

**Delegation from John Harrison on behalf of Association for the Protection of Amherst Island  
8<sup>th</sup> November 2010**

**Subject: Support for the motion enacted by the Council of West Lincoln, passed Oct. 4<sup>th</sup>, 2010**

First, we congratulate re-elected members of Council. We look forward to working with you and the newly-elected members during this term in office. Second, we thank all members of the present Council for listening to us over the past several years and for the actions taken on our behalf.

Our Association, which is incorporated, has over 100 members and has as its mission the siting of wind turbines on Amherst Island, if that is to be, so as to protect the health and well-being of all islanders. That means a setback from all homes of 1.5 to 2 km. APAI has worked with the present Council to this end but the Green Energy Act took away the power of municipalities to regulate wind turbine siting via official plans.

More and more municipalities are listening to their constituents, particularly where turbines are already in place in their or a neighbouring municipality, and petitioning the provincial government. So far, more than 60 municipalities have requested either a full independent health study or a moratorium on new developments. I am pleased to say that Loyalist Township was among the first 10 to make a petition. The list of municipalities is attached to the written copy of this delegation. These petitions have been ignored. All that we have so far is a meaningless minimum setback of 550 metres, a deeply flawed literature survey by Dr. Arlene King, the Chief Medical Officer for Health for Ontario, and the cynical and absurd awarding of a University Chair to an electrical engineer with expertise in solar cells and no expertise whatsoever in wind turbines or health. This Chair was funded by the Ministry of the Environment ostensibly to address the problem of the adverse health effects of turbine noise.

The weekend before last I attended an international symposium on the adverse health effects of wind turbine noise. We heard from a British sleep expert on how and why noise disturbs sleep, from a Michigan acoustics engineer on the parallels between the sick building syndrome of the 1970s and 1980s and the present wind turbine syndrome, from a Missouri ear-physiology expert on the mechanism by which infrasound is detected, and from Nina Pierpont on her detailed studies of some 30 victims of turbine noise. The highlight was a new clinical study from the Mars Hill wind farm in Maine. The study is complete and is being prepared for peer review and publication. There is no question but that there are adverse health effects and we know what they are and why they happen. A more complete summary of the symposium is presented as an appendix to the written version of this delegation.

Therefore, on behalf of APAI I urge Council to support the motion passed by West Lincoln that local planning approval be restored to municipalities and that a moratorium be established until a full independent health study has been undertaken. I understand that several municipalities are convening this month to put together a low frequency noise bylaw that will not be annulled by the Green Energy Act. If something comes of this I will bring it to Council at a later date.

**Appendix A:** Municipalities that have petitioned the Ontario Government over the need for local authority in the planning of wind farms and/or the need for a full study of adverse health effects.

1. Toronto Regional Conservation Authority (TRCA)
2. Municipality of Clarington (Durham Region)
3. City of Pickering (Durham Region)
4. South Bruce Peninsula (Bruce County)
5. Township of North Dundas (Stormont, Dundas and Glengarry)
6. County of Lanark
7. County of Norfolk
8. Municipality of Kincardine (Bruce County)
9. Town of Plympton-Wyoming (Lambton County)
10. Town of Saugeen Shores (Bruce County)
11. Township of East-Zorra Tavistock (Oxford County)
12. Township of Centre Wellington (Wellington County)
13. Township of Clearview, Simcoe County
14. Sheguiandah First Nation
15. Northeastern Manitoulin & the Islands (NEMI)
16. Wellington County
17. Township of Carling (District of Parry Sound)
18. Township of Mulmur (Dufferin County)
19. Township of Arran-Elderslie (Bruce County)
20. Township of Asphodel-Norwood (Peterborough County)
21. North Middlesex Township (Middlesex County)
22. Adelaide-Metcalf Township (Middlesex County)
23. Aundeck Omni Kaning First Nations Band Council
24. Municipality of West Grey (Grey County)
25. Township of Mapleton (Wellington County)
26. Township of Chatsworth (Grey County)
27. City of Kawartha Lakes
28. Township of East Garafaxa (Dufferin County)
29. Township of Warwick (Lambton County)
30. Municipality of Bluewater (Huron County)
31. City of Ottawa

32. Municipality of Huron East Resolution(Huron County)
33. Township of Montague (Lanark County)
34. Town of Blue Mountains (Grey County)
35. United Counties of Prescott-Russell
36. Township of Ramara (Simcoe County)
37. Township of Uxbridge (Region of Durham)
38. Township of North Kawartha (Peterborough County)
39. Town of Ajax (Durham County)
40. Ashfield-Colborne-Wawanosh Council (Huron County)
41. Township of Wellington North (Wellington County)
42. Township of Melancthon (Dufferin County)
43. Township of East Luther-Grand Valley (Dufferin County)
44. Township of The Archipelago (Parry Sound District)
45. Town of Greater Napanee (Prince Edward County)
46. Township of Mulmur (Dufferin County)
47. Town of Caledon (Peel Region)
48. Amaranth Township (Dufferin County)
49. Haldimand County
50. Grey Highlands (Grey County)
51. Huron County
52. Bruce County
53. Oxford County
54. Prince Edward County
55. The Township of Lyndoch, Brudenell and Raglan (Renfrew County)
56. Madawaska Valley Council (Renfrew County)
57. Thessalon Township (Algoma District)
58. Tiny Township (Simcoe County)
59. Loyalist Township (Lennox and Addington County)
60. Dawn Ephemera Township (Lambton County)
61. Norwich Township (Oxford County)
62. Leamington – offshore (Essex County)
63. Kingsville – offshore (Essex County)
64. South Algonquin Township (Renfrew County)
65. St. Clair Township (Lambton County)
66. Killaloe, Hagarty & Richards Township (Renfrew County)

## **Appendix B:**

### **Symposium: The Global Wind Industry and Adverse Health Effects – A Summary**

This international symposium was organized by the Society for Wind Vigilance ([www.windvigilance.com](http://www.windvigilance.com)) and was held over the weekend of 29<sup>th</sup>/31<sup>st</sup> October 2010 at the Waring House Conference Centre in Prince Edward County.

Orville Walsh opened on Friday evening by reviewing the regulations on turbine noise limits in various jurisdictions. The limits covered a range from 35 dBA to 60 dBA with most at 40 dBA. Orville probably has the most extensive collection of these regulations.

John Harrison followed with a review of sound, its perception and how it is measured. He used a sound propagation model to demonstrate how sound varies with distance for on-shore and off-shore turbines. This enabled turbine noise limits to be converted to setback distances from homes. Typically, these are much smaller than recommended by health authorities. The reason for the disconnect is that the sound propagation modelling is inadequate.

Rick James, a noise control engineer, likened the present adverse health effects from turbine noise to the problem of 1980's sick buildings. This earlier problem was eventually ascribed to inaudible modulated low-frequency noise from the ventilation systems. Rick has made extensive measurements of turbine noise and showed examples of noise spectra (noise level as a function of the sound frequency) demonstrating enhanced modulated low frequency noise. The problem is often aggravated by the build-up of the noise due to resonance effects in rooms.

Nina Pierpont, a New York State paediatrician, was the key-note symposium speaker and opened the Saturday morning session. Nina has published a book describing wind turbine syndrome, a set of diagnosed adverse health effects common to many of those subject to living in proximity to wind turbines. She started by describing the impact of noise on the learning ability of children. She then explained that there are multiple sensors of acoustic noise and vibration in the body, including the vestibular organs. Some of the problems of affected adults were described, including chest sensation, panic attacks, breathing problems, waking in a state of alarm. There was a correlation with motion sensitivity and motion sickness.

Alec Salt, a specialist in cochlear physiology at Washington University in St. Louis, made an interesting observation: there are many instances of intrusions on the human body that cannot be sensed and yet do harm. For instance salmonella cannot be tasted; carbon monoxide cannot be smelt; ultraviolet light cannot be seen; infrasound cannot be heard. The inner ear has both inner hair cells and outer hair cells. The former respond to velocity and the latter respond to displacement. The inner hair cells respond to audible sound. The outer hair cells respond to low frequency sound and infrasound. Interestingly, activation of the outer hair cells shuts down the response of the inner hair cells. He described animal studies that demonstrate that the outer hair cells within the ear respond to infrasound that is 40 dB below that at which the inner hair cells respond. There is a separate nerve channel (type 2 nerve cells) from the outer hair cells into the brain; they do not generate audible sound. In addition, low frequency

noise is detected by the vestibular system which is inherently a low frequency detection system.

Arlene Bronzaft, a professor at City University of New York and a specialist on noise impacts, talked about her work on the impact of noise on children. She has determined the impact on reading ability of living near airports and demonstrated that achievement in life is associated with growing up in quiet homes. Of especial significance was her work demonstrating the impact on learning and reading ability of children in classrooms in a school close to a New York City railway line. The evidence was so compelling that the City added rubber to the rail lines and added sound insulation in the classrooms. To her relief she was able to demonstrate reversal of the learning and reading problems after the changes were made. Other schools in proximity to rail lines were identified and the changes to classrooms and rail lines were adopted in these cases. Her message is that environments responsible for learning problems can be identified and remedies introduced. However, the process needs a high level of activism and plain hard work to overcome inertia and vested interests.

Chris Hanning is a respected sleep specialist from Leicester in England. He started by reviewing the normal cycle of sleep modes during a night's sleep. During the night there can be, typically, 4 or 5 awakenings. If they are less than 30 seconds long, we don't remember them. Noise can stop us falling asleep or returning to sleep after an awakening. In addition, noise causes brief arousals, shifts from deep sleep to light sleep. They are not remembered but fragment sleep and destroy its quality. People have different sensitivities to noise. This sensitivity is related to the spindle rate, the rate of bursts of high frequency brain waves during sleep. Nevertheless, for any spindle rate the probability of undisturbed sleep decreases as the noise increases. Chris discussed the character of turbine noise and its propensity to disturb sleep: there is the swishing, thumping, pulsing; it is "in your face" noise; it is not masked by background noise at the same sound pressure level (he quoted Hayes who reported detectability 10 to 15 dB below background noise). Referring to regulations, he noted that they were based upon outdated assumptions about noise, ignored modern research, used inappropriate averaging and were designed without the involvement of health experts.

Michael Nissenbaum described his extensive clinical study of health impacts caused by the Mars Hill wind energy facility in Maine. The facility has 28 120-metre tall turbines on a ridge. There were 38 adults within the target area, a distance of 600 metres from the turbines, and 41 adults in the control area beyond the target area. The study used the internationally accepted SF-36V2 protocol in interviewing the study subjects. The analysis was blind; the analysts were independent of the interviewing team. Following standard epidemiological techniques, the data was corrected for age etc. The final results showed a clear dependence between both

sleep quality and mental health and distance of the homes from the turbines. Interestingly, the dependence continued beyond the target area, for those in the control group.

Carl Phillips, director of an epidemiology research institute, addressed the symposium via video. He emphasized that there is ample credible evidence that wind turbine noise is indeed causing health problems. He decried the attempts by the wind industry consultants, mostly without credentials in epidemiology, to deny this evidence on the basis that it is anecdotal. Dr Phillips emphasized the significance of case-crossover evidence, the onset and then absence of adverse health impacts on living in proximity to the turbines and moving away. He emphasized the need for a large-scale study to determine the true nature of the health risk of living among turbines.

Carmen Krogh, a pharmacist who has held various executive positions within the profession, addressed the issue of social justice. She knows and has interviewed many of those suffering health effects and brought forward some of their stories.

Eric Gillespie discussed the legal avenues open to those suffering adverse health effects and to those under threat of having turbines put up in proximity to their homes. He covered private litigation, public litigation and proponent litigation. Private litigation would follow, say, a renewable energy approval for a new development. There is a very short time frame for this and therefore preliminary work would need to be in place. The Ian Hanna legal challenge is an example of the more general public litigation. This is a challenge to the noise regulations associated with the Green Energy Act and especially the seemingly arbitrary 550 metre minimum setback. The challenge is based upon the precautionary principle that nothing shall be done that could cause harm. Unlike private litigation, the onus is on the proponent and Ministry of the Environment to demonstrate that the regulations were designed in such a way that no harm would result. Proponent litigation refers to challenges to local government conditions for the issuance of building permits; an example would be the requirement for certification from Health Canada that there will be no adverse health impacts.

The Sunday morning session opened with a devastating analysis of the pollution impacts on health in Ontario by Ross McKittrick, an economics professor at the University of Guelph. First he demonstrated that in Ontario particulate matter, sulphur dioxide and nitrous oxide level have been dropping consistently since the 1970s and are now at or below recommended levels. Ozone has not decreased to the same extent largely because of the complex nature of its creation and the generation of its chemical precursors in the USA. By showing maps of coal generating plants in North America with and without the Ontario Lambton and Nanticoke coal plants he demonstrated the hopelessness of decreasing the pollutants by closing those plants.

He next took issue with the economic argument for closing the coal plants and introducing renewable energy on a large scale as compared to retrofitting the coal plants with modern pollution controls. The economic argument adopted by the Ontario government was flawed by an unrealistic estimate of the health costs associated with the remaining pollutants. Associated with the Ontario governments plan to close the coal plants by 2014 was the abandonment of the retrofitting of pollution controls at Lambton and Nanticoke after retrofitting only 6 of 12 units. Dr. McKitrick then criticized earlier epidemiological work on the link between pollution levels and lung disease and presented the work of his own group. There was no correlation between hospital admissions and pollution levels. He finished with the sensible argument that if the goal is to reduce greenhouse gases then price those gases directly.

Dale Goldhawk, a well-known and popular broadcaster was the final speaker and inspired us all with his “rally the troops” talk. He discussed the movement to prevent a dump over perhaps the best aquifer in Ontario. He used his radio station to make residents in Simcoe County and surroundings aware of what was proposed and why, scientifically, the project could be a disaster for the aquifer. Gradually the county councillors came onside and within a week of the first load of garbage being dumped at the site a stop order was issued. Subsequently, the politicians who had most pushed for the dump site lost their seats in the recent local government elections. The former Minister of the Environment, John Gerretsen, had already been replaced over a separate matter. Dale is right behind those fighting to convince the Ontario government that there really are adverse health effects from wind turbine noise and will use his influential broadcasts to help our case.

Bob McMurtry closed the symposium with a brief summary and the promise that the work will continue. The main organizers, Carmen Krogh, Beth Harrington, Brett Horner and Bob McMurtry are to be congratulated on a very well organized symposium.