Minutes of An Amherstburg Municipal Council Special Meeting Held On Tuesday, May 25, 2010 At 6:00 PM In Council Chambers

PRESENT:

Mayor Wayne Hurst
Deputy Mayor Robert Bailey
Councillor Rick Fryer
Councillor Bob (Robert) Pillon
Councillor John Sutton
Councillor William (Bill) Wark
Councillor Rosa White

ALSO PRESENT:

Pamela Malott, Chief Administrative Officer
Brenda Percy, Manager of Council & Leg. Services/Clerk
Ivano Fregonese, Budget Supervisor
Jackie Hubbs, Manager of Development Services

Doug McDougall, Area Supervisor, MOE
Michael Parker, District Manager, MOE

CALL TO ORDER

The Mayor called the meeting to Order at 6:00 p.m.

DISCLOSURE OF PECUNIARY INTEREST

There were no disclosures of pecuniary interest.

The Mayor provided a brief synopsis of the matter and the public's concern of the impact of the wind turbines. The Mayor reviewed the format of the meeting. He advised that questions have been provided in advance to the delegates for response.

DELEGATIONS

Delegation # 1

Mr. Mick MacCorquodale addressed Council and MOE regarding Wind Turbines Recent Developments and posed questions to the Ministry representatives. A copy of a presentation package was received and forms an Addendum to these minutes.

Delegation # 2

Mr. Bill Anderson addressed Council and MOE regarding Alternative Energy and posed questions to the Ministry representatives. A copy of Mr. Anderson's questions is attached and forms an Addendum to these minutes.

MOE RESPONSE TO SUBMITTED QUESTIONS

Michael Parker, District Manager, MOE and Doug McDougall, Area Supervisor, MOE responded to questions with respect to wind turbines. Mr. Parker explained their role is to inspect day-to-day activities for compliance and that they are not in the role of issuing approvals or setting policies.

Mr. Parker provided answers to the following questions:

- the sscience/criteria/data used to determine the setbacks;
- which engineers and/or doctors were used to sign off that the information would definitely safeguard residents;
- justification of issuing a Certificate of Approval when the MOE will not measure and monitor the sound emanating from the turbines;
- concerns about off shore projects;
- documentation outlining the regulations that the transitory projects must follow;
- Province's legal right to retroactively null and void municipal by-laws;
- Hiring of Siva Sivoththaman to chair health research regarding reported health issues with people living close to industrial wind turbines;
- How are the decommissioning costs being covered for renewable energy projects under Bill 150;
- Do decommissioning provisions account for site remediation;
- Are solar installations allowed on prime agricultural lands;
- Are there any limits to the dollar amount that a municipality may charge a proponent of a renewable energy project for the building permit fees;
- Endangered species and need to protect these species;
- Noise levels and inability to measure noise level;
- GenGrowth (Southside Windfarm) project, application and setbacks applicable;
- Why the 550 metre setback applies versus a 600 metre setback;
- Absence of information on potential health impacts;

The Mayor invited members of the public who wished to speak.

Allan Parks, resident, referred to decommissioning costs and noted that if there is no requirement to provide financial security to cover the cost of decommissioning, would the Town and taxpayers be responsible for the clean up. If so, could an allowance be made in the building permit process to cover this type of situation.

In response to a question from Mick MacCorquodale, the representative of GenGrowth, Mr. Paul Merkur explained the application process and reason the application for rezoning was withdrawn. He also explained the turbines being used on the project.

Catherine Boteck, resident, questioned the sound level measurement and the use of the dB level not only dBA level.

Allan Parks commented on endangered species and risk of turbines and onus on the applicants to monitor kills.

Mr. Mick MacCorquodale sought clarification as to the status of the building application and issuance of the permit. Stephen Brown, Chief Building Official provided clarification of the application of the building permit and the authority of Council to deny the building permit, if any. He clarified that a permit application was filed approximately two weeks ago and that the Chief Building Official has until June 2nd to either issue or deny the permit.

Councillor Fryer sought clarification as to whether deferring the entering into a road use agreement with the applicant would be considered applicable law, which would allow the Chief Building Official to deny the building permit application. Stephen Brown, Chief Building Official advised that he has sought a legal opinion on this matter.

Councillor Pillon sought clarification as to whether the applicant is required to comply with Town set back provisions or with provincial regulations. Jackie Hubbs, Manager, Development Services reiterated that the application was submitted and process begun under the Planning Act. During the process of the application to amend the Official Plan and zoning by-law, the application was granted a Certificate of Approval by Ministry of Environment and with the coming into force and effect of the Green Energy Act, the Transitional Regulations specified that the Planning Act no longer applied and a re-designation and re-zoning was no longer necessary.

Mick MacCorquodale questioned the difference between the Town of Amherstburg project and the Harrow project.

Councillor Fryer referred to a previous motion of Council which stated that all applications be held in abeyance until all questions are answered and questioned the impact of this motion on the issuance of the building permit.

In response to a question from Councillor White, Stephen Brown, Chief Building Official reviewed the provisions within the Building Code with regard to issuance of building permits.

REPORTS

Councillor Sutton moved, Deputy Mayor Bailey seconded:

That the comments from the public at this meeting be received;

That the report by Jackie Hubbs, Manager of Development Services dated May 20, 2010 regarding Ministry of Environment staff attendance at Council be received;

And further that the comments received by the public be forwarded to the MOE for review.

The Mayor put the Motion.

Motion Carried

BY-LAWS

Deputy Mayor Bailey moved, Councillor Pillon seconded:

That By-Law 2010-60 being a By-Law to confirm all resolutions of the Special Public Council Meeting held on May 25, 2010 at 6:00 p.m. be taken as having been read a first, second and third time, be finally passed and the Mayor and the Clerk be authorized to sign same and affix the Corporate Seal thereto.

The Mayor put the Motion.

Motion Carried

ADJOURNMENT

Councillor moved, Councillor seconded:

That Council adjourn at 7:25 p.m.

The Mayor put the Motion.

Motion Carried

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MAYOR - WAYNE HURST

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CLERK - BRENDA M. PERCY

The Potential Health Impact of Wind Turbines

Chief Medical Officer of Health (CMOH) Report

May 2010

Summary of Review

This report was prepared by the Chief Medical Officer of Health (CMOH) of Ontario in response to public health concerns about wind turbines, particularly related to noise.

Assisted by a technical working group comprised of members from the Ontario Agency for Health Protection and Promotion (OAHPP), the Ministry of Health and Long-Term Care (MOHLTC) and several Medical Officers of Health in Ontario with the support of the Council of Ontario Medical Officers of Health (COMOH), this report presents a synopsis of existing scientific evidence on the potential health impact of noise generated by wind turbines.

The review concludes that while some people living near wind turbines report symptoms such as dizziness, headaches, and sleep disturbance, the scientific evidence available to date does not demonstrate a direct causal link between wind turbine noise and adverse health effects. The sound level from wind turbines at common residential setbacks is not sufficient to cause hearing impairment or other direct health effects, although some people may find it annoying.

1

Introduction

In response to public health concerns about wind turbines, the CMOH conducted a review of existing scientific evidence on the potential health impact of wind turbines in collaboration and consultation with a technical working group composed of members from the OAHPP, MOHLTC and COMOH.

A literature search was conducted to identify papers and reports (from 1970 to date) on wind turbines and health from scientific bibliographic databases, grey literature, and from a structured Internet search. Databases searched include MEDLINE, PubMed, Environmental Engineering Abstracts, Environment Complete, INSPEC, Scholars Portal and Scopus. Information was also gathered through discussions with relevant government agencies, including the Ministry of the Environment and the Ministry of Energy and Infrastructure and with input provided by individuals and other organizations such as Wind Concerns Ontario.

In general, published papers in peer-reviewed scientific journals, and reviews by recognized health authorities such as the World Health Organization (WHO) carry more weight in the assessment of health risks than case studies and anecdotal reports.

The review and consultation with the Council of Ontario Medical Officers of Health focused on the following questions:

- What scientific evidence is available on the potential health impacts of wind turbines?
- What is the relationship between wind turbine noise and health?
- What is the relationship between low frequency sound, infrasound and health?
- How is exposure to wind turbine noise assessed?
- Are Ontario wind turbine setbacks protective from potential wind turbine health and safety hazards?
- What consultation process with the community is required before wind farms are constructed?
- Are there data gaps or research needs?

The following summarizes the findings of the review and consultation.

2

Wind Turbines and Health

2.1 Overview

A list of the materials reviewed is found in Appendix 1. It includes research studies, review articles, reports, presentations, and websites.

Technical terms used in this report are defined in a Glossary (Page 11).

The main research data available to date on wind turbines and health include:

- Four cross-sectional studies, published in scientific journals, which investigated the relationships between exposure to wind turbine noise and annoyance in large samples of people (351 to 1,948) living in Europe near wind turbines (see section 2.2).
- Published case studies of ten families with a total of 38 affected people living near wind turbines in several countries (Canada, UK, Ireland, Italy and USA) (Pierpont 2009). However, these cases are not found in scientific journals. A range of symptoms including dizziness, headaches, and sleep disturbance, were reported by these people. The researcher (Pierpont) suggested that the symptoms were related to wind turbine noise, particularly low frequency sounds and infrasound, but did not investigate the relationships between noise and symptoms. It should be noted that no conclusions on the health impact of wind turbines can be drawn from Pierpont's work due to methodological limitations including small sample size, lack of exposure data, lack of controls and selection bias.
- Research on the potential health and safety hazards of wind turbine shadow flicker, electromagnetic fields (EMFs), ice throw and ice shed, and structural hazards (see section 2.3).

A synthesis of the research available on the potential health impacts of exposure to noise and physical hazards from wind turbines on nearby residents is found in sections 2.2 and 2.3, including research on low frequency sound and infrasound. This is followed by information on wind turbine regulation in Ontario (section 3.0), and our conclusions (section 4.0).

2.2. Sound and Noise

Sound is characterized by its sound pressure level (loudness) and frequency (pitch), which are measured in standard units known as decibel (dB) and Hertz (Hz), respectively. The normal human ear perceives sounds at frequencies ranging from 20Hz to 20,000 Hz. Frequencies below 200 Hz are commonly referred to as "low frequency sound" and those below 20Hz as "infrasound," but the boundary between them is not rigid. There is variation between people in their ability to perceive sound. Although generally considered inaudible, infrasound at high-enough sound pressure levels can be audible to some people. Noise is defined as an unwanted sound (Rogers et al. 2006, Leventhall 2003).

Wind turbines generate sound through mechanical and aerodynamic routes. The sound level depends on various factors including design and wind speed. Current generation upwind model turbines are quieter than older downwind models. The dominant sound source from modern wind turbines is aerodynamic, produced by the rotation of the turbine blades through air. The aerodynamic noise is present at all frequencies, from infrasound to low frequency to the normal audible range, producing the characteristic "swishing" sound (Leventhall 2006, Colby et al. 2009).

Environmental sound pressure levels are most commonly measured using an A-weighted scale. This scale gives less weight to very low and very high frequency components that is similar to the way the human ear perceives sound. Sound levels around wind turbines are usually predicted by modelling, rather than assessed by actual measurements.

The impact of sound on health is directly related to its pressure level. High sound pressure levels (>75dB) could result in hearing impairment depending on the duration of exposure and sensitivity of the individual. Current requirements for wind turbine setbacks in Ontario are intended to limit noise at the nearest residence to 40 dB (see section 3). This is a sound level comparable to indoor background sound. This noise limit is consistent with the night-time noise guideline of 40 dB that the World Health Organization (WHO) Europe recommends for the protection of public health from community noise. According to the WHO, this guideline is below the level at which effects on sleep and health occurs. However, it is above the level at which complaints may occur (WHO 2009).

Available scientific data indicate that sound levels associated with wind turbines at common residential setbacks are not sufficient to damage hearing or to cause other direct adverse health effects, but some people may still find the sound annoying.

Studies in Sweden and the Netherlands (Pedersen et al. 2009, Pedersen and Waye 2008, Pedersen and Waye 2007, Pedersen and Waye 2004) have found direct relationships between modelled sound pressure level and self-reported perception of sound and annoyance. The association between sound pressure level and sound perception was stronger than that with annoyance. The sound was annoying only to a small percentage of the exposed people; approximately 4 to 10 per cent were very annoyed at sound levels between 35 and 45dBA. Annoyance was strongly correlated with individual perceptions of wind turbines. Negative attitudes, such as an aversion to the visual impact of wind turbines on the landscape, were associated with increased annoyance, while positive attitudes, such as direct economic benefit from wind turbines, were associated with decreased annoyance. Wind turbine noise was perceived as more annoying than transportation or industrial noise at comparable levels, possibly due to its swishing quality, changes throughout a 24 hour period, and lack of night-time abatement.

2.2.1 Low Frequency Sound, Infrasound and Vibration

Concerns have been raised about human exposure to "low frequency sound" and "infrasound" (see section 2.2 for definitions) from wind turbines. There is no scientific evidence, however, to indicate that low frequency sound generated from wind turbines causes adverse health effects.

Low frequency sound and infrasound are everywhere in the environment. They are emitted from natural sources (e.g., wind, rivers) and from artificial sources including road traffic, aircraft, and ventilation systems. The most common source of infrasound is vehicles. Under many conditions, low frequency sound below 40Hz from wind turbines cannot be distinguished from environmental background noise from the wind itself (Leventhall 2006, Colby et al 2009).

Low frequency sound from environmental sources can produce annoyance in sensitive people, and infrasound at high sound pressure levels, above the threshold for human hearing, can cause severe ear pain. There is no evidence of adverse health effects from infrasound below the sound pressure level of 90dB (Leventhall 2003 and 2006).

Studies conducted to assess wind turbine noise indicate that infrasound and low frequency sounds from modern wind turbines are well below the level where known health effects occur, typically at 50 to 70dB.

A small increase in sound level at low frequency can result in a large increase in perceived loudness. This may be difficult to ignore, even at relatively low sound pressures, increasing the potential for annoyance (Jakobsen 2005, Leventhall 2006).

A Portuguese research group (Alves-Pereira and Castelo Branco 2007) has proposed that excessive long-term exposure to vibration from high levels of low frequency sound and infrasound can cause whole body system pathology (vibro-acoustic disease). This finding has not been recognized by the international medical and scientific community. This research group also hypothesized that a family living near wind turbines will develop vibro-acoustic disease from exposure to low frequency sound, but has not provided evidence to support this (Alves-Pereira and Castelo Branco 2007).

2.2.2 Sound Exposure Assessment

Little information is available on actual measurements of sound levels generated from wind turbines and other environmental sources. Since there is no widely accepted protocol for the measurement of noise from wind turbines, current regulatory requirements are based on modelling (see section 3.0).

2.3 Other Potential Health Hazards of Wind Turbines

The potential health impacts of electromagnetic fields (EMFs), shadow flicker, ice throw and ice shed, and structural hazards of wind turbines have been reviewed in two reports (Chatham-Kent Public Health Unit 2008; Rideout et al 2010). The following summarizes the findings from these reviews.

- **EMFs**
  Wind turbines are not considered a significant source of EMF exposure since emissions levels around wind farms are low.

- **Shadow Flicker**
  Shadow flicker occurs when the blades of a turbine rotate in sunny conditions, casting moving shadows on the ground that result in alternating changes in light intensity appearing to flick on and off. About 3 per cent of people with epilepsy are photosensitive, generally to flicker frequencies between 5-30Hz. Most industrial turbines rotate at a speed below these flicker frequencies.

- **Ice Throw and Ice Shed**
  Depending on weather conditions, ice may form on wind turbines and may be thrown or break loose and fall to the ground. Ice throw launched far from the turbine may pose a significant hazard. Ice that sheds from stationary components presents a potential risk to service personnel near the wind farm. Sizable ice fragments have been reported to be found within 100 metres of the wind turbine. Turbines can be stopped during icy conditions to minimize the risk.

- **Structural hazards**
  The maximum reported throw distance in documented turbine blade failure is 150 metres for an entire blade, and 500 metres for a blade fragment. Risks of turbine blade failure reported in a Dutch handbook range from one in 2,400 to one in 20,000 turbines per year (Braam et al 2005). Injuries and fatalities associated with wind turbines have been reported, mostly during construction and maintenance related activities.

3

Wind Turbine Regulation in Ontario

The Ministry of the Environment regulates wind turbines in Ontario. A new regulation for renewable energy projects came into effect on September 24, 2009. The requirements include minimum setbacks and community consultations.

3.1 Setbacks

Provincial setbacks were established to protect Ontarians from potential health and safety hazards of wind turbines including noise and structural hazards.

The minimum setback for a wind turbine is 550 metres from a receptor. The setbacks rise with the number of turbines and the sound level rating of the selected turbines. For example, a wind project with five turbines, each with a sound power level of 107dB, must have its turbines setback at a minimum 950 metres from the nearest receptor.

These setbacks are based on modelling of sound produced by wind turbines and are intended to limit sound at the nearest residence to no more than 40 dB. This limit is consistent with limits used to control noise from other environmental sources. It is also consistent with the night-time noise guideline of 40 dB that the World Health Organization (WHO) Europe recommends for the protection of public health from community noise. According to the WHO, this guideline is below the level at which effects on sleep and health occurs. However, it is above the level at which complaints may occur (WHO 2009).

Ontario used the most conservative sound modelling available nationally and internationally, which is supported by experiences in the province and in other jurisdictions (MOE 2009). As yet, a measurement protocol to verify compliance with the modelled limits in the field has not been developed. The Ministry of the Environment has recently hired independent consultants to develop a procedure for measuring audible sound from wind turbines and also to review low frequency sound impacts from wind turbines, and to develop recommendations regarding low frequency sound.

Ontario setback distances for wind turbine noise control also take into account potential risk of injury from ice throw and structural failure of wind turbines. The risk of injury is minimized with setbacks of 200 to 500 metres.

3.2 Community Consultation

The Ministry of the Environment requires applicants for wind turbine projects to provide written notice to all assessed land owners within 120 metres of the project location at a preliminary stage of the project planning. Applicants must also post a notice on at least two separate days in a local newspaper. As well, applicants are required to notify local municipalities and any Aboriginal community that may have a constitutionally protected right or interest that could be impacted by the project.

Before submitting an application to the Ministry of the Environment, the applicant is also required to hold a minimum of two community consultation meetings to discuss the project and its potential local impact. To ensure informed consultation, any required studies must be made available for public review 60 days prior to the date of the final community meeting. Following these meetings the applicant is required to submit as part of their application a Consultation Report that describes the comments received and how these comments were considered in the proposal.

The applicant must also consult directly with local municipalities prior to applying for a Renewable Energy Approval on specific matters related to municipal lands, infrastructure, and services. The Ministry of the Environment has developed a template, which the applicant is required to use to document project-specific matters raised by the municipality. This must be submitted to the ministry as part of the application. The focus of this consultation is to ensure important local service and infrastructure concerns are considered in the project.

For small wind projects (under 50 kW) the public meeting requirements above are not applicable due to their limited potential impacts.

4 Conclusions

The following are the main conclusions of the review and consultation on the health impacts of wind turbines:

- While some people living near wind turbines report symptoms such as dizziness, headaches, and sleep disturbance, the scientific evidence available to date does not demonstrate a direct causal link between wind turbine noise and adverse health effects.
- The sound level from wind turbines at common residential setbacks is not sufficient to cause hearing impairment or other direct adverse health effects. However, some people might find it annoying. It has been suggested that annoyance may be a reaction to the characteristic "swishing" or fluctuating nature of wind turbine sound rather than to the intensity of sound.
- Low frequency sound and infrasound from current generation upwind model turbines are well below the pressure sound levels at which known health effects occur. Further, there is no scientific evidence to date that vibration from low frequency wind turbine noise causes adverse health effects.
- Community engagement at the outset of planning for wind turbines is important and may alleviate health concerns about wind farms.
- Concerns about fairness and equity may also influence attitudes towards wind farms and allegations about effects on health. These factors deserve greater attention in future developments.

The review also identified that sound measurements at residential areas around wind turbines and comparisons with sound levels around other rural and urban areas, to assess actual ambient noise levels prevalent in Ontario, is a key data gap that could be addressed. An assessment of noise levels around wind power developments and other residential environments, including monitoring for sound level compliance, is an important prerequisite to making an informed decision on whether epidemiological studies looking at health outcomes will be useful.

Glossary

A-weighted decibels (dBA)
The sound pressure level in decibels as measured on a sound level meter using an A-weighted filter. The A-weighted filter de-emphasizes the very low and very high frequencies of the sound in a manner similar to the frequency response of the human ear.

Decibel (dB)
Unit of measurement of the loudness (intensity) of sound. Loudness of normal adult human voice is about 60-70 dB at three feet. The decibel scale is a logarithmic scale and it increases/decreases by a factor of 10 from one scale increment to the next adjacent one.

Downwind model turbines
Downwind model turbines have the blades of the rotor located behind the supporting tower structure, facing away from the wind. The supporting tower structure blocks some of the wind that blows towards the blades.

Electromagnetic fields (EMFs)
Electromagnetic fields are a combination of invisible electric and magnetic fields. They occur both naturally (light is a natural form of EMF) and as a result of human activity. Nearly all electrical and electronic devices emit some type of EMF.

Grey literature
Information produced by all levels of government, academics, business and industry in electronic and print formats not controlled by commercial publishing, i.e., where publishing is not the primary activity of the producing body.

Hertz (Hz)
A unit of measurement of frequency; the number of cycles per second of a periodic waveform.

Infrasound
Commonly refers to sound at frequencies below 20Hz. Although generally considered inaudible, infrasound at high-enough sound pressure levels can be audible to some people.

Low frequency sound
Commonly refers to sound at frequencies between 20 and 200 Hz.

Noise
Noise is an unwanted sound.

Shadow Flicker
Shadow flicker is a result of the sun casting intermittent shadows from the rotating blades of a wind turbine onto a sensitive receptor such as a window in a building. The flicker is due to alternating light intensity between the direct beam of sunlight and the shadow from the turbine blades.

Sound
Sound is wave-like variations in air pressure that occur at frequencies that can be audible. It is characterized by its loudness (sound pressure level) and pitch (frequency), which are measured in standard units known as decibel (dB) and Hertz (Hz), respectively. The normal human ear perceives sounds at frequencies ranging from 20Hz to 20,000 Hz.

Upwind model turbines
Upwind model turbines have the blades of the rotor located in front of the supporting tower structure, similar to how a propeller is at the front of an airplane. Upwind turbines are a modern design and are quieter than the older downwind models.

Wind turbine
Wind turbines are large towers with rotating blades that use wind to generate electricity.

Appendix 1: List of Documents on Wind Turbines

Journal Articles and Books

Braam HGJ, et al. Handboek risicozonering windturbines. Netherlands: SenterNovem; 2005.

Jakobsen J. Infrasound emission from wind turbines. *J Low Freq Noise Vib Active Contr.* 2005;24(3):145-155.

Keith SE, Michaud DS, Bly SHP. A proposal for evaluating the potential health effects of wind turbine noise for projects under the Canadian Environmental Assessment Act. *J Low Freq Noise Vib Active Control.* 2008;27(4):253-265.

Leventhall G. Infrasound from wind turbines: fact, fiction or deception. *Can Acoust.* 2006;34(2):29-36.

Pedersen E, Hallberg LR-M, Waye KP. Living in the vicinity of wind turbines: a grounded theory study. *Qual Res Psychol.* 2007;4(1-2):49-63.

Pedersen E, Larsman P. The impact of visual factors on noise annoyance among people living in the vicinity of wind turbines. *J Environ Psychol.* 2008;28(4):379-389.

Pedersen E, Persson Waye K. Wind turbines: low level noise sources interfering with restoration? *Environ Res Lett.* 2008;3:015002. Available from: http://www.iop.org/EJ/article/1748-9326/3/1/015002/erl8_1_015002.pdf.

Pedersen E, Persson Waye K. Wind turbine noise, annoyance and self-reported health and well-being in different living environments. *Occup Environ Med.* 2007;64(7):480-6.

Pedersen E, van den Berg F, Bakker R, Bouma J. Response to noise from modern wind farms in The Netherlands. *J Acoust Soc Am.* 2009;126(2):634-43.

Pedersen E, Waye KP. Perception and annoyance due to wind turbine noise – a dose-response relationship. *J Acoust Soc Am.* 2004;116(6):3460-70.

van den Berg GP. Effects of the wind profile at night on wind turbine sound. *J Sound Vib.* 2004;277(4-5):955-970. Available from: http://www.nowap.co.uk/docs/windnoise.pdf.

Grey Literature

Chatham-Kent Public Health Unit. The health impact of wind turbines: a review of the current white, grey, and published literature. Chatham, ON: Chatham-Kent Municipal Council; 2008 [cited 2010 Mar 5]. Available from: http://www.wind-works.org/LargeTurbines/Health%20and%20Wind%20by%20C-K%20Health%20Unit.pdf.

Colby WD, Dobie R, Leventhall G, Lipscomb DM, McCunney RJ, Seilo MT, et al. Wind turbine sound and health effects. An expert panel review: American Wind Energy Association & Canadian Wind Energy Association; 2009 [cited 2009 Dec 21]. Available from: http://www.canwea.ca/pdf/talkwind/Wind_Turbine_Sound_and_Health_Effects.pdf.

Rideout K, Copes R, Bos C. Wind turbines and health. Vancouver: National Collaborating Centre for Environmental Health; 2010 Jan [cited 2010 Mar 5]. Available from: http://www.ncceh.ca/files/Wind_Turbines_January_2010.pdf.

Wind turbines and Health: a review of evidence. Toronto: Ontario Agency for Health Protection and Promotion; 2009 [cited 2010 Mar 5]. Available from: http://www.oahpp.ca/resources/documents/presentations/2009sept10/Wind%20Turbines%20-%20Sept%2010%202009.pdf.

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Leventhall G, Pelmear P, Benton S. A review of published research on low frequency noise and its effects. London, England: Department for Environment, Food and Rural Affairs; 2003 [cited 2010 Mar 5]. Contract No.: EPG 1/2/50. Available from: http://www.defra.gov.uk/environment/quality/noise/research/lowfrequency/documents/lowfreqnoise.pdf.

Minnesota Department of Health, Environmental Health Division. Public health impacts of wind turbines.

Saint Paul, MN: Minnesota Department of Commerce, Office of Energy Security; 2009 [cited 2010 Mar 5]. Available from: http://energyfacilities.puc.state.mn.us/documents/Public%20Health%20Impacts%20of%20Wind%20Turbines,%205.22.09%20Revised.pdf.

National Research Council, Committee on Environmental Impacts of Wind-Energy Projects. Environmental impacts of wind-energy projects. Washington, DC: National Academies Press; 2007.

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World Health Organization

World Health Organization, Regional Office for Europe. Night noise guidelines for Europe. Geneva, Switzerland: World Health Organization; 2009 [cited 2010 Mar 5]. Available from: http://www.euro.who.int/document/e92845.pdf.

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Community Concerns about Health Effects of Wind Turbines

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GUIDE

Provincial approvals for **Renewable Energy Projects**

GUIDE IN ENTIRETY AVAILABLE FROM CLERK'S OFFICE

Ontario

Delegation #2.

Gmail by Google

M Anderson <moe146@gmail.com>

Alternative Energy Meeting Submission of Questions

M.L. Anderson <moe146@gmail.com> **Mon, May 3, 2010 at 11:54 AM**
To: kdipaolo@amherstburg.ca, jhubbs@amherstburg.ca
Cc: Mick MacCorquodale <mickmac17@hotmail.com>

Ms. Hubbs:

Please accept the following as submission of Questions to ask the MOE:

- How can the MOE justify issuing a Certificate of Approval when they are unable to properly measure and monitor the sound emanating from turbines once they are running? Currently **they cannot or will not enforce compliance** for the very Certificate of Approvals they issued for any wind project in Ontario. **Is this even legal?**
- Exactly how did the MOE come up with a 550 meter setback distance as being safe? Which engineers and/or doctors did they use to sign off that this information would definitely safeguard residents? Is this documentation available to the public or municipal Councilors?
- Siva Sivoththaman has just been hired by the province to chair health research regarding reported Health Issues with people living to close to Industrial Wind Turbines. Why did this government appoint an "electrical engineer" rather than an epidemiologist or medical practitioner?
- Why is there not a proper document that outlines the regulations that the transitory projects must follow? There seems to be a huge discrepancy on how these are being handled. e.g. The Harrow project was told it had to use the setbacks in place at the time of their C of A. But the Amherstburg project doesn't?
- Does the province have the legal right to retroactively null and void municipal by-laws?
- What is being done to help those people who are now having health complaints where the turbines were allowed to be sited too close to their homes?

Maureen Anderson
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519-736-8292

PUBLIC MEETING ATTENDANCE RECORD
Date: Tuesday, May 25, 2010 at 6:00 PM

Alternative Energy
Meeting with MOE Representatives

NAME (please print clearly)	ADDRESS and PHONE # (please print clearly)	SIGNATURE
Brenda Dunn	1240 Snake Lane RR#1 Harrow	Brenda Dunn
Maureen Anderson & BILL	7592 CON 7 ABURG 736-8292	M Anderson
Micky Jeannette MACGORGUODALE	6547 CON 6 S. ABURG 736-3343	Mpo Corguodale
Catherine Botek	6271 Southside Rd Amherstburg	
ELAINE MARENTETTE	1048 CONC #2 AMHERSTBURG	
Teri Gilbert	MOE	
Allan Parks	ACE Committee	
D. ARMSTRONG	ACE Committee	
John F McDonald	" "	John F McDonald