your 16 July, 2012, e-mail to the Minister of Environment

As a province, we will be closely monitoring this research. Based on the information we have today from the experts and Health Canada and our colleagues at the Nova Scotia Department of Health and Wellness, wind turbines are safe from a human health perspective. That being said, we will consider the study results in consultation with our health colleagues when they become available.

From a public health perspective, it is also important to consider our alternative sources of energy, including our use of carbon-based fuels. From a population health perspective, renewable energy sources are much healthier overall for public health and the environment.

*Original signed by*

Sterling Belliveau  
Minister

Health Canada has received a number of submissions<sup>20</sup>,<sup>21</sup> made on behalf of the family from Nova Scotia. In addition, at the request of the family, Krogh provided 24 emails to Dr. Michaud, Principle Investigator of the Health Canada wind turbine noise study regarding the family’s health issues.

Indications are that Health Canada advised that it considered a 45 dba noise level “conservative enough to account for low frequency noise” when it provided advice to an environmental officer [excerpt]:

**Sent:** Monday, May 14, 2012 11:06 AM  
**To:** CherylLK

I have been enquiring about the availability of equipment for low frequency monitoring in Halifax. I have been advised by the Environmental Assessment Branch (EA) who issued the approval to SPROTT that monitoring is currently underway and Health Canada's 45 dba noise level would be conservative enough to account for low frequency noise. The results of this monitoring will be forwarded to Health Canada for analysis.

The Minister of Environment, Nova Scotia commented that Health Canada reviewed noise modeling information.

**From:** Hon. Sterling W (ENV) Belliveau [mailto:MIN\_ENV@gov.ns.ca]  
**Sent:** Thursday, May 10, 2012 3:41 PM  
**To:** cheryllk@eastlink.ca  
**Subject:** Your recent e-mail to the Minister of Environment

Through our Environmental Assessment branch, acceptable wind turbine setback distances are identified through noise modeling and information that is site specific. This modeling information is then reviewed by Health Canada. Wind developers are also encouraged to follow any municipal set back limits.

*Original signed by*

Sterling Belliveau  
Minister

### **Part III: Government of Canada activities**

Part III explores some of the government of Canada activities relating to renewable energy development. Sources include federal Access to Information and Privacy (ATIP) requests, correspondence and other sources.

#### *Canadian National Guidelines*

On January 11, 2012, Dr. McKinnon, Saskatchewan Chief Medical Officer of Health commented in a newspaper article by reporter Hutton that “the province will soon see guidelines from Health Canada for how far wind turbines should be from homes.”<sup>22</sup>

Hutton (2012) reported that “national guidelines which have been circulated in draft form, will closely match those in place in Ontario...” and that Saskatchewan will defer to the federal guidelines...”.<sup>23</sup>

An ATIP request reveals the July 2010 membership of the Working Group of the FPT Committee on Health and the Environment (FPT CHE) participating in the development of the national guidelines referred to by Dr. McKinnon.

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Health Canada Santé Canada

Your health and safety... our priority. Votre santé et votre sécurité... notre priorité.

Prepared by: The Working Group of the FPT Committee on Health and the Environment (FPT CHE) July 2011

Federal/Provincial/Territorial (FPT) Guidelines for Wind Turbine Noise (Interim)

**MEMBERSHIP OF THE WORKING GROUP OF THE FEDERAL-PROVINCIAL-TERRITORIAL COMMITTEE ON HEALTH AND ENVIRONMENT**

**Jurisdictional Representatives**

Northwest Territories	Department of Health & Social Services	Mr. Duane Fleming
British Columbia	British Columbia Ministry of Energy and Mines	Ms. Heather Johnstone
Alberta	Alberta Environment Alberta Health and Wellness	Mr. Long Fu Dr. Karina Thomas
Saskatchewan	Saskatchewan Ministry of Health	Mr. Tim MacCaulay
Manitoba	Manitoba Health	Mr. Bryan Blunt
Ontario	Ontario Ministry of Health and Long-Term Care	Ms. Doris Dumais Dr. Gloria Rachamin
Quebec	Direction des relations intergouvernementales	Ms Danielle Pronovost
New Brunswick	Department of Environment	Ms. Kim Edmondson
Nova Scotia	N.S. Health Promotion and Protection	Mr. Gary O'Toole
Prince Edward Island	PEI Department of Environment, Energy and Forestry	Mr. Todd Fraser
Newfoundland/Labrador	Department of Environment and Conservation	Ms. Angela Burridge
Federal	Health Canada	Ms. Beth Pieteron Dr. Christian Lavoie Dr. Stephen Bly

**Committee Secretariat**

Health Canada  
Ms. Tara Bower  
Mr. D'Arcy McGuire



An ATIP Inquiry about the selection criteria for members on the working group was not available.

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Information Act / Document divulgué en vertu  
de la Loi sur L'accès à l'information

**- Criteria for the selection of members is not available as members were appointed by their respective province/territories. Consequently, Health Canada does not possess an overview of the affiliations, credentials and expertise of the members.**

A teleconference held June 28, 2010 resulted in "A Record of Decision (Draft)" which indicated working group members were supportive of using Ontario guidelines as a starting point for the national guidelines. As well, the May 1010 report of Ontario Chief Medical Officer of Health was to be considered.

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de la Loi sur L'accès à l'information



**Record of Decision (Draft)  
Working Group of the Federal Provincial Territorial Committee on Health and  
Environment  
Voluntary National Guidelines on Wind Turbine Noise**

**Teleconference, Monday, June 28<sup>th</sup>, 1:00 p.m. – 2:30 p.m.**

**IN ATTENDANCE:**

Tara Bower, Health Canada (Secretariat)	Glenda MacKinnon-Peters, P.E.I.
Doris Dumais, Ont.	Gary O'Toole, N.S.
Kim Edmonson, N.B.	Beth Pieterston, Health Canada (Chair)
Long Fu, Alta.	Gloria Rachamin, Ont.
Christian Lavoie, Health Canada	Heather Van Dusen, Health Canada
Tim Macaulay, Sask.	

**ABSENT:**

Duane Fleming, N.W.T.  
Heather Johnstone, B.C.  
Kami Kandola, N.W.T  
Karina Thomas, Alta.

## Discussion of Guideline Framework

A document outlining proposed elements of the framework was reviewed. Working group members were supportive of using the Ontario Guidelines as a starting point for the national guidelines, and looking at addressing low frequency noise in the document as well. Also to be considered is the Ontario Chief Medical Officer of Health (CMOH)'s May 2010 Report, "*The Potential Health Impacts of Wind Turbines*", and the document will be positioned with regards to the World Health Organization's Night Noise Guidelines, which differ from Ontario's. Any documents used in the development of the Guidelines will be referenced.

Some provinces indicated their use of Ontario or federal noise guidelines. [see also *Part II: Government Feedback (federal and provincial)*/Nova Scotia excerpts]

### New Brunswick

- Currently generating 195 MW of wind power, with 150 MW under construction. Based on proposals, another 100 MW is anticipated.
- By 2016, a 10% increase is expected in the amount of energy that is generated through renewable sources, with wind power accounting for part of this.
- An Environmental Impact Assessment is required in NB for wind projects, and Health Canada's Guidelines for noise levels are used
- If a wind turbine is situated within 1km of a residence, follow-up monitoring of noise levels is required.

### Nova Scotia

- There are currently more than 20 wind farms in N.S., with some still pending. It's expected that by 2015, 25% of the province's energy will be generated from renewable sources.
- Opposition to wind turbines is currently growing in the province.
- There are currently no offshore projects.
- N.S. applies the federal guidelines for noise when granting approvals.

### Saskatchewan

- There is currently 1 large wind farm in the province and one upcoming project that will be closer than the existing one to a residential area.
- The province applies the Ontario Guidelines when conducting the EAs for wind projects in Saskatchewan.

A Health Canada May 19, 2010 presentation indicated federal targets of 20 % by 2025 for Canada's electricity generation. It was projected that by 2015, approximately 14,000 houses and buildings (about 28,000 individuals) would be within 1,000 meters of wind turbines.

## Healthy Environments and Consumer Safety Branch

FPT Committee on Health and Environment

### Proposal to Develop National Guidelines on Wind Turbine Noise

May 19, 2010



### Context and Growth of the Industry

- The wind turbine industry is steadily expanding in Canada
- Wind capacity currently surpassing 3 Gigawatts -- or 1.1% of Canada's electricity generation/consumption.
- By 2015 expected to reach 10 GW – 20 fold increase over 2000.
- Federal targets -- 20% of Canada's electricity generation by 2025
- Provincial targets – vary however on average 20-25% by 2025.
- By 2015 – projected that approximately 14,000 houses and buildings will be located within 1000 meters of turbines affecting approximately 28,000 individuals.

The presentation commented on the Scientific Evidence. There was “likely enough science to support an association” between noise and high annoyance and some evidence of sleep disruption. It was noted that the body could perceive low frequency noise.

## Scientific Evidence

- No experimental or epidemiological studies that support a statistical association between wind turbine noise and negative health effects.
- Likely enough science to support an association between wind turbine noise and high annoyance, and there is some accumulating evidence that sleep is disrupted in some cases.
- Uncertainty as to whether the issue is limited to audible noise alone - the body can perceive sounds the ear cannot hear (LFN).
- Noise guidelines concentrate on A-weighted levels/decibels (dBA). Some turbines are operating at lower frequencies which are difficult to measure and need to be assessed.

The ATIP request indicates discussion about the term annoyance. The term annoyance is acknowledged as an adverse health effect. <sup>24, 25, 26, 27</sup>

This presentation took place May 19, 2010. However, in December 2009, The American Wind Energy Association and Canadian Wind Energy Association funded experts to conduct a literature review which identifies a causal link (through annoyance) to the reported adverse health effects. The authors of the industry convened report determined the documented "wind turbine syndrome" symptoms (sleep disturbance, headache, tinnitus, ear pressure, dizziness, vertigo, nausea, visual blurring, tachycardia, irritability, problems with concentration and memory, and panic episodes associated with sensations of internal pulsation or quivering when awake or asleep are symptoms) are not new and have been published previously in the context of "annoyance" and are the "well-known stress effects of exposure to noise". <sup>28</sup>

Representatives from Ontario included Ms Doris Dumais and Dr. Gloria Rachiman, lead author of the Chief Medical Officer of Health (May 2010) report. The Ontario MOE comment states: "According to the Ontario Environmental Protection Act, an adverse effect means several things including annoyance."

**Ontario MOE Comments on the  
Draft National Guideline on Wind Turbine Noise for Canada, October 2010**

ISSUE	MOE COMMENT	Response / Follow-up
<b>Health Impacts and Annoyance</b>	<p>Suggest greater clarity and further justification regarding the stated relationship between health and noise limits.</p> <p>Note that the Ontario MOE noise guidelines, wind turbines as well as other noise guidelines, are designed to prevent adverse effects. According to the Ontario Environmental Protection Act, an adverse effect means several things including annoyance. It is the research data relating noise with annoyance (percentage of people highly annoyed) that is fundamental to all MOE noise guidelines.</p>	

In the "Response/Follow-up" column, Health Canada notes "It's the annoyance that leads to health impacts".

**There is no scientific support or explanation in the document for the noise level chosen and how the noise level and setback distance are protective of human health.** If the guidelines are health-based, then presumably following the guidelines will protect human health. There is no explanation of why these specific noise levels and setbacks were chosen and how they will protect human health.

Annoyance Limit

**These are key pieces of information that are needed in order to call these guidelines "health-based".** Without the two critical pieces of information, i.e. health effects directly associated with wind turbine noise and a rationale as to how the levels chosen will protect human health, I would hesitate to call these guidelines "health based". I see a lot of valuable information in these guidelines and I see the value in having consistent guidelines across the country. However, I do not see these guidelines as health-based. I think we would be on more solid ground if the basis of these guidelines was something other than health.

There is scientific support but it is not stated here. Make the connection up front. Don't equate noise perception with health impacts. It's the annoyance that leads to health impacts.

A discussion about tonal noise indicates awareness of risks to added annoyance and references that transformer sound emissions are tonal [see *2012: Ontario Public Health Unit and Boards, Whitworth*].

D'Arcy McGuire

Hi Stephen, In his comments, David comments...

2011-07-11 08:59:45 AM

From: D'Arcy McGuire/HC-SC/GC/CA  
To: Stephen Keith/HC-SC/GC/CA@HWC  
Date: 2011-07-11 08:59 AM  
Subject: Guideline Comments

Hi Stephen,

In his comments, David comments on Section 8.48- Adjustment for Special Quality of Sound.

The Section reads as follows:

Tonal noise may be a source of added annoyance and may have a high potential to disturb receptors. Should the manufacturer's data indicate that the wind turbine sound emissions are tonal at the receptor; the measured or calculated sound emissions should be adjusted by 5 dB for tonality, in accordance with some guidance in Canada and ISO 9613-2.

The calculations of the transformer noise should be consistent with the provisions of *Section 8.2.4*. Furthermore, since transformer sound emissions are tonal, an adjustment of 5 dB should be added to the specified emissions in accordance with ISO-9613-2.

His comments are as follows:

By what criteria/standard does a manufacturer determine if their turbine is tonal. A 5dB penalty is very large and unless specifications are provided on what defines tonality, this could be problematic if left open like this.

*Author's note: It is unclear whether a discussion occurred recommending that federal targets be revised and that there should be a pause for additional project approvals and remedy applied to existing sites reporting adverse health issues until confidence in the safe implementation of wind energy facilities was achieved.*

The ATIP request contained discussion dated September 16, 2011 about the lack of ability to measure wind turbine sound.

Stephen Keith      Dear D'Arcy, Short answer - You can't measure...      2011-09-16 03:56:20 PM

From: Stephen Keith/HC-SC/GC/CA  
To: D'Arcy McGuire/HC-SC/GC/CA@HWC  
Date: 2011-09-16 03:56 PM  
Subject: Re: ISO Reference

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Dear D'Arcy,

Short answer - You can't measure wind turbine noise. Change all occurrences of "measurement" to prediction, estimate, etc.

Rationale - Environmental noise measurements are always made when there is no wind (even in windy areas). Wind turbines can not be measured using the standard procedure (when there is no wind) so we need a new way to measure them.

Ontario is evaluating the response to two RFP's for measuring wind turbine noise. Maybe they can come up with an acceptable method. Until then we can only use predictions based on measurements made close to the turbine.

Best regards  
Stephen

Stephen Keith, PhD  
Consumer and Clinical Radiation Protection Bureau /  
Bureau de la protection contre les rayonnements  
des produits cliniques et de consommation  
Health Canada / Santé Canada

The Ontario MOE commented July 29, 2011 on low frequency noise measurements and indicated the lack of measurement procedure.

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de la Loi sur l'accès à l'information, le 10 août 2011

## **Ontario MOE Comments on the Draft Canadian Guidelines for Wind Turbine Noise, July 29, 2011**

### **4. Low Frequency Noise**

Suggest to delete or significantly modify the second paragraph in section 6, LFN Consideration. Currently, it just raises a concern with LFN but provides few solutions. We have currently no measurement procedure for LFN, no assessment method for indoor LFN and the science that would support LFN assessment criteria is still emerging. The focus on "rattle" is not clear – does not seem to be a significant issue with wind turbine noise.

The Ontario MOE commented about the status relating to draft reports for low frequency noise study and the noise measurement study.

## 5. MOE Studies for LFN and Measurements

We currently have the draft reports for the LFN study as well as the wind turbine noise measurement study. The final reports of the studies should be available shortly.

- **LFN:**  
The main conclusion of the draft report is that further work is required.
- **Measurement:**  
MOE measurement procedure involves several steps and methods, from simple measurements to sophisticated long term measurements.

We will circulate the reports when the final versions become available.

A December 2010 report commissioned by the Ontario Ministry of Environment was available and submitted during disclosure for an Ontario Environmental Review Tribunal held February-March 2011. It was subsequently released December 2011 by the Ministry:

“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.

Stress symptoms associated with noise annoyance, and in particular low frequency annoyance, include sleep interference, headaches, poor concentration, mood swings...”<sup>29</sup>

***Author’s note: It is unclear whether a discussion occurred recommending that federal targets be revised and that there should be a pause for additional project approvals and remedy applied to existing sites reporting adverse health issues until confidence in the ability to measure noise is achieved.***

The Record of Discussion (Draft), February 3, 2011 indicates comments about 40 – 45 dB noise levels and set back distances. *Note this has been also referenced in Part II: Government Feedback (federal and provincial) regarding Nova Scotia correspondence.*

**Record of Discussion (Draft)**  
**FPT Committee on Health and the Environment**  
**Working Group on Wind Turbine Noise**  
**Teleconference/Meeting: Thursday, February 3, 1:00 p.m. - 3:00 p.m.**

**Participants:**

Heather Johnstone (BC)  
 Karina Thomas (Alta)  
 Tim McCaulay (Sask)  
 Bryan Blunt (Man)  
 Gloria Rachamin (Ont)  
 Vic Schroeder (Ont)  
 Kim Edmonson (NB)  
 Gary O'Toole (NS)

Todd Fraser (PEI),  
 Tara Bower (Chair) (HC),  
 Stephen Keith (HC),  
 Mary Hill (HC),  
 Stephen Bly (HC),  
 Sarah Leslie (HC),  
 D'Arcy McGuire (HC)

Indications are Health Canada "recommended 45 dBA" at 8 m/sec which "aligns with Ontario's existing Guidelines".

<p><b>D. Setback Distances:</b> Discussion centered on the need to clarify the Guidelines- setback is a component of noise predictions and that this is an evergreen document, which will change as new evidence comes to light; also the need to accommodate provinces with smaller, more densely populated land masses. Proposed "recommended" setback distances of 550 metres. Some allowance may be made for less, based on circumstances ( examples to be provided).</p> <p><b>E. Noise Assessment Reports/Table 2:</b> Discussion of whether the limit should be 40 or 45 dBA . Health Canada has proposed 45 dBA based on maximum sound power level produced at any speed (Pederson). 45 dBA also accounts for "rattle. Current trend seems to be at a specific wind speed such as 40 dBA at 8 m/sec: (agrees with WHO definition). Ontario uses 95% SPL.          Use of : 40 dBA at 4 – 6 m' sec          42 dBA at 7 m/sec          45 dBA at 8 m/sec          Note this aligns with Ontario's existing Guidelines</p>	<p><i>HC to revise Guidelines accordingly, specific examples where a shorter setback distance would be acceptable will be provided by participants.</i></p> <p><i>HC to propose new text for WG. HC to review ISO 9.6.13.2 for possible wording. HC to provide text articulating an explanation of SPL and its relationship to background noise etc.) HC to draft text defining offshore turbines/farms. Ont (Vic) to provide info on Ontario's penalties (adjustments?) Also, Table 2 to be described as a "fast track " guide only</i></p>
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Indications are the committee members were provided with a copy of the Night Noise Guidelines for Europe (WHO 2009). The table excerpted gives ranges for dB(A) noise levels in general and the relationship to health effects. The table indicates health effects occur starting at 30 dB(A) and that vulnerable groups are more susceptible.



**Table 4.1. Ranges for the relationship between nocturnal noise exposure and health effects in the population**

$L_{night,outside}$	Health effects observed in the population
< 30 dB(A)	Although individual sensitivities and circumstances differ, it appears that up to this level no substantial biological effects are observed.
30 – 40 dB(A)	A number of effects are observed to increase: body movements, awakenings, self-reported sleep disturbance and arousals. The intensity of the effect depends on the nature of the source and the number of events. Vulnerable groups (for example, children and chronically ill and elderly people) are more susceptible. However, even in the worst cases, the effects seem modest.
40 – 55 dB(A)	Adverse health effects are observed among the exposed population. Many people have to adapt their lives to cope with the noise at night. Vulnerable groups are more severely affected.
> 55 dB(A)	The situation is considered increasingly dangerous for public health. Adverse health effects occur frequently, and a sizable proportion of the population is highly annoyed and sleep-disturbed. There is evidence that the risk of cardiovascular disease increases.

Source: Night noise guidelines for Europe (38).

Note. The guidelines assume an average attenuation of 21 dB(A) between inside and outside noise levels.

A comment from Quebec noted “Nuisances would be felt from wind noise levels as low as 30 dB in residential areas initially quiet”. Note that “nuisance” in French is associated with “adverse health effect” [see *Présentation ouverte: Les éoliennes industrielles peuvent nuire à l'homme Impacts sur la santé et la social-économique de Québec Soumis par Carmen Krogh, BScPharm 19 décembre 2012*].



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- à niveau sonore égal, le bruit des éoliennes est susceptible de causer des nuisances plus importantes que le bruit d'autres sources;
- des nuisances seraient ressenties à partir d'un niveau de bruit éolien aussi bas que 30 dB, en zone résidentielle initialement calme.

(Translation by Google translate: any errors are unintended)

§ a sound level equal to wind turbine noise is likely to cause a nuisance more important than the noise from other sources:

§ nuisances would be felt from wind noise levels as low as 30 dB in residential areas initially quiet.

### **3. Conclusion et recommandation**

Dans l'état actuel des connaissances, il y a lieu de questionner la capacité des critères actuels, normalement applicables aux autres sources de bruit, d'assurer un confort acoustique acceptable aux collectivités riveraines de parcs éoliens. En conséquence, il nous semble prématuré et hasardeux d'utiliser ces critères pour établir les lignes directrices fédérales applicables au bruit éolien.

Nous recommandons que, dans un premier temps, Santé Canada coordonne une recherche pancanadienne visant à établir la relation dose-réponse applicable au bruit éolien. Une fois cette relation bien documentée, il sera possible d'établir des lignes directrices en toute connaissance de cause.

(Translation by Google translate: any errors are unintended)

### **"3. Conclusion and Recommendation**

In [an actual state] from knowledge, there is reason to question the ability of current criteria normally applicable to other noise sources, to ensure acoustic comfort acceptable to the communities of wind farms. Therefore, it seems premature to venture and use these criteria to establish federal guidelines applicable to wind turbine noise.

We recommend that as a first step, Health Canada coordinate pan-Canadian research to establish a dose-response relationship applicable to wind noise. Once this relation is well documented, it is possible to establish guidelines based on causality."

**Appendix X** of the draft National Guidelines discusses WHO Guidelines and notes a potential concern about the definition of health requiring medicine and society to "obtain unobtainable goals". The discussion also comments on the evidence presented by WHO that environmental noise should be considered a concern for public health and environmental health.

**APPENDIX X:**

**HEALTH IMPACTS OF NOISE – DISCUSSION OF WHO GUIDELINES**

The evidence and recommendations presented in the WHO documents described above are based primarily on statistical data of traffic noise, i.e. road, aircraft and rail. The recommendation regarding adverse health effects are made in relation to the WHO definition of health. WHO define health as “*a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.*”

The WHO definition captures a broad array of issues, including the quality of life, and is clearly more encompassing than the Oxford dictionary definition of health, being “*the state of being free from illness or injury*”. A potential concern with the WHO definition of health, expressed in<sup>1</sup>, is that it puts “medicine and society in the untenable position of being required to obtain unobtainable goals”.

...

The evidence presented by the World Health Organization that “*environmental noise should be considered not only as a cause of nuisance but also a concern for public health and environmental health*” is considerable and persuasive. However, the recommended 40 dBA night-time exposure criterion appears controversial and likely needs further discussion. This single number criterion differs from the commonly used range of environmental noise criteria that depend on the character of the noise and the character of the area where the receptor is located.

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<sup>1</sup> What Is an Adverse Health Effect?, Russell P. Sherwin, Environmental Health Perspectives, Vol. 52, pp. 177-182, 1983

The reference cited is from 1983. However, as indicated in *Part I - Expectations of the Public* Canada has reaffirmed commitment to the WHO definition of health. The introduction of a new noise source in a quiet rural community is in conflict with the expectations of the public requesting health protection. Prior to the introduction of a new noise source, rural communities typically had low ambient sound levels.

***Author's note: It is unclear whether a discussion occurred about health effects being reported by rural residents to some of the provincial ministries and Health Canada regarding noise levels associated with wind energy projects.***

***February 2012: Status update: National Guidelines***

An inquiry about the status of the national guidelines, Health Canada resulted in a February 6, 2012 advisory that “Recently however, all members of this working group concluded that

it would not be possible to complete their work at this time, as agreement was not reached by all members on the overall content of the draft voluntary Guidelines." <sup>30</sup>

However, an ATIP request associated with the *Health Canada Wind Turbine Noise and Health Study* below indicates the intention to establish a National Guideline once the health study is complete [excerpt below].

### *Health Canada Wind Turbine Noise and Health Study*

The Health Canada announcement of July 7, 2012 on wind turbine noise and health study indicates its approach includes supporting decision, advice and policies regarding wind power developments proposals. It is unclear whether the study is a scientifically independent health study or a study to support policy.

Requests for clarifications from Health Canada on this point are still pending. However, indications are that policy is an important consideration.



Home > Environmental & Workplace Health > Consultations

### **Notice to Stakeholders - Health Canada Wind Turbine Noise and Health Study**

Health Canada's approach will support decision makers by strengthening the evidence base of peer-reviewed scientific research that ultimately supports decisions, advice and policies regarding wind power development proposals, installations and operations in Canada.

Some members are policy oriented and some were members of the Proposed Wind Turbine Guidelines for Canada discussed in the above section *Canadian National Guidelines*.

A list of members is available [http://www.hc-sc.gc.ca/ewh-semt/consult/\\_2012/wind\\_turbine-eoliennes/committee\\_comite-eng.php](http://www.hc-sc.gc.ca/ewh-semt/consult/_2012/wind_turbine-eoliennes/committee_comite-eng.php)

An ATIP request reveals the Wind Turbine Research Communications Plan indicated one of the key messages is a commitment to protect the health of Canadians regarding renewable energy sources:

## Wind Turbine Research Communications Plan

DRAFT - April 26, 2012

### VII. Key Messages

- Our government is committed to protecting the health of Canadians with respect to renewable energy sources.

A Milestone indicated that following the release of information about the study, it is recommended that no further information is to be disclosed with the exception of MPs whose ridings are affected.

### VIII. Milestones

**Immediate** - Information pertaining to HC's intention to begin investigating health effects from wind turbine noise can be released shortly however it is recommended that no further information be disclosed until results are collected with the exception of MPs whose ridings are affected. HC could provide advance indication to MPs of affected ridings.

Further announcements can be made once research has been carried out and data is being analysed.

Indications of disclosure to the public will be limited to the final results of the research.

Strategic alliances include federal departments and agencies with interests in clean energy including NRCan (Natural Resources Canada), the Public Health Agency of Canada, NRC (National Research Council), CCMOH and PHNC will be updated on a regular basis.

It is unclear whether the public will be updated on a regular basis.

### IX. Strategic alliances

- HC is partnering with other federal departments and agencies with interests in clean energy i.e. NRCan, NRC, PHAC. Note – Industry Canada is no longer involved in wind energy.
- Provincial and territorial governments will be engaged through the FPT Network currently in place.
- CCMOH and PHNC will be updated on a regular basis.

The CCMOH (Canadian Councils of Medical Officers of Health) includes the federal, provincial and territorial Chief Medical Officers of Health. CCMOH is a member of the PHNC (Public Health Network Council)<sup>31</sup> which is in turn a member of the Pan-Canadian Public Health Network.<sup>32</sup> An excerpt of the governance structure helps to simplify this:

**PAN-CANADIAN PUBLIC HEALTH NETWORK GOVERNANCE STRUCTURE**



The provincial Chief Medical Officers of Health include:

[Dr. André Corriveau](#) – Public Health Network Council Provincial/Territorial Co-Chair  
Chief Medical Officer of Health, Northwest Territories

[Dr. David Butler-Jones](#) – Federal [Public Health Network Council Federal Co-Chair]  
Chief Public Health Officer of Canada, Public Health Agency of Canada

[DM Carolyn MacKay](#) – Provincial/Territorial Co-Chair of the Public Health Network Council, New Brunswick Deputy Minister of Culture, Tourism and Healthy Living

[Ms. Sherri Wright](#) – Yukon  
Assistant Deputy Minister, Department of Health and Social Services

[Mr. Dana Heide](#) – Northwest Territories  
Assistant Deputy Minister, Department of Health and Social Services

[Dr. Maureen Baikie](#) - Nunavut  
Chief Medical Officer of Health, Department of Health and Social Services

[Dr. Perry Kendall](#) – British Columbia  
Provincial Health Officer, Ministry of Health

[Mr. Neil MacDonald](#) - Alberta  
A/Assistant Deputy Minister, Family and Population Health, Alberta Health

[Mr. Rick Trimp](#) – Saskatchewan  
Executive Director, Population Health Branch, Ministry of Health

[Mr. Terry Goertzen](#) - Manitoba  
Assistant Deputy Minister, Health Workforce, Manitoba Health

[Dr. Arlene King](#) – Ontario  
Chief Medical Officer of Health, Ministry of Health and Long-Term Care

[Dr. Horacio Arruda](#) - Québec  
Director of Public Health Protection, Ministry of Health and Social Services

[Dr. Eilish Cleary](#) – New Brunswick  
Chief Medical Officer of Health, Department of Health

[Dr. Heather Morrison](#) – Prince Edward Island  
Chief Health Officer, Department of Health and Wellness

[Dr. Robert Strang](#) – Nova Scotia  
Chief Public Health Officer, Department of Health and Wellness

[Ms. Rosemary Boyd](#) – Newfoundland and Labrador  
Director of Government Relations, Department of Health and Community Services

[Dr. Paul Gully](#) – Federal  
Senior Medical Advisor, Office of the Deputy Minister, Health Canada

The excerpts below are drawn from a presentation made by Health Canada representatives to the Science Advisory Board, February 2, 2012.

The presentation briefly outlines the Federal Involvement in Wind Energy.

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## Federal Involvement in Wind Energy

### Federally:

- The ecoENERGY Efficiency program is investing \$78 million between 2011 and 2013 to maintain the Government of Canada's momentum to improve energy efficiency in Canada. Wind energy is recognized as a key component of Canada's clean energy targets.

### Natural Resources Canada (NRCan):

- Maintains the Office of Energy Efficiency (OEE) - Canada's centre of excellence for energy, efficiency and alternative fuels information. The OEE is mandated to strengthen and expand Canada's commitment to energy efficiency in order to help address the Government of Canada's policy objectives
- Is the Responsible Authority for wind turbine federal environmental assessments under CEAA
- Chairs the Interdepartmental Wind Technology Road Map Committee (HC is a member)
- Administers the EcoEnergy Innovation Initiative (EcoEII) – program to support innovation in the clean energy sector through provision of funding to federal departments for R&D projects

### Industry Canada, other GoDs:

- Focus on supporting wind energy as a sustainable, clean energy source

It is noted that between the years 2011 to 2013, the Federal investment of \$78,000,000 is through the ecoENERGY Efficiency program administered by NRCan. Representatives from NRCan are participating on the Health Canada wind turbine study team.

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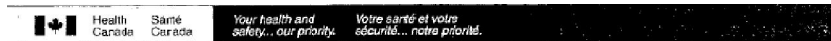
## Federal Involvement in Wind Energy

### Federally:

- The ecoENERGY Efficiency program is investing \$78 million between 2011 and 2013 to maintain the Government of Canada's momentum to improve energy efficiency in Canada. Wind energy is recognized as a key component of Canada's clean energy targets.

The title of the presentation indicates the overlap regarding policy and research approach.

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Healthy Environments and Consumer Safety Branch

**Health Canada Policy and Research Approach  
for Wind Turbine Noise**  
*A Presentation to the Science Advisory Board*  
*February 2, 2012*

The presentation indicates the Policy Challenges include an increased number of projects and goals relating to decisions, advice and policies.

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**Policy Challenges and Knowledge Gaps**

- Increased numbers of wind power projects and media attention

**Goals:**

- To provide the government and other stakeholders with new scientific evidence that could be used to inform decisions, advice and policies on practices regarding wind turbine proposals, installations and operations in Canada.

The Policy and Research work plan is intended to demonstrate Canada's commitment to responsible introduction of wind energy and to support development of international and domestic policy.

Indications are that there is intention to continue with the development of national guidelines as briefly discussed in the above section on *Canadian National Guidelines*.



## Policy and Research Work Plan:

- ✓ Intended to demonstrate the Government of Canada's commitment and due diligence with respect to responsible introduction of wind technology;
- ✓ Places Health Canada in a stronger position to respond to enquiries from stakeholders;
- ✓ Will position Canada as an international leader and support the development of international and domestic policy - including the development of Health Canada-led *FPT Guidelines for Wind Turbine Noise*; and

The national targets for generating 20% of Canada's electricity by wind power by 2025 is associated with the June 2011 *Speech from the Throne* and that wind energy carries fewer and less serious health impacts than coal and other.

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## National Landscape

- National targets - 20% of Canada's electricity generation by wind power by 2025
- June 2011 *Speech from the Throne* reaffirmed Canada's commitment to green energy
- Wind energy is a sustainable, non-fossil fuel, clean energy source and therefore carries fewer and less serious health impacts than coal and other fossil fuel sourced alternatives

The presentation acknowledges that wind turbines are typically in rural areas making them a dominating noise source; during operation, sound goes from natural to industrial; LFN component is identified; and other issues.

## Wind Turbines and Health

### Characteristics of Wind Turbine Noise

...which tend to be associated with community reaction include:

- Typically located in rural areas, making them a dominating noise source
- During operation sound environment goes from natural to industrial
- Contains a low frequency component, similar to heating, ventilation and air conditioning systems.
- Anecdotally described as an endless circulating airplane or boot in the dryer
- Unpredictable operating times
- Occasionally produce a whine, hiss, screech, hum, bang, clatter, click, thump or grinding

The presentation refers to the Chief Medical Officer of Health report (May 2010). The Sierra Club, Environmental Defence, Ontario Sustainable Development Association, CanWEA and AWEA are cited in support similar conclusions were reached as that of the CMOH report.

## Wind Turbines and Health

- Ontario Chief Medical Officer of Health Report (2010) states: "scientific evidence available to date does not demonstrate a direct causal link between wind turbine noise and adverse health effects". Similar conclusions reached by Sierra Club Canada (2011), Environmental Defence and Ontario Sustainable Development Association (2011), CANWea, AWea and others.

*Author's note: it is unclear whether the peer reviewed and published research available in February 2012 was cited during the presentation.*

Policy Challenges and Knowledge Gaps were identified which reinforce the lack of evidence and direct health impacts. This is in spite of evidence to the contrary which has been provided to Health Canada.

## Policy Challenges and Knowledge Gaps

- Increased numbers of wind power projects and media attention
- Lack of peer-reviewed, scientific evidence on links between wind turbine noise, in particular low frequency noise, and direct health impacts
- Absence of prevalence data for effects associated with WT noise exposure. For example, how big a problem is this and how does it compare with other noise sources, e.g. traffic noise?
- Multi-jurisdictional nature of interests related to wind energy
- Anticipated objections to guidelines that do not reflect the position of those seeking a moratorium on new developments, greater setbacks, and night noise limits below WHO thresholds

## Part IV: Consequences to quiet rural communities

A number of Canadians have written both the federal and provincial authorities requesting health protection from operating and proposed wind energy projects.

A causal link is acknowledged by a former Minister of Environment (Canada), July 2009 that "the only health effect conclusively demonstrated from exposure to wind turbine noise, is

an increase in self-reported general annoyance and complaints (i.e. headaches, nausea, tinnitus, vertigo.) [excerpt]:



**Honourable Rona Ambrose, P.C., M.P.**  
**L'honorable Rona Ambrose, C.P., députée**

Member of Parliament for Edmonton – Spruce Grove  
Minister of Labour

Députée d'Edmonton – Spruce Grove  
Ministre du Travail

JUL 30 2009

Carman Krogh Pharm

Health Canada provides advice on the health effects of noise and low-frequency electric and magnetic fields from proposed wind turbine projects, particularly for environmental assessments done under the Canadian Environmental Assessment Act. To date, their examination of the scientific literature on wind turbine noise and health is that the only health effect conclusively demonstrated from exposure to wind turbine noise is an increase in self-reported general annoyance and complaints (i.e., headaches, nausea, tinnitus, vertigo).

Health Canada does not have any specific guidelines on wind turbines however, on request, the department provides reviews to Natural Resources Canada on the health effects of wind turbine noise and electric and magnetic fields, for wind farm environmental assessments. Such reviews

Although Health Canada does not currently recognize any further health concerns associated with wind turbines, we are constantly reviewing the effects that turbines have on Canadians, because we are committed to protecting the health of every individual during the development of renewable energy sources. I appreciate, therefore, you sharing your perspective with me.

Sincerely,

Honourable Rona Ambrose, P.C., M.P.

## Part V: Conclusion

Health Canada (2009) states:

“In order for research to be ethically acceptable, it must be scientifically sound. If research does not have sufficient scientific merit, generalizable knowledge cannot

be anticipated and the reason for undertaking the research vanishes. Even a negligible risk of harm resulting from research that may not yield meaningful results is inherently unethical.”<sup>33</sup>

Research for drug products e.g. clinical trials, have explicit criteria that protect investigational subjects while considering dosage levels, side effects, ethics and other parameters. The drug products are not imposed and if adverse effects occur, there is remedy, either by mitigating exposure or stopping the product.

Subjecting non-consenting individuals to an exposure which is known or suspected to have adverse health effects without remedy and then studying these individuals raises ethical issues.

Under normal circumstances, if someone claims to be affected by an exposure to agents such as peanuts, smoke, sulfites, scents, certain food, sea food, noise etc, the individual can avoid or remove the source.

If it is serious or life threatening regulators and/or society rise to the occasion and take steps such as banning peanuts in schools; no scents in offices; noise control for autistic or children with ADD or noise sensitive individuals; no sulfites at salad bars; seafood; and labeling non-medicinal ingredients in consumer and prescription products and food, including fast food. This is so that individuals at risk can avoid the exposure.

In the case of wind turbine facilities, they are imposed on the population, there is no remedy and those exposed can't avoid or remove the source.

To conclude there are expectations that federal and provincial systems are in place to protect health. In the case of industrial wind energy facilities, those seeking resolution or remedy are directed from one bureaucracy to another. Many have lost confidence in the assurance that the “government is committed to protecting health of Canadians with respect to renewable energy sources”.

Respectfully,

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<sup>1</sup> Health Canada (2004) Canadian Handbook on Health Impact Assessment: Volume 1: The Basics, A Report of the Federal/Provincial/Territorial Committee on Environmental and Occupational Health. Retrieved from <http://www.who.int/hia/tools/toolkit/whohia063/en/index.html>

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<sup>2</sup> Health Canada (2004) Canadian Handbook on Health Impact Assessment: Volume 1: The Basics, A Report of the Federal/Provincial/Territorial Committee on Environmental and Occupational Health. Retrieved from <http://www.who.int/hia/tools/toolkit/whohia063/en/index.html>

<sup>3</sup> United Nations General Assembly, Political Declaration of the High-level Meeting of the General Assembly on the Prevention and Control of Non-communicable Diseases, A/RES/66/2, Distr.: General 24 January 2012

<sup>4</sup> World Health Organization, The Ottawa Charter for Health Promotion, Retrieved from <http://www.who.int/healthpromotion/conferences/previous/ottawa/en/index.html> Cited August 2, 2012

<sup>5</sup> Some portions of this conclusion are drawn from the 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>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> Health Canada, About Health Canada, About Mission, Values, Activities, Retrieved from <http://www.hc-sc.gc.ca/ahc-asc/activit/about-appropos/index-eng.php>, Cited August 24, 2012

<sup>8</sup> Health Canada, About Health Canada, About Mission, Values, Activities, Retrieved from <http://www.hc-sc.gc.ca/ahc-asc/activit/about-appropos/index-eng.php>, Cited August 24, 2012

<sup>9</sup> Email correspondence barb Ashbee 2009 with local public health unit

<sup>10</sup> Submission by Krogh Confidential HC health study submission August 31 2012FINAL[2]

<sup>11</sup> Submission by Krogh HC health study submission August 31 2012FINAL[2] public

<sup>12</sup> Submission by Krogh Submission\_Health Canada study\_wind turbines\_Sept 20 2012 - ID removed

<sup>13</sup> Submission by Krogh Whitworth Submission\_Health Canada study\_wind turbines\_November 13 2012

<sup>14</sup> Information Note: Noise Complaints from Canadian Hydro Developers Inc. Melancthon – Amaranth Wind Turbines, dated May 8, 2009, Senior Environmental Officer, Guelph District Office, MOE

<sup>15</sup> August 21, 2009 Internal memo August 21, 2009, Provincial Officer, Ontario Freedom of Information request 2012: Teleconference: April 12, April 25. Face to face: May10. Teleconference: May 24, June 6, June 26, July 25, August 24

<sup>17</sup> Correspondence received from the Ministry of Environment, August 3, 2012

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

<sup>19</sup> Correspondence Krogh, Kingston, Frontenac and Lennox & Addington Public Health, 30 March, 2012

<sup>20</sup> Submission by Krogh, Confidential Health Canada submission November 26 2012 Redacted February 2 2013

<sup>21</sup> Submission by Krogh, Open Submission Health Canada submission February 2 2013 FINAL

<sup>22</sup> David Hutton (January 11, 2012), The Star Phoenix, Saskatchewan

<sup>23</sup> David Hutton (January 11, 2012), The Star Phoenix, Saskatchewan

<sup>24</sup> Health Canada. (2005). Community noise annoyance. Retrieved from <http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/life-vie/community-urbain-eng.php#he>

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<sup>26</sup> Maschke, C., & Niemann, A. (2007). Health effects of annoyance induced by neighbour noise. *Noise Control Engineering Journal*, 55, 348-356

<sup>27</sup> Suter, A. H. (1991). Noise and its effects. Administrative Conference of the United States. Retrieved from <http://www.nonoise.org/library/suter/suter.htm>

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<sup>29</sup> HGC (2010) Low frequency Noise and Infrasound Associated with Wind Turbine Generation Systems, A Literature Review, Ontario Ministry of Environment RFP December 2010

<sup>30</sup> February 6, 2012, Health Canada email correspondence, C Krogh

<sup>31</sup> <http://www.phac-aspc.gc.ca/publicat/healthpartners/3-eng.php>

<sup>32</sup> <http://www.phn-rsp.ca/network-eng.php>

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<sup>33</sup> Health Canada, Health Canada's Research Ethics Board, Ethics review of research involving humans, Administrative Policy and Procedures Manual, (2009)