COMMENTS TO THE COMMITTEE ON SOCIAL POLICY REGARDING BILL 34

Provinces use multiple strategies to increase the revenues of renewables projects or to provide revenue certainty for these projects. The most costly of these are the feed-in-tariffs implemented in Ontario. In effect, Ontario has signed contracts with hundreds of solar and wind energy generators paying rates four to 20 times higher than those available to conventional electricity generators and guaranteed for the 20-year lives of the contracts. The Ontario Auditor General estimated that, from the beginning of the FIT program until the end of 2015, ratepayers had paid over $9.2 billion more for renewable energy generation (almost all solar and wind) than if the government had continued with its previous competitive bidding procurement policy. Scott Luft, an expert on Ontario electricity operations, has calculated the total subsidy to solar and wind since 2006 as the cost paid above the average cost for other supply. Using this standard, the subsidy has been $6.4 billion.

Michelle Stirling and Robert Lyman: **Subsidies to Solar and Wind Energy In Canada – An Inventory**

Endangered Little Brown Bat recovered at Clearview Collingwood where wpd bat expert erroneously declared there were no bats, no bat habitat (see Richardson map)

On behalf of The North American Platform Against Wind Power

October 30th, 2018

With thanks

North American Platform Against Windpower

ATTACHMENTS, INCLUSIONS

Bat expert: Citizen Scientist Richardson, Clearview Collingwood, vs wpd development: defeated on harm to human health, the only ONE on that issue; includes map created by GPS by Richardson, as well as her testimony to the ERT and an email

SECTION ONE

Robert Lyman and Michelle Stirling: Subsidies to Solar and Wind Energy in Canada---An Inventory

SECTION TWO

- Amherst Island and Algoma (Two examples of stricken communities)
- CONSERVATIONISTS SEEK STRICTER TESTING AROUND TURBINES, CITE UNREPORTED BIRD AND BAT DEATHS

SECTION THREE

The ERT seems schizophrenic. Letter from NA-PAW on Blanding's Turtle: now you see them, now you don't

SECTION FOUR

- American Thinker: October, 2018, 4 Reasons Why Climate Change is a Flat Out Hoax

  (Please don't confuse kindly thinking about saving the planet with feel good policies that are actually destroying nature)

- Why We Have Nothing to Fear from C02

- Annual Cost of Australia's Solar Subsidy Scam Hits $2 Billion, and Sends Power Prices Into Orbit

SECTION FIVE

- Some of the Case Studies That Have Convinced Me That Industrial Wind Turbines Make People Sick, Which Supports My Belief That WE Can Prove In A Court Of Law That These Wind Turbines Are Causing Annoyance and Illnesses.
- World Health Organization: Wind Turbine Noise as a Health Hazard, opening recognition likely to lead to more acknowledgment: Master Resource

SECTION SIX

Copy of notes to the Committee, NA-PAW

https://www.youtube.com/watch?v=D9-clNI8S6Q&feature=youtu.be

MICHELLE STIRLING

NO SUCH THING AS A LOW CARBON SOCIETY

RED INK AND GREEN SUBSIDIES

http://blog.friendsofscience.org/2017/11/05/subsidies-to-solar-and-wind-energy-in-canada-an-inventory/

Subsidies to Solar and Wind Energy In Canada – An Inventory

NOVEMBER 5, 2017 / FOSADMIN / 2 COMMENTS

Contributed by Robert Lyman © 2017

Robert Lyman is an Ottawa energy policy consultant and former public servant of 27 years; prior to that he was a diplomat for 10 years.

FULL REPORT:

SUBSIDIES TO SOLAR AND WIND ENERGY IN CANADA – AN INVENTORY (draft 2)

SUMMARY OF HIGHLIGHTS

(updated Nov 6, 2017 to correct typos)

This paper is intended to "shine light" on the generally under-reported topic of the subsidies paid to solar and wind energy in Canada.

The subject is complicated by the different meanings given to the term "subsidy" and the different ways people measure subsidies. This paper will describe a wide range of financial aid and other direct and indirect support that Canadian governments provide to the suppliers and users of solar and wind energy.

Under Budget 2017, the federal government will spend almost $1.7 billion over four years on renewable energy research, development, demonstration and commercialization programs, much of which will go to solar and wind industries.

Under the ecoEnergy for Renewable Power program, the federal government subsidized the generation of electricity from renewable energy sources through a refund to producers of one cent per kilowatt-hour. The cumulative cost of this program to 2021 will be $1.4 billion.

Budget 2017 included authority for over $2.4 billion over four years to promote the production and use of "clean energy", a large part of which will go to solar and wind energy.

Provinces and territories now have in place 272 different programs to assist the production and use of solar, wind and other renewable energy sources. There is no way to know the total costs of these programs, their benefits, or even to what extent they duplicate existing federal government programs.

Through the Green Municipal Fund, the federal government has provided $675 million to support environmental initiatives in municipalities, including solar and wind projects.

The federal government, the largest purchaser in the country, has a Policy on Green Procurement that requires federal departments and agencies to meet procurement targets according to pre-determined environmental criteria and specifications. It does not publish the cost of this policy. The Trudeau Government has committed that the federal government will operate on 100% "clean energy" by 2015.

The Accelerated Capital Cost Allowance, removed from oil sands and mining in 2010, has been extended to renewable energy projects. Solar and wind generation equipment qualify for corporate income tax reductions through depreciation on a declining-balance basis at the accelerated rate of 30% per year (Class 43.1). Certain other equipment can be depreciated on a declining balance basis at the accelerated rate of 50% per year (Class 43.2). In addition, Canadian Renewable and Conservation Expenses (CRCE) covering startup costs can be

deducted in full (100% deductibility) in the year incurred. Finance Canada does not report the cost to the treasury of these significant tax expenditures.

Provinces use a range of regulations to advantage solar and wind energy. Ontario, for example, exempts them from environmental assessment requirements under the *Environmental Assessment Act*, eases approvals under the *Environmental Protection Act*, and curtails municipal powers under the *Planning Act* to exercise land use planning and zoning authorities. It has also capped the property taxes that industrial wind turbines must pay, to the disadvantage of municipal tax bases. There are no public estimates of the costs of these advantages.

Provinces use multiple strategies to increase the revenues of renewables projects or to provide revenue certainty for these projects. The most costly of these are the feed-in-tariffs implemented in Ontario. In effect, Ontario has signed contracts with hundreds of solar and wind energy generators paying rates four to 20 times higher than those available to conventional electricity generators and guaranteed for the 20-year lives of the contracts. The Ontario Auditor General estimated that, from the beginning of the FIT program until the end of 2015, ratepayers had paid over $9.2 billion more for renewable energy generation (almost all solar and wind) than if the government had continued with its previous competitive bidding procurement policy. Scott Luft, an expert on Ontario electricity operations, has calculated the total subsidy to solar and wind since 2006 as the cost paid above the average cost for other supply. Using this standard, the subsidy has been $6.4 billion.

Because of gaps in the publicly available information, there is no way to calculate the total cost of the subsidies and advantages given to solar and wind generators in Canada. There, however, is no question that governments are embarked on a concerted effort to promote these energy technologies over others, regardless of the objective costs and benefits.

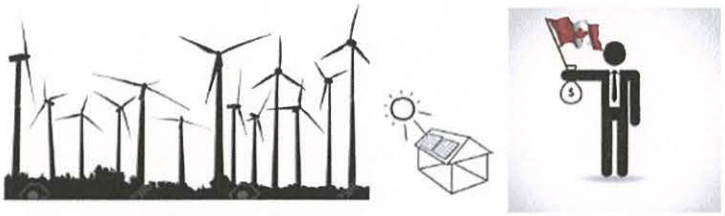
The rationale for such subsidies rests primarily on two assertions – first, that humans are causing catastrophic global warming which can be cost-effectively addressed by expensive emissions reductions in Canada's electricity generation and use; and second, that solar and wind firms are "infant industries" that need temporary assistance and protection against unfair competition from more established firms. The first relies on questionable science and economics, and the second ignores the fact that windmills and solar technologies have been available for centuries.

Full Report:

SUBSIDIES TO SOLAR AND WIND ENERGY IN CANADA – AN INVENTORY (draft 2)

Table 1 Renewable Energy Subsidies and Support by Type, 2013 ($million) Beneficiary Direct Tax R&D Total Expenditure Expenditure Solar 2,969 2,076 284 5,328 Wind 4,274 1,614 49 5,936 Totals 7,243 3,690 333 11, 264 Subsidies for all renewable

energy sources plus "conservation" in 2013 totaled $17 billion, or 58% of all U.S. federal spending on energy sources.



SUBSIDIES TO SOLAR AND WIND ENERGY IN CANADA – AN INVENTORY

Contributed by Robert Lyman © 2017

Related:

1) FinAdvice "Lessons Learned"

germany-lessons-learned-0714

2) Wind Energy: Facts and Fiction –

"A half truth is a whole lie" was the work of the late J.A. Halkema, of the Netherlands, whose website domain lapsed after his death

Republished here: http://skepticva.org/energy.skepticva.org/halkema/halkemas.html

3) "Lesson Learned from Technology" – Prof. Michael J. Kelly

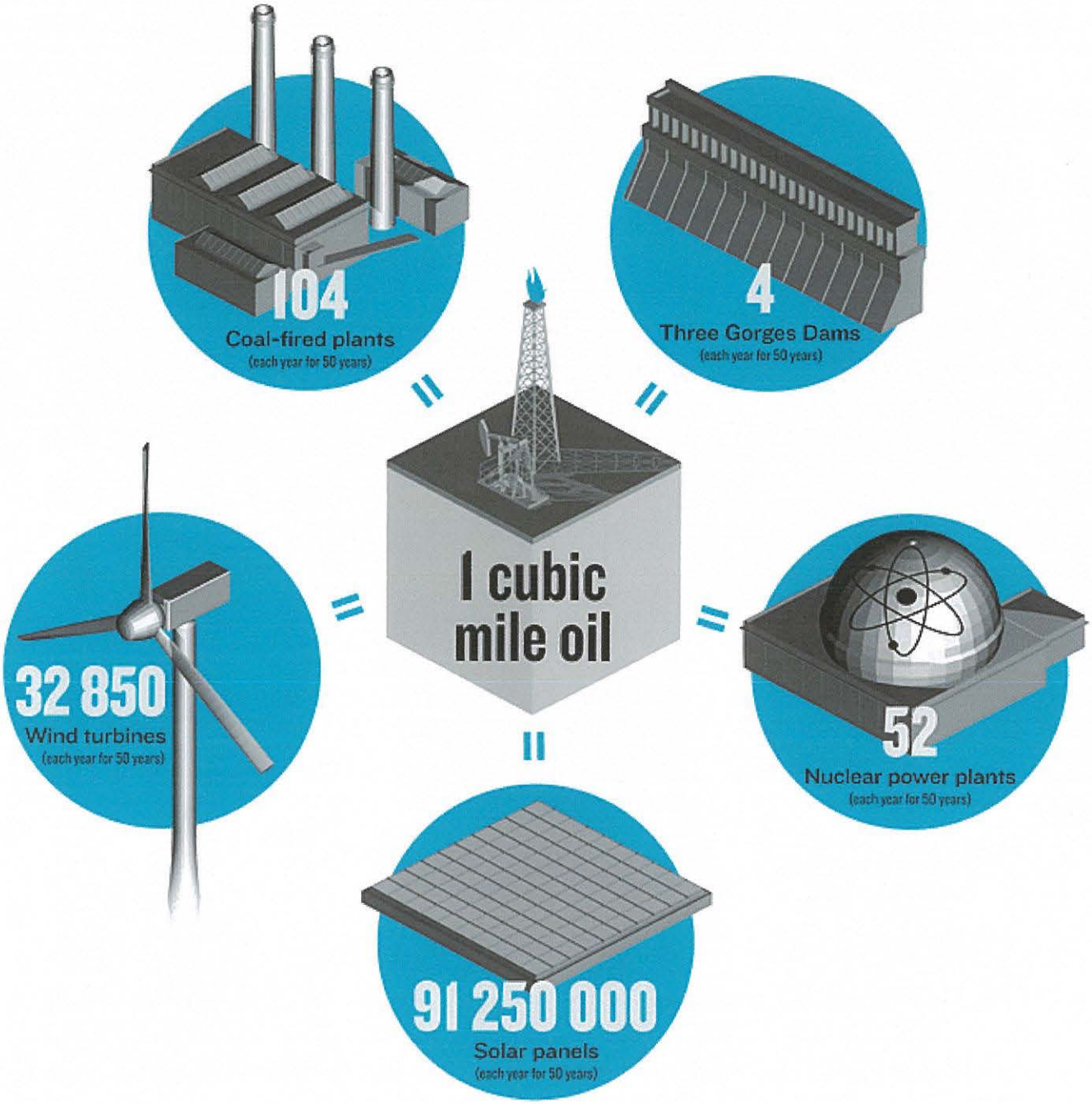
https://www.cambridge.org/core/journals/mrs-energy-and-sustainability/article/lessons-from-technology-development-for-energy-and-sustainability/2D40F35844FEFEC37FDC62499DDBD4DC/core-readergermany-lessons-learned-0714

4) "To Get Wind Power You Need Oil" – Vaclav Smil, IEEE

https://spectrum.ieee.org/energy/renewables/to-get-wind-power-you-need-oil

5) Comparing One Cubic Mile of Oil to Equivalent Alternative Energy

https://spectrum.ieee.org/energy/fossil-fuels/joules-btus-quads-lets-call-the-whole-thing-off



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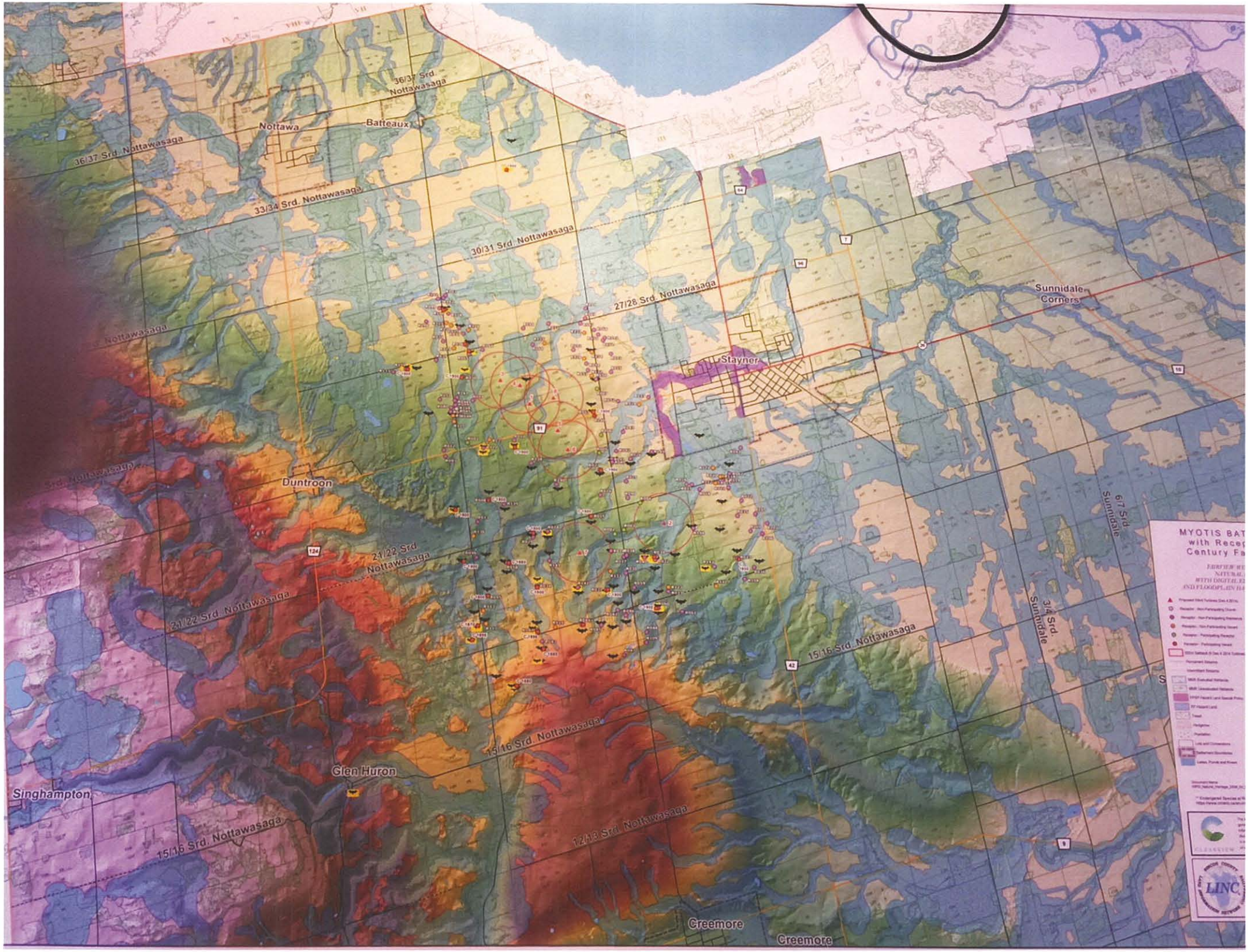
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67 Srd. Sunnidale
3/4 Srd. Sunnidale
MYOTIS BAT
with Recep
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LINC

From: SUSAN RICHARDSON <sjrichardson@rogers.com>
To: Sherri Lange <kodaisl@rogers.com>
Sent: Monday, January 9, 2017 8:01 AM
Subject: Privileged. Endangered Bats- breakthrough

Hi Sherri
I am working w Dr Fenton, leading Bat Biologist, Prof Emeritus UWO
On Fri he asked " why is it OK for WT to kill endangered bats?"
I said it isn't- all the permissions to kill are for "not endangered"
He asked me for proof in Regs and policies. I found it and more. Black and white. Also explains why wpd's Bat expert- Dr Reynolds from Mass who did a 16 year study on LBB but stated he had not been here. Well, on stand he said he came one day spring 2016 and " no bat habitat" This was not in his witness statement and was wiped fr record. He said same at White Pines and Amherst. I wondered why. I know there are endangered bats here all around the FWP Project Location.
"MNR Guidelines" do not permit killing LBB. We have Record fr Kevin's FOI to MNR that shows wpd never applied for Permit (called APRD)
Recent guidelines now say "A proposal to kill must be posted in EBR for public review and comment- like the REA Application. Well I will submit my Endangered Bat Map. And Dr fentons letter
That's why Reynolds says no endangered bats!!! Perjury
Amazing what 24 hours hard work on a snowy weekend helped me achieve!
Had to share w you.
Thanks for your hard work and inspiration

RESPONSE TO DR. D. SCOTT REYNOLDS'

6 January 2017 AFFIDAVIT

In his document, Dr. Reynolds asserts that the main threat to the survival of little brown myotis is survival of 'juveniles'. He also claims that there is evidence of stabilization of regional populations of Little Brown Myotis, although there are no data supporting this view for the area of the Fairview Wind Project. In separate testimony, Dr. Reynolds is said to have acknowledged that he had not visited This Area but was certain that the habitat there was not suitable for Little Brown Myotis.

In the summer of 2016, local biologists used acoustic monitoring and exit counts from roosts to show that bats, including Little Brown Motis, occur in The Area of the Fairview Wind Project. These data show that Little Brown Myotis (and other) bats will be directly threatened by the turbines of the Fairview Wind Project. Dr. Reynolds' statement about suitable habitat for bats in the area of the Fairview Wind Project is incorrect.

Dr. Reynolds avoids the reality that Little Brown Myotis are listed as Endangered in Canada (and in Ontario) because of a 95% reduction in their population in the wake of the arrival of WNS. I agree with Dr. Reynolds that there are no data about the sizes of bat populations (including Little Brown Myotis) in The Area, for that matter in Ontario or in Canada. To assert that the survival of the species (Little Brown Myotis) will not be affected by mortality at wind turbines, including those of the Fairview Wind Project, is to ignore the reality of the current situation. In spite of Dr. Reynolds' comments, we do not have direct measures of mortality of these and other bats (other than that associated with WNS and turbines). Fenton and Barclay (1980) identified possible causes of mortality, such as operations to control populations of bats in buildings. But in southern Ontario, virtually all known summer and winter colonies of Little Brown Myotis are on the verge of disappearing because of the impact of WNS.

In this situation, the listing of Little Brown Myotis as Endangered, signals that we (as a species) must make every strenuous effort to reduce threats to these bats. We should not tolerate needless mortality such as that associated with wind turbines.

Mitigation efforts predicated on the idea that it is acceptable for 10 Little Brown Myotis to be killed at a turbine in any year fly completely in the face of the listing of this species as Endangered. Arguably one dead Little Brown Myotis per wind project (not per turbine) is one too many. Shutting down nocturnal operation of turbines would greatly reduce the risk they pose to any bats, including those listed as Endangered. Why are we considering any other mitigation actions?

For the record, a 'juvenile' bat is a young of the year that has not yet begun to fly. A 'subadult' bat is one that flies but is not yet sexually mature. An 'adult' bat is sexually mature and can fly. Dr. Reynolds speaks about 'juveniles' but appears to mean 'subadults'.

#1 of 4 emails re Endangered Bats

Thank you for your interest in bats! We discovered some interesting things right at home from the survey of bats at more than 100 homes -with support and consent of home owners, whose homes were designated by wpd Canada as "Noise Receptors" for the REA approval of wind project- wpd Fairview Wind Incorporated, without consultation with or consent by the property owners.

Susan Richardson
sjrichardson@rogers.com

Begin forwarded message:

From: susan richardson <sjrichardson@rogers.com>

Subject: Endangered Bats.# 1 Explanatory Note, Aug.17.17

Date: 17 August, 2016 10:41:20 PM EDT

To: To: "Andrea Huckins (andrea.huckins@ontario.ca)" <andrea.huckins@ontario.ca>, Annik Forristal <Annik.Forristal@mcmillan.ca>, Aynsley Anderson <aanderson@barristonlaw.com>, Michelle Axbey <Michelle.Axbey@gowlingwlg.com>, "Eric K. Gillespie (egillespie@gillespielaw.ca)" <egillespie@gillespielaw.ca>, "Eva Pietrzyk" <eva.pietrzyk@ontario.ca>, "Glenn Grenier (glenn.grenier@mcmillan.ca)" <glenn.grenier@mcmillan.ca>, "Harold Elston" <helston@elstons.ca>, "John Richardson" <jrichardson@dalelessmann.com>, "Kirstin Silvera" <Kirstin.Silvera@ontario.ca>, Liane Langstaff <Liane.Langstaff@gowlingwlg.com>, Nedko Petkov <npetkov@dalelessmann.com>, "Paul De Medeiros" <Paul.DeMedeiros@ontario.ca>, "Pvittal@gillespielaw.ca" <pvittal@gillespielaw.ca>, "Stavrakos, Konstantine J" <Konstantine.Stavrakos@gowlingwlg.com>, "Sylvia Davis" <Sylvia.Davis@ontario.ca>, "the3wanderers@hotmail.com" <the3wanderers@hotmail.com>, "geofoof@vianet.ca" <geofoof@vianet.ca>, "emarshall (emarshall@xplornet.ca)" <emarshall@xplornet.ca>

Bcc: susan richardson <sjrichardson@rogers.com>

Hello ALL
Please find attached my reply submission respecting Dr D Scott Reynolds Evidence and Witness Statement respecting endangered Bats.

PLEASE NOTE THE ATTACHED MAP INDICATING ACTIVE ROOSTING SITES FOR BATS, INCLUDING 3 ENDANGERED SPECIES

Our Endangered Bat Map will be sent to you in separate email.
Susan Richardson
sjrichardson@rogers.com

Conservationists seek stricter testing around turbines, cite unreported bird and bat deaths

https://www.chathamthisweek.com/news/local-news/conservationists-seek-stricter-testing-around-turbines-cite-unreported-bird-and-bat-deaths

Louis Pin
More from Louis Pin

Published on: October 3, 2018 | Last Updated: October 3, 2018 11:12 AM EDT

Kristen Rodrigues stands near the Cedar Point II Wind Energy Centre northeast of Sarnia, in operation since October 2015. With the end of the Green Energy Act Rodrigues and others have renewed their calls for stricter testing around turbines, testing they say is based on faulty regulations. Louis Pin/Postmedia Network

SHAREADJUSTCOMMENTPRINT

Frustrated by what they say are thousands of unreported bird and bat deaths, activists are calling for the new provincial government to take a closer look at the hundreds of wind turbines that dot rural Ontario.

These conservationists want the Environment Ministry to scrutinize what they say are flawed environmental assessments on the province's existing turbines, saying the huge industrial windmills are responsible for tens of thousands of bird and bat deaths across Ontario each year

These deaths, they say, are not counted properly.

Part of that could be chalked up to Ontario's regulations: large turbines can tower more than 150 metres high but the province only requires inspectors, when counting bird and bat deaths, to measure 50 metres from each base.

"A lot of the birds that get hit are flung well beyond that point," Brian Salt, owner of the Mount Brydges animal rehabilitation clinic Salthaven, said. "They're not counted in that survey."

The danger can become more acute for birds during their seasonal migrations, said Linn Eves, owner of Bluewater Centre for Raptor Rehabilitation.

"There's always bird activity; there's more right now because of the migration and again in the springtime ... I wish there were volunteers that maybe could check the areas for injured birds."

According to conservation charity Nature Canada, thousands of birds are killed in Canada each year through collisions with turbines, or through disruption of migratory routes and habitat destruction.

If turbines surpass the province's allowable threshold for mortalities — 14 small birds and 10 bats per turbine, per year — their owners must alter them accordingly.

The Ministry of Natural Resources and Forestry, when contacted by Postmedia Network, stressed "the majority" of turbines do not exceed this allowed threshold, adding ministry staff would continue to monitor bird and bat mortality in Ontario.

"The wind industry is committed to respecting and protecting wildlife habitat and the environment, particularly for birds and bats," Brandy Giannetta, a member of the pro-turbine Canadian Wind Energy Association, wrote in an email. "Our recently

published Bat Conservation Review ensures industry and regulators have access to the most current information available, so they can make science-based decisions."

But for many conservationists, the turbines remain another problem for species in a rapidly developing Southwestern Ontario landscape.

"Bats are already in big trouble with white-nose syndrome, and things like that," Salt said. "We've added that extra stressor to them."

In 2015, Blue Point resident Kristen Rodrigues volunteered to audit the Renewable Energy Approval for a wind farm near her house, saying the company behind the project, Suncor, was "not even looking at the public's interests" while changing aspects of its wind farm after public consultation.

The 46-turbine Cedar Point II Wind Energy Centre northeast of Sarnia was completed in October that year and was later ceded to NextEra Energy Canada, the current owners.

"I didn't have an opinion one way or another. I really didn't," Rodrigues said. "But when I started learning about how they were doing the process, it really bothered me."

NextEra Energy did not reply to a request for comment.

That's not to say inspectors aren't doing their jobs. One inspector speaking anonymously said his company accounts for "estimator variables" by planting test carcasses in the area. These fakes are intended to measure how effective their measurements are, and the company then adjusts the results based on how many of the dummy carcasses are found.

Other variables such as predators are also accounted for, the industry source said, suggesting their methods tend to overestimate, rather than underestimate, bird and bat deaths. Wind farms are often tested more than once.

Inspectors are required to test between the beginning of May and the end of November. That seven-month range is the minimum and does not account for winter months.

The Cedar Point II wind farm was not measured over the winter, and that's a problem, Rodrigues said, advocating for an updated, 12-month assessment.

"Just because you're not being listened to doesn't mean you stop talking," Rodrigues said. "Some day somebody's going to listen."

association to protect
AMHERST ISLAND

13 June 2018

Premier Doug Ford
Legislative Building
Queen's Park
Toronto ON M7A 1A1

Re: Amherst Island Wind Project REA Approval based on study methodology that contravenes published MOECC guidelines – Opportunity to legally CANCEL PROJECT saving Ontario residents ½ billion dollars over the next 20 years.

Dear Premier Ford,

The Amherst Island Wind Project Renewable Energy Approval (REA) is based on flawed field study methodology that does not follow the MOECC / MNRF published guidelines. Why is this important?

Premise:

The flawed field studies are the foundation of the Natural Heritage Assessment/ Environmental Impact Study (NHA/EIS) Report (a critical part of the REA submission package). This raises the question: **Can the REA Approval be legally challenged on the basis that the Approval is predicated upon study methodology that contravenes the published MOECC guidelines / processes**?

Additionally, the MOECC was advised of the flawed methodology on a number of occasions in writing and in person, including an in-person meeting with the Minister's Chief of Staff. It is important to note that the MOECC knowingly accepted flawed field studies for all 6 Wind Projects that I reviewed. I will concentrate on the Amherst Island Wind Project field studies due to previously conducted extensive, in depth analysis.

Rationale:

According to O. Reg. 359/09 the Proponent must identify, select for field studies and evaluate the significance of candidate Significant Wildlife Habitat (SWH) found within the Amherst Island Wind Project Location.

Confirmed SWH is afforded protection through the Environmental Impact Study (for Species of Concern) and the Endangered Species Act (for Species at Risk). As habitat inclusion in, and

protection under the Environmental Impact Study (EIS), or the Endangered Species Act (ESA) is fully dependent upon identification / confirmation during records review and / or site investigations, it is critical that the methodology followed to identify, select and study candidate SWH adhere to the MNRF and MOECC published guidelines.

The protection measures enacted under the EIS and the ESA can include the need to relocate the proposed wind turbines outside of the SWH. The lack of suitable locations (non-SWH) within a Project Location would result in the cancellation of the Project. The Liberal led MOECC accepted flawed field studies in order to allow wind turbines to be built within SWH.

Process:

Per O. REG. 359/09, the following publications from the Ministry of Natural Resources and Forestry (MNRF) will inform the methodology used by the Proponent to complete the field studies.

- Birds and Bird Habitats: Guidelines for Wind Power Projects (Section 23.1)
- Bats and Bat Habitats: Guidelines for Wind Power Projects (Section 23.1)
- Natural Heritage Assessment Guide for Renewable Energy Projects (Section 27.2 (b))

The above publications in turn reference the following MNRF publications:

- Significant Wildlife Habitat Technical Guide
- Significant Wildlife Habitat Eco-regional Criteria Schedules
- Ontario Wetland Evaluation System Manuals
- Ecological Land Classification Manuals

Below you will find a listing identifying specific instances when MNRF published requirements (per the publications listed above) have not been met. Details of instances where the published guidelines were ignored are listed below. This information was provided to the MOECC via the EBR Registry in the form of a Gap Analysis.

Waterfowl Nesting Area:

- Although Appendix K of the MNR publication *Significant Wildlife Habitat Technical Guide (SWHTG)* states that all Amherst Island Shorelines and its 22 wetlands are considered SWH, no waterfowl nesting areas were included in the Environmental Impact Study.. Please note, the MNR does not list Amherst Island as containing Candidate SWH, the MNR designates the island as Significant for Waterfowl.
- A total of one hour of field studies were completed on Amherst Island.

- 65 additional suitable ELC Community Class locations were identified during ELC studies that occurred post Waterfowl Nesting studies.
- Habitat assessments were erroneously limited to "large" wetlands or marshes, with "standing water" although neither criteria is listed in the MNR publication *Ecoregion 6E Criterion*.
- No field studies were completed on the mainland portion of the Amherst Island Wind Project Location.

Waterfowl Stopover and Staging Area – Terrestrial

- Although Appendix K of the MNR publication *Significant Wildlife Habitat Technical Guide (SWHTG)* states that all Amherst Island Shorelines and its 22 wetlands are considered Significant Wildlife Habitat, no waterfowl stopover and staging areas (terrestrial) were included in the Environmental Impact Study. Please note, the MNR does not list Amherst Island as containing Candidate SWH, the MNR designates the island as Significant for Waterfowl.
- Habitat assessments were erroneously limited to "large" wetlands or marshes although this criteria is not listed in the MNR publication *Ecoregion 6E Criterion*.
- No field studies were documented to have been completed on the mainland portion of the AIWEPL.

Waterfowl Stopover and Staging Area - Aquatic

- Although Appendix K of the MNR publication *Significant Wildlife Habitat Technical Guide (SWHTG)* states that all Amherst Island Shorelines and it's 22 wetlands are considered Significant Wildlife Habitat (SWH), no waterfowl stopover and staging areas (aquatic) were included in the Environmental Impact Study (EIS). Please note, the MNR does not list Amherst Island as containing Candidate Significant Wildlife Habitat (SWH), the MNR designates the island as Significant for Waterfowl.
- Habitat assessments were erroneously limited to "large" wetlands or marshes, with "open" water, and areas with standing water during a portion of the year although neither criteria is listed in the MNR publication *Ecoregion 6E Criterion*.
- No field studies completed on the mainland portion of the Amherst Island Wind Project Location

Marsh Breeding Bird Habitat

- Although appropriate ELC communities are spread throughout the island all field studies were restricted to Long Point Marsh.

Landbird Migratory Stopover Area:

- Field studies were erroneously restricted to woodlots greater than 10 ha in size although MNR publication *Ecoregion 6E Criterion* states that woodlots and forest fragments located along the shore and within 5 km of Lake Ontario are Candidate SWH.

Turtle Wintering Area

- There is no available documentation of "specialized site investigation" as stated in the NHA/EIS.
- ELC evaluations that could have doubled as field investigations to identify turtle wintering areas occurred at the wrong time of the year or were comprised of "roadside" investigations.
- Habitat assessments were erroneously limited to "large" areas although this criteria is not listed in the MNR publication *Ecoregion 6E Criterion.*
- 75 additional suitable ELC Community Class locations were identified during ELC studies.
- The Proponent does not address the fact that Project components are located within and up to 4 meters away from 7 wetlands.

Amphibian Breeding - Woodland

- A total of 5 hours and 53 min. of Amphibian Breeding Habitat Surveys for both Woodland and Wetland habitat, clearly not sufficient to adequately cover the 22 wetlands and 36 woodlands that are found on Amherst Island.
- 56 additional suitable ELC Community Class locations were identified during ELC studies that occurred post Amphibian Breeding studies
- 5 out of 7 surveys were undertaken too early in the evening, per Amphibian Monitoring Protocols.
- 4 out of 7 surveys were undertaken during wind conditions above 3 on the Beaufort Scale, unsuitable conditions for field studies per Amphibian Monitoring Protocols
- 6 out of 7 surveys were undertaken when temperatures were below those listed as optimal in the Amphibian Monitoring Protocols.

Amphibian Breeding – Wetland

- A total of 5 hours and 53 min. of Amphibian Breeding Habitat Surveys for both Woodland and Wetland habitat, clearly not sufficient to adequately cover the 22 wetlands and 36 woodlands that are found on Amherst Island.
- 71 additional suitable ELC Community Class locations were identified during ELC studies that occurred post Amphibian Breeding studies

- Habitat assessments were erroneously limited to areas with standing water although this is not a requirement of MNR publication *Ecoregion 6E Critereon.*
- 5 out of 7 surveys were undertaken too early in the evening, per Amphibian Monitoring Protocols.
- 4 out of 7 surveys were undertaken during wind conditions above 3 on the Beaufort Scale, unsuitable conditions for field studies per Amphibian Monitoring Protocols
- 6 out of 7 surveys were undertaken when temperatures were below those listed as optimal in the Amphibian Monitoring Protocols.

Migratory Butterfly Stopover Areas

- According to Field Notes provided in the NHA/EIS, field surveys were NOT conducted in the areas of candidate SWH MB2 or MB3 –how were these candidate SWH selected?
- Surveys were undertaken in conjunction with Staging Swallow surveys and accounted for a total of 6 hrs. and 10 min of survey time. (As there is "time" indicated on the Butterfly surveys it is impossible to ascertain the actual amount of time spent on Butterfly surveys vs. Staging Swallow surveys.)
- Surveys were conducted at the wrong time of the year (per Ecoregion 6E criterion) under somewhat cloudy conditions.
- Although Ecoregion 6E Criterion recommends multiple years of sampling, 2 field studies were undertaken in August of 2011.
- All survey occurred along roadside locations, however many of the potential candidate migratory butterfly stopover areas are located well away from the Amherst Island roads.
- APAI identified an additonal 7 potential migratory butterfly stopover areas that appear to meet the criteria of Ecoregion 6E

Premier Ford, I am attaching one of the Gap Analysis to serve as an example of the documentation available identifying the Liberal led MOECC's willful disregard of their own published guidelines. It is my sincere hope that this information will assist in rectifying the tragedy that is the soon to be operational of Amherst Island Wind Project.

Best Regards,

Denise Wolfe
APAI Board Member

association to protect
AMHERST ISLAND

Waterfowl Stopover and Staging Area (Aquatic) – Gap Analysis

According to O. Reg. 359/09 the Proponent must identify, select for field studies and evaluate the significance of candidate significant wildlife habitat (SWH) found within the Amherst Island Wind Project Location[1] (AIWPL).

The Project Study Area includes Amherst Island, an approximately 3 - 15 kilometre wide corridor stretching between the Island and the mainland where the submarine cable is proposed. The mainland portion of the Project Study Area stretches from the mainland shoreline, north of the Invista Transformer Station and is generally bounded by i) County Road 4 to the West; ii) the Canadian National Railway line to the North; and iii) approximately 500 m East of Jim Snow Drive to the East.

The process that must be followed in order for the Proponent to identify, evaluate and mitigate candidate and confirmed SWH is detailed in MNRF/MOECC publications and summarized below.

1. Records Review[2]
    a. Identify location of candidate and confirmed SWH, AINSI etc.
2. Site Investigations[3]
    a. Confirmation / identification of candidate SWH (procedures include Ecological Land Classification (ELC) review)[4],[5]

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1. Project Location: Includes all land and buildings / structures associated with the Project and any air space in which the will occupy. This includes structures such as turbines, access roads and power lines as well as any temporary work areas (including roads) which are required to be utilized during the construction of the Project.

1, 2, 6. MNR publication *Natural Heritage Assessment Guide for Renewable Energy Projects (NHAGREP)*
Section 3.1 Overview of the Natural Heritage Assessment
The NHA begins with a records review and site investigation, whereby an applicant must identify and verify any natural features present within 120 metres of the proposed project location....

Where it is determined that a natural feature is significant or provincially significant, applicants may seek an exception from the prohibitions, in order to develop within the natural feature and setback, provided an (Environmental Impact Study) EIS is prepared in accordance with procedures established by MNR

3. Section 5.6.1 Identification of Candidate Significant Wildlife Habitat
Applicants should begin the site investigation process by identifying candidate significant wildlife habitat (i.e. potentially significant) at or within 120 metres of the project location. MNR's established procedures for identifying candidate significant wildlife habitat include conducting an ELC assessment of ecosites and consulting MNR's Significant Wildlife Habitat Technical Guide

4. MNR publication *Ecological Land Classification Primer*
The uses for ELC system include "Assessing biodiversity levels, defining see zones, mapping ecosystem types and setting targets for the identification of natural heritage systems"

3. Evaluation of Significance[6]
    a. Candidate SWH identified as occurring in and within 120 m of the Project Location required an Evaluation of Significance (EIS) to ascertain if the candidate SWH met the requirements for confirmed SWH

4. Environmental Impact Study (EIA)
    a. Identify and assess potential negative environmental effects on SWH of the site preparation, construction, operation, modification, decommissioning of the Project. The EIS also identifies mitigation measures designed to prevent or minimize potential negative effects on a natural feature.

As habitat inclusion in the EIS is fully dependent upon identification / confirmation during records review and / or site investigations, it is critical that the methodology followed to identify, select and study candidate SWH adhere to the guidelines found in the Significant Wildlife Habitat Technical Guide (SWHTG) and Draft Significant Wildlife Habitat: Ecoregion 6E Criterion.

This gap analysis will demonstrate that the methodology used by Algonquin to identity candidate waterfowl stopover and staging seasonal concentration areas (aquatic) does not meet the requirements listed in the publications above. The application of the Proponent's methodology resulted in the erroneous identification of a single candidate waterfowl stopover and staging seasonal concentration area (aquatic) within the AIWPL.

Amherst Island is identified in *Appendix K of MNR's Significant Wildlife Habitat Technical Guide (SWHTG)* as one of 18 locations in Ontario considered significant for waterfowl. Please note, the MNR does not list Amherst Island as containing potential Significant Wildlife Habitat (SWH), the MNR designates the island as significant for waterfowl.

Nonetheless, Algonquin's research parameters and methodology resulted in no candidate waterfowl stopover and staging concentration areas being carried forward to the Environmental Impact Study (EIS).

Should this project be approved based on the Natural Heritage Assessment / Environmental Impact Study (NHA/EIS) dated September 2012 and reviewed below, waterfowl stopover and staging seasonal concentration areas (terrestrial) will not be included in the EIS. The lack of inclusion in the EIS will result in irreversible negative impacts on waterfowl stopover and staging area significant wildlife habitat (terrestrial). These negative impacts include but are not limited to:

- Habitat loss
- Habitat fragmentatio

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5. Amherst Island Wind Energy Project, Natural Heritage Assessment / Environmental Impact Study, Section 1.2 Report Requirements (p. 1.3)

Inappropriate Timing

In order to provide a science-based rationale for the selection of potential search locations for candidate waterfowl stopover and staging concentration area surveys, Ecological Land Classification (ELC) and preliminary botanical inventories of vegetation communities must be completed to complement / confirm the information gathered through records review. The ELC surveys will serve to identify vegetation communities with the potential to support waterfowl stopover and staging areas (aquatic), thereby directing the field search locations aimed at confirming candidate SWH.

Below is from the Amherst Island Wind Project (AIWP) NHA/EIS *Table 3.1: Characteristics Used to Identify Candidate Seasonal Concentration Areas*

Table 3.1: Characteristics Used to Identify Candidate Seasonal Concentration Areas		
Candidate Seasonal Concentration Area	**Criteria**	**Methods**
Waterfowl Stopover and Staging Area (Aquatic)	• The following Community Types: Meadow Marsh (MAM), Shallow Marsh (MAS), Shallow Aquatic (SA), Deciduous Swamp (SWD). • Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration • These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water)	• Vegetation community classifications were utilized to assess features within 220 m of the Project Location that would support waterfowl stopover and staging areas (aquatic). • ELC surveys and GIS analysis of the landscape were used to identify large wetlands or marshes with a diversity of vegetation communities interspersed
	• The combined area of the ELC ecosites and a 100 m radius area is the SWH. • Sewage treatment ponds and storm water ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify.	with open water (aquatic staging areas). • Only those communities that contain standing water for a portion of the year were considered candidate SWH.

In the methods section of Table 3.1 the proponent states that ELC surveys were used to identify large wetlands or marshes, clearly suggesting that Ecological Land Classification (ELD) criteria were used to identify this candidate SWH.

Algonquin's NHA/EIS Table 4B in Appendix B: *Natural Feature Site Investigations, Amherst Island Wind Energy*, provides the following dates for Ecological Land Classification (ELC) and preliminary botanical inventories of the vegetation communities in and within 120 m of the Project Location:

July 26 – 29 (2011)	August 2 – 5 (2011)	August 17 – 19 (2011)	November 11 (2011)
March 27 – 28 (2012)	May 18 (2012)	August 15 (2012)	

The listing from *Table 4B* of the Algonquin NHA/EIS (Appendix A of this document) indicates that spring waterfowl stopover and staging area surveys occurred from 24 March 2011 through to 25 May 2011. A review of Table 4B and the field notes indicates that no differentiation is made as to aquatic or terrestrial surveys.

Although the proponent appears to state in *Table 3.2* of the Algonquin NHA/EIS that ELC Surveys were used to identify candidate waterfowl stopover and staging areas, all spring surveys occurred prior to 26 July 2011, the first recorded date of ELC Classification studies.

Clearly, site selection for spring waterfowl stopover and staging field investigations could not have been based on the results of ELC surveys that had not occurred prior to the completion of said spring waterfowl stopover and staging field investigations. If the site selection for field investigations was not based on ELC criteria, what criteria were used?

Background Information

Below is from *Ecoregion 6E Criterion Schedule* and provides specifics with regards to Candidate SWH and Confirmed SWH for waterfowl stopover and staging areas (aquatic).

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria
Waterfowl Stopover and Staging Areas (Aquatic) **Rationale;** Important for local and migrant waterfowl populations during the spring or fall migration or both periods combined. Sites identified are usually only one of a few in the eco-district.	Canada Goose Cackling Goose Snow Goose American Black Duck Northern Pintail Northern Shoveler American Wigeon Gadwall Green-winged Teal Blue-winged Teal Hooded Merganser Common Merganser Lesser Scaup Greater Scaup Long-tailed Duck Surf Scoter White-winged Scoter Black Scoter Ring-necked duck Common Goldeneye Bufflehead Redhead	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7	• Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. Sewage treatment ponds and storm water ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify. • These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water);	Studies carried out and verified presence of: • Aggregations of 100[f] or more of listed species for 7 days[f], results in > 700 waterfowl use days. • Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH [cxlix] • The combined area of the ELC ecosites and a 100m radius area is the SWH [cxlviii] • Wetland area and shorelines associated with sites identified within the SWHTG [cxlviii] Appendix K [cxlix] are significant wildlife habitat. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • Annual Use of Habitat is Documented from Information Sources or Field Studies (Annual can be based on completed studies or determined from past surveys with species

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria
	Ruddy Duck Red-breasted Merganser Brant Canvasback Ruddy Duck			numbers and dates recorded). • SWHDSS[cxlix] Index #7 provides development effects and mitigation measures.

Additionally, *APPENDIX K of the Significant Wildlife Habitat Technical Guide: Waterfowl Component (ducks, geese and swans)* lists Amherst Island as one of 18 sites in Ontario that is considered significant for waterfowl.

3. Specific Habitats / the following sites are significant for waterfowl:

Long Point	Lower Detroit River	Hillman/Point Pelee
Amherst Island	Hullett PWA	Minesing Swamp
Matchedash Bay PWA	Lake St. Francis	Presqu'ile Bay
Lake St Clair	Wolfe Island	Rondeau Bay
St. Lawrence River	Luther Marsh PWA	Tiny Marsh PWA
Wye Marsh PWA	Prince Edward County shores	Lake Scugog

Detailed Survey Methods:

Survey methods that adhere to the guidelines found in the Significant Wildlife Habitat Technical Guide (SWHTG) and Draft Significant Wildlife Habitat: Ecoregion 6E Criterion, are critical to the collection of accurate data. The Algonquin NHA/EIS provides the following information in *Appendix G Detailed Survey Methods:*

Waterfowl Stopover and Staging Areas (Terrestrial and Aquatic)

To understand whether waterfowl use the candidate habitats in or within 120 m of the Project Location as migratory stopover areas for resting and feeding surveys were conducted in spring and fall 2011. Survey dates, times and weather conditions are summarized in **Table 4B, Appendix B.** Spring surveys began on March 24, 2011, ending on May 25, 2011, with a total of 10 surveys. Fall surveys began on September 1, 2011, ending on December 21, 2011, with a total of 19 surveys.

Driving transects involved driving the main roads within the Study Area during the day at slow speeds (i.e., 30-40km/h) to achieve maximum coverage of the site. The fields and woodlands were scanned using binoculars to detect birds. A spotting scope was used for closer inspection of stationary birds where suitable, candidate habitat occurred. Point counts involved 10-minute counts, identifying waterfowl to species, at flooded areas during migration, identified as candidate waterfowl stopover and staging areas.

Observers recorded the following information: date, names of observers, time, weather conditions (temperature, % cloud cover, Beaufort wind scale, visibility, precipitation), location, species observed, total number of individuals of each species, and behaviour. Birds documented as flyovers or otherwise not using the habitat as a feeding or roosting habitat were clearly indicated at the time of observation.

Of the 19 fall surveys noted in the paragraph above, 9 were conducted in conjunction with migrating raptor surveys and 3 were conducted in conjunction with winter raptor roost surveys. There is no indication on the field notes as to total times allotted to raptor vs. waterfowl surveys.

Inadequate Methodology – Site Identification of WA1
(NHA/EIS Section 3 – Site Investigation)

Below is from the Algonquin NHA/EIS and explains how seasonal concentration areas have been identified

3.1.7.1 Seasonal Concentration Areas of Animals

Seasonal concentration areas are areas where wildlife species occur in aggregations at certain times of the year, on an annual basis. Such areas are sometimes highly concentrated with members of a given species, or several species, within relatively small areas. In spring and autumn, migratory wildlife species will concentrate where they can rest and feed. Other wildlife species require habitats where they can survive winter. Seasonal concentration area habitats have been identified by using the habitat criteria found in the SWHTG (MNR 2000) and Draft Significant Wildlife Habitat: Ecoregion 6E Criteria Schedules (MNR 2012). The habitat criteria for each potential seasonal concentration area, and methods employed to identify them in and within 120 m of the Project Location, have been summarized in Table 3.1.

Table 3.1: Characteristics Used to Identify Candidate Seasonal Concentration Areas below provides the habitat criteria for each potential seasonal concentration area, and methods employed to identify them in and within 120 m of the Project Location.

Table 3.1: Characteristics Used to Identify Candidate Seasonal Concentration Areas		
Candidate Seasonal Concentration Area	**Criteria**	**Methods**

Waterfowl Stopover and Staging Area (Aquatic)	• The following Community Types: Meadow Marsh (MAM), Shallow Marsh (MAS), Shallow Aquatic (SA), Deciduous Swamp (SWD). • Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration • These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water)	• Vegetation community classifications were utilized to assess features within 220 m of the Project Location that would support waterfowl stopover and staging areas (aquatic). • ELC surveys and GIS analysis of the landscape were used to identify large wetlands or marshes with a diversity of vegetation communities interspersed with open water (aquatic staging areas). • Only those communities that contain standing water for a portion of the year were considered candidate SWH.
	• The combined area of the ELC ecosites and a 100 m radius area is the SWH. • Sewage treatment ponds and storm water ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify.	

As Ecoregion 6E Criterion states "Wetland area and shorelines associated with sites identified within the SWHTG Appendix K are significant wildlife habitat", and Amherst Island is listed in Appendix K, the criteria listed in Table 3.1 is incomplete. All, Amherst Island wetlands and shoreline are considered SWH and must be included in the EIS.

Inadequate Methodology – Site Selection of WA1
(NHA/EIS Section 3 – Site Investigation)

As demonstrated above, the identification of a single candidate waterfowl stopover and staging seasonal concentration area (aquatic) was based on erroneous assumptions embedded in the proponent's site identification process. The selection of a single waterfowl stopover and staging seasonal concentration area (aquatic) was the end result of studies that did not adhere to all of the habitat criteria found in the SWHTG (MNR 2000) and Draft Significant Wildlife Habitat: Ecoregion 6E Criteria Schedules (MNR 2012). Consequently, the use of erroneous / incomplete criteria led to the omission of potential additional candidate SWH as well as impacting the validity of the conclusions resulting from the completed studies.

The NHA/EIS section *3.2.6.1 Seasonal Concentration Areas of Animals* provides the following information regarding the selection of Seasonal Concentration Areas.

> Site Investigations involved a thorough assessment of natural areas for seasonal concentration areas for wildlife habitat. Potential habitat for seasonal concentration areas was examined during the Site Investigation phase, and is discussed in Table 3.5. Seasonal concentration areas that did not have any candidate significant wildlife habitat will not be carried forward to the Evaluation of Significance phase.

The *NHA/EIS Table 3.5: Summary of Site Investigation Results for Seasonal Concentration Areas* provides the following information regarding the selection of WA1.

Table 3.5: Summary of Site Investigation Results for Seasonal Concentration Areas				
Candidate Seasonal Concentration Areas	**Present within 120 m of Project Location**	**Present in Project Location**	**Rationale**	**Carried Forward to Summary and EOS (Y/N)**
Waterfowl Stopover and Staging Area (Aquatic)	Yes (WA1)	No	Waterfowl stopover and staging habitat was identified in the IBA report between the island and the mainland. Shallow marsh habitat is found within 120 m of the Project Location in Long Point Marsh. The Project Location is not in these features.	Yes

While the NHA/EIS reports states "Potential habitat for seasonal concentration areas was examined during the Site Investigation phase, and is discussed in Table 3.5" Clearly in Table 3.5 above, the proponent provides no discussion, no science-based rationale per the criteria detailed in Ecoregion 6E or the SWHTG, for the selection of for the selection of WT1, WT2, WT3 or WT4.

<u>Inadequate Methodology – Evaluation of Significance</u>
(NHA/EIS Section 4 – Evaluation of Significance)

The NHA/EIS section *4.1.3.1 Seasonal Concentration Areas of Animals* provides the following information regarding the selection of Seasonal Concentration Areas.

> 4.1.3.1 Seasonal Concentration Areas of Animals
> The criteria and methods used to evaluate the significance of candidate significant wildlife seasonal concentration areas in and within 120 m of the Project Location are in Table 4.1.

Table 4.1: Criteria and Methods Used to Evaluate Seasonal Concentration Areas of Animals			
Candidate Seasonal Concentration Area	**Criteria**	**Methods**	**Seasonal Timing**
Waterfowl Stopover and	• Presence of annual staging of listed species (Canada Goose,	• Studies were completed during the spring migratory	• March-May

Staging Areas (Aquatic)	Cackling Goose, Snow Goose, American Black Duck, Northern Pintail, Northern Shoveler, American Widgeon, Gadwall, Green-winged Teal, Blue-winged Teal, Hooded Merganser, Common Merganser, Lesser Scaup, Greater Scaup, Long-tailed Duck, Surf Scoter, White-winged Scoter, Black Scoter, Ring-necked Duck, Common Goldeneye, Bufflehead, Redhead, Ruddy Duck, Red-breasted Merganser, Brant, Canvasback) • Mixed species aggregations of 100 or more individuals for 7 days • Areas with annual staging of Ruddy Ducks, Canvasbacks, and Redheads are significant wildlife habitat • Annual use of habitat	season. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" for stopover driving transects and point counts • Stopover counts conducted by driving a set transect, stopping at candidate habitats and conducting waterfowl counts to estimate numbers and species • Counts timed to coincide with peak numbers (dates and times)	

The proponent appears to have followed the "Bird and Bird Habitats: Guidelines for Wind Power Project" evaluation methods. However, as demonstrated above, the identification / selection process of candidate SWH followed by the proponent was flawed. Field studies were completed in erroneously restricted locations, with many suitable candidate SWH not being surveyed.

The NHA/EIS section *4.2.3 Wildlife and Wildlife Habitat* provides the following information:

> Staging Waterfowl
> Results of the spring and fall staging waterfowl surveys are provided in Table B, Appendix F. A total of 25 waterfowl species were observed between the spring and fall surveys, including 8 species of dabbling ducks, 5 bay ducks, 3 mergansers, 3 goldeneye, 2 goose, 2 swans and 2 sea ducks.
>
> The most common species found inland were Canada Geese (9047 individuals), Common Goldeneye (1247 individuals), Greater Scaup (701 individuals), and Red-breasted Merganser (699 individuals).
>
> The most common species found offshore were Common Goldeneye (4255 individuals), Canada Goose (2763 individuals), Red-breasted Merganser (1568 individuals), and Bufflehead (1304 individuals).
>
> Small pockets of waterfowl were observed in bays along the shoreline of Amherst Island, although the most significant area for migrating waterfowl was observed to be the waters between the island and the mainland.

The NHA/EIS section *4.2.3.1 Seasonal Concentration Areas of Animals* provides information regarding the evaluation of significance for Seasonal Concentration Areas.

> 4.2.3.1 Seasonal Concentration Areas
> Evaluations of significance for candidate SWH for seasonal concentration areas within 120 m of the Project Location are presented in Table 4.5. Field notes are provided in Appendix C. A detailed table of results for each type of survey is provided in Appendix F.

Table 4.5: Summary of Evaluation of Significance Results for Seasonal Concentration Areas

Candidate Seasonal Concentration Areas	Present in or within 120 m of Project Location	Rationale	Carried Forward to Summary and EIS (Y/N)
Waterfowl Stopover and Staging Areas (Aquatic)	No	**WA1**: Over 8 surveys in the fall, the highest daily total of waterfowl individuals was 20. A congregation of 100 individuals is considered significant. This is therefore not a significant waterfowl terrestrial stopover and staging area.	No (WA1)

Taking into consideration the fact that Amherst Island is identified in *Appendix K of MNR's Significant Wildlife Habitat Technical Guide (SWHTG)* as one of 18 locations in Ontario considered significant for waterfowl, the low number of waterfowl identified at WA1 appears to speak to the inadequate identification / selection process for candidate waterfowl stopover and staging seasonal concentration areas (aquatic).

Additionally, per Ecoregion 6E "Wetland area and shorelines associated with sites identified within the SWHTG Appendix K are significant wildlife habitat." As Amherst Island is identified in Appendix K, all Amherst Island shorelines and wetlands are SWH that must be included in the Environmental Impact Study.

Inadequate Methodology – Environmental Impact Study
(NHA/EIS Section 5 – Environmental Impact Study)

As demonstrated above the application of erroneous selection criteria resulted in no candidate SWH being forwarded to the Environmental Impact Study, despite the fact that per Ecoregion 6E all Amherst Island Shorelines and it's 22 wetlands are considered SWH.

Summary

In conclusion, a review of the NHA/EIS indicates the following deficiencies in timing and methodology:

- Although Ecoregion 6E states that all Amherst Island Shorelines and it's 22 wetlands are considered SWH, no waterfowl stopover and staging areas (aquatic) were included in the EIS.
- Spring Field studies that occurred prior to ELC evaluations, contributing to the erroneous identification of a single candidate waterfowl stopover and staging seasonal concentration areas (aquatic) on Amherst Island (WA1)
- Habitat assessments were erroneously limited to "large" wetlands or marshes, with "open" water, and areas with standing water during a portion of the year
- No field studies completed on the mainland portion of the AIWEPL
- Inadequate mitigation measures proposed

Recommendations:

- Site identification of candidate waterfowl stopover and staging seasonal concentration areas (aquatic) be completed, informed by completed ELC surveys and applying criteria provided in the Draft Significant Wildlife Habitat: Ecoregion 6E Criterion.
- Evaluation of Significance to be completed using the data provided through the application of criteria provided in the Draft Significant Wildlife Habitat: Ecoregion 6E Criterion.
- Environmental Impact Study completed as appropriate.
- Appropriate mitigation strategies must be developed.

Minister Phillips, you are respectfully requested to do what is in the public interest: to revoke approval of the Amherst Island Wind Project.

Amherst Island Wind Project: Top 7 Reasons to Cancel Now

1. **Save Money**: Achieve cost savings exceeding $500 million over 20 years by cancelling the Amherst Island Wind Project. Terminate the FIT contract for the unneeded 75 MW Amherst Island project across the channel from the idle 2000 MW Lennox Generating Station paid monthly curtailment fees, the soon to be idle 800 MW Napanee Gas Plant to be paid over $13 million per month to NOT generate electricity, and 115 MW Northland Power whose offer of power at 5.6 cents per kilowatt was not accepted in contrast to the 14 cents per kilowatt to be paid the 75 MW Amherst Island project, the highest rate in Ontario.
2. Address **IESO Defiance of the Ontario Government:** The IESO enabled Windlectric Inc. to achieve its Commercial Operation Date (COD) on June 15, 2018 a mere one week after election and fourteen days prior to the Conservative Government taking office notwithstanding the intent of the Government to review wind energy contracts. The FIT contract was awarded in February 2011. The IESO refuses to disclose the contract and justify any amendments including extensions due to Force Majeure but it defies understanding how a contract with a three-year obligation to achieve a COD even with a 2-year maximum extension due to Force Majeure could be compliant seven years later in June 2018. The lack of transparency is abhorrent.
3. **Require Contract Compliance**: Windlectric Inc. is, we expect, a shell company with fully encumbered assets, significant debt and no employees. Algonquin sold 50% of Windlectric in late 2016. Windlectric's other 50% owner is not presently known. It is unclear whether the recent change in ownership has been communicated to the IESO and MOECC and contracts updated. On July 5, 2018, Loyalist Township identified a long list of deficiencies and some conditions of the REA especially concerning site remediation have not been fulfilled. It is also rumoured that subcontractors are owed several million dollars and most work has ceased leaving the island in a mess. Are Loyalist Township and its taxpayers now on the hook for restoring roads, damaged culverts, etc.? This could also result in a significant risk of proper and complete decommissioning at the end of the contract.

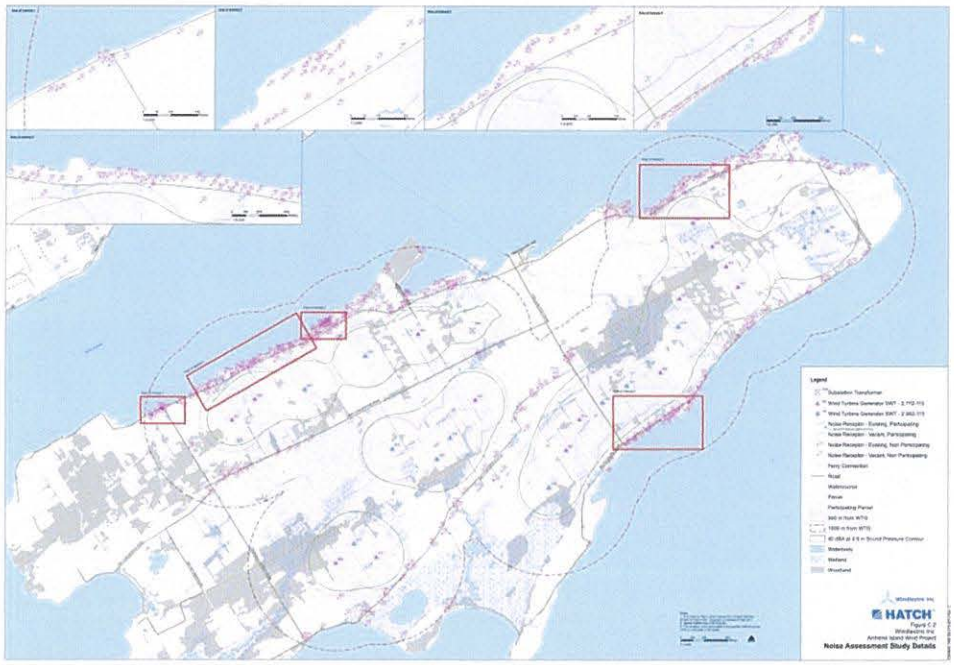
Mike Richmond of McMillan LLP in a July 2018 opinion says:

> "Based on the more detailed policy positions and resolutions adopted by the PC Party's Policy Committee in 2017, we could expect that in such cases, project owners may be presented with a lose-lose choice: agree to re-open and renegotiate your FIT, LRP or other contract (terms to be revisited could include contract price, contract duration, and/or curtailment payments), or face immediate termination without any compensation.
>
> There are plenty of seemingly innocuous actions and omissions which could trigger such a situation. They include missed milestone dates (do not expect deadlines to be extended going forward), reporting deficiencies, and prohibited changes to the facility without consent. **But inadvertent failures to maintain corporate records, minor changes to corporate ownership, corporate by-law discrepancies, threatened litigation, changes in**

residency, loss of licenses or permits, and a host of other fairly routine lapses could also lead to these significant consequences." (emphasis added).

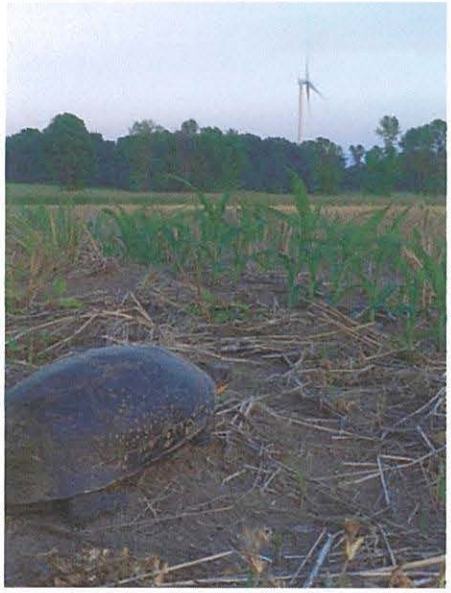
4. **Require Noise Compliance:** Protect human health by consistent application of noise regulations. If the Amherst Island Wind Project were proposed today the noise regulations implemented in 2016 would require significant changes to the project. A minimum of ten homes would be subject to noise exceeding the new standards. Why should Amherst Island residents be subjected to noise that

blankets the Island and MOECC acknowledges exceeds today's safety standards? Please take preventative action especially important when it has become widely known that MOECC has failed to investigate thousands of noise complaints related to wind turbines throughout rural Ontario. Speculation is that MOECC failed to require changes related to road reconstruction because amendment would trigger application of the new noise regulations and project redesign to protect human health.



5. **Require Original REA Application to Comply**: Recent legal comment notes that Windlectric's original REA application did not comply with Ontario Regulation 359 section 28 (2). Specifically, "on a number of occasions, the MNR did not require the proponent to follow the criteria or procedures set out in the Natural Heritage Assessment Guide (which references the MNR Significant Wildlife Technical Guide and the Significant Wildlife Eco-regional Criteria Schedules). This "lack of adherence to the NHA Guide" is clearly documented in the NHA/EIS submitted to the MOECC in support of the REA application. A comprehensive analysis is attached.

6. **Windlectric Says One Thing and Does Another, MNRF and MOECC demonstrate Institutional Bias Concerning Endangered Species:** MOECC and MNRF failed to protect endangered species on Amherst Island. Both Ministries chose not to enforce commitments made under oath by the Approval Holder at the Environmental Review Tribunal concerning restrictions on construction during the endangered Blanding's Turtle breeding season, the REA requirement for a study of the Short-Eared Owl breeding territories, and the restriction on construction during the breeding season of endangered grassland birds as set out in the Overall Benefit Permit PT-C-012-1. Indeed, notwithstanding the fact that all parties agreed that Blanding's Turtles were resident on Amherst Island, no Overall Benefit Permit was required. The Kingston Field Naturalists, Nature Canada, Ontario Nature, the American Bird Conservancy and a host of naturalist organizations opposed the location of wind turbines on Amherst Island to no avail.



Picture taken June 18 2018 during breeding season.

Windlectric testified under oath at the ERT that no construction would occur from March 30 to September 1 but MNRF and MOECC gave the company a free pass except for the area in proximity to the marsh.

Picture taken July 20, 2018

7. **Address Institutional Bias Concerning Project Changes**: MOECC failed to require Modification 5 to the project and to require the related environmental studies when Windlectric decided to reconstruct 20 km of Island roads rather than undertake "three minor and temporary road widenings" proposed as a key mitigation measure to protect Blanding's Turtles. Windlectric made these commitments under oath at the ERT. MOECC authorized construction of a multimillion dollar mainland dock and related industrialization on property designated as parkland. MOECC failed to enforce MTCS requirements for archaeological studies of reconstructed roadways.

Minister Phillips, you have a real choice.

To protect the rich natural and cultural heritage of Amherst Island, the jewel of Lake Ontario on the Atlantic Migratory Flyway, home to over 30 endangered species, and designated as one of the Top Ten Endangered Places in Canada by the National Trust for Canada:

or to permit continued devastation for future generations and for all time:

Divisional Court No.
ERT Case Nos.: 13-002/15-084

ONTARIO
SUPERIOR COURT OF JUSTICE
(DIVISIONAL COURT)

BETWEEN:

ASSOCIATION FOR THE PROTECTION OF AMHERST ISLAND

Appellant
(Appellant on Appeal)

- and -

WINDLECTRIC INC. and DIRECTOR, MINISTRY OF THE ENVIRONMENT AND CLIMATE CHANGE

Respondents

FACTUM OF THE APPELLANT

(Motion to Admit New Evidence Pursuant to Rule 61.16(2) of the *Rules of Civil Procedure* and Subsection 134(4)(b) of the *Courts of Justice Act*)

November 24, 2016

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ISSUES AND THE LAW

Background

1. The Appellant, the Association for the Protection of Amherst Island ("APAI") filed a Notice of Appeal on September 2, 2016, appealing a decision of the Environmental Review Tribunal ("the Tribunal"), dated August 3, 2016, wherein the last day evidence was heard was June 7, 2016. The Tribunal dismissed APAI's appeal of a Renewable Energy Approval (the "REA") issued by the Director, Ministry of the Environment and Climate Change (the "Director") to the Respondent, Windlectric Inc. ("Windlectric").

2. APAI respectfully submits that the New Evidence meets the requirements set out by the Supreme Court of Canada in *R. v. Palmer*.[1]

The New Evidence

3. The "New Evidence" consists of nine documents:

   a. **Document 1: Chapter 3 of the Environmental Commissioner of Ontario report, "*Ontario Environmental Protection Report –Biodiversity Under Pressure: Wildlife Declines in* Ontario" dated October 2016 (the "ECO Report").** This report highlights recent estimates of wind turbine related bat mortality in Ontario, and suggests that roughly 5,200 endangered bats are killed by turbines each year in Ontario. The report concludes that the Ministry of Natural Resources and Forestry should take accelerated steps to identify and implement potential recovery actions for at-risk bat species as soon as possible. This runs

[1] *R. v. Palmer*, [1980] 1 SCR 759 (SCC).

directly contrary to allowing this development, that the Tribunal found as a fact, will further damage an already fragile population.[2]

b. **Document 2: An article from the Journal of Wildlife Management, entitled *"Bat Mortality Due to Wind Turbines in Canada"*, by J. Ryan Zimmerling & Charles M. Francis, Environment and Climate Change Canada, Canadian Wildlife Service, dated July 26, 2016 (the "JWM Report").** This article uses data from carcass searches from 64 Canadian wind farms, 31 of them located in Ontario, and establishes that the mortality count methodology relied upon by the wind industry results in significantly underestimated mortality rates. The article estimates the annual collision mortality rate of bats per turbine in Ontario to be 24.5 bats. With respect to the Little Brown Myotis, they conclude that 87% of the species fatalities occurred in Ontario. This extremely high fatality rate from Ontario wind projects of the very bat species that was the focus of this hearing was unknown to the Tribunal when it made its Decision.

c. **Document 3: A report created by Bird Studies Canada, Canadian Wind Energy Association, Environment Canada and Ontario Ministry of Natural Resources entitled *"Wind Energy Bird and Bat Monitoring Database Summary of Findings from Post-Construction Monitoring Reports*, dated July 2016 (the "BSC Report").** This article presents summaries of post construction bird and bat mortality monitoring data collected at 65 Canadian wind power projects between 2006 and 2014. Contributors include the Canadian Wind Energy Association, which represents the wind industry across Canada including Ontario. This newly analysed data indicates that in Ontario Little Brown Myotis represented 11.7 % of fatalities, northern long-eared myotis represented .24%, and tri-

[2] *Assn. for the Protection of Amherst Island v. Ontario (Ministry of the Environment and Climate Change)*, [2016] OERTD No. 36 (QL) at para. 181.

coloured bats represented .19% of total bat fatalities. Additionally, this report states that the bat mortality established in the report potentially underestimated true mortality rates, as the published mortality rates are based solely on carcasses that fell within 50 m of the turbine base. This mortality data was also unknown to the Tribunal when it made its Decision.

d. **Document 4: An academic article from Current Biology entitled, *"Ecological Impact Assessments fail to reduce risk of bat casualties at wind farms"*, by academics Paul R. Lintott, Suzanne M. Richardson, David J. Hosken, Sophie A. Fensome and Fiona Mathews, from the College of Life and Environmental Sciences, University of Exeter, dated November 7 2016 (the "CB Report").** This article summarizes a study that surveyed bat fatalities at 46 wind projects across the UK, assessing how effectively Environmental Impact Assessments ("EIA") protect bats. Assessments were done in this case and relied upon by the Tribunal.[3] The article concludes that EIA do not predict the risks to bats accurately and that even in those cases where high risks were correctly identified, the mitigation deployed did not avert the risk. Here, the Tribunal also relied on mitigation to avert the risk.[4] Based on the study, the Tribunal erred in relying on the EIA and on relying on mitigation. However, the study was not published until long after the conclusion of the ERT hearing and the release of the Tribunal's Decision.

e. **Document 5: A technical report from the United States Fish and Wildlife Service, *"Great Lakes Avian Radar Technical Report Niagara, Genesee, Wayne and Jefferson Counties, New York, Spring 2013 Season*, July 2016 (the "USFWS Report").** This report establishes that millions of birds and bats migrate through the Great Lakes region, that the

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[3] See for example *Assn. for the Protection of Amherst Island v. Ontario (Ministry of the Environment and Climate Change)*, [2016] OERTD No. 36 (QL) at para. 164.

[4] *Assn. for the Protection of Amherst Island v. Ontario (Ministry of the Environment and Climate Change)*, [2016] OERTD No. 36 (QL) at para. 182.

shoreline of Lake Ontario acts as an area important for conservation of migratory species of birds and bats, and establishes that migrants are flying at altitudes that place them at risk of collision with the current or future wind energy development in the area. Additionally, the USFWS report found larger than expected concentrations of bats along the shoreline of Lake Ontario. The report also highlights the need for turbine development projects to avoid these areas. Furthermore, one of the avian radars used in their study was positioned so that it showed a direction of migration towards Amherst Island. All of this information became available after the hearing and Decision in this case.

f. **Document 6: Operations Plan for the Construction of the Amherst Island Wind Project, dated October 13, 2016 (the "Operations Plan").** This plan provides updated information regarding a number of required plans including the Traffic and Construction Management Plan, the Communication Plan and the Public Safety Plan. The Operations Plan provides new information about significant increases, at a minimum tripling the number of aggregate and concrete truck trips as compared to the amounts presented in the Construction Plan Report submitted for REA approval. As traffic mortality is accepted as a primary threat to Blanding's Turtle survival as a species, the significant increase in construction related traffic poses a significant threat that was also never considered during the ERT process.

g. **Document 7: Letter from The Corporation of Loyalist Township, Chief Administrative Officer Mr. Robert Maddocks to Algonquin Power Co. Senior Project Manager Mr. Ariel Bautista, regarding the Review of Draft Operations Plan Windlectric Project, dated November 14, 2016 (the "Letter").** This letter conveys disappointment on behalf of Loyalist Township with respect to Windlectric's Operations

Plan October 13, 2016, as it lacks the requisite detail to allow for technical review by the Township and public consultation and was prepared without any pre-consultation. Mr. Maddocks supplies commentary for a number of sections of the Operations Plan, highlighting specific measures that were deemed to be too vague. This letter was not available prior to the Tribunal's Decision.

h. **Document 8: A study via acoustical monitoring by Toby Thorne, "Amherst Island Bat Data Reanalysis Overview", dated November 23, 2016 (the "Thorne Report").** This study shows the distribution of Species at Risk ("SAR") bats relative to the proposed turbine locations on Amherst Island. It demonstrates, for the first time, that these threatened and/or endangered bat species are present in close proximity to numerous proposed turbine locations all across Amherst Island. There was SAR bat activity recorded at all proposed turbine locations with Batcorders installed within approximately 1,000 to 1,500 meters of the turbine. This refined analysis could only be completed with new technology/software that first became available in October 2016. Consequently, the Tribunal did not have the benefit of this new science.

i. **Document 9: The affidavit of Mr. Tom Adams, dated November 24, 2016 (the "Adams Affidavit").** This affidavit references a September 27, 2016 announcement by the Government of Ontario canceling all further procurement of large-scale renewable energy projects, based on a September 2016 Provincial Study Ontario has a sufficient supply of energy under any forecast conditions for at least the next 10 years. Consequently, it is now clear that if the Amherst Island Project is canceled, or sent back to the Tribunal or Director for further review, there will be absolutely no negative impact on Ontario's green energy policies and/or the ability to supply Ontario's power needs for at least the next decade.

Section 145.2.1(2)(b) is a decisive issue for the Tribunal to consider, as if a finding of serious and irreversible harm is rendered, the Project will be halted. The Operations Plan provides new information that was not available to the Tribunal with respect to significant increases in the number of aggregate and concrete truck trips which will affect the Blanding's Turtle mortality relative to the number of truck trips proposed in Windlectric's REA. The Letter outlines Loyalist Township's concerns with respect to the Operations Plan, indicating it is too vague to enable technical review and for public comment. Furthermore, the Letter states that no agreement has been reached between Loyalist Township and Windlectric with respect to the proposed temporary nature of road improvements, which was a key mitigation measure the Tribunal relied upon with respect to the protection of Blanding's Turtles.[6] The Thorne Report makes it clear that SAR bats are in fact present in the vicinity of proposed turbine locations. The Adams Affidavit makes it clear that there is no need for the Project. Revoking the REA, or requiring a proper review and analysis of the New Evidence will have absolutely no adverse consequences for the Province.

8. Thirdly, the New Evidence is credible in the sense that is reasonably capable of belief. APAI submits that the foregoing are all credible sources of repute:

a. The Environmental Commissioner of Ontario, a well respected independent officer of the Legislature who reports on government progress on climate change, energy and other environmental issues, also acting as the Province's environmental watchdog and champion of Ontarians' environmental rights;

b. The Journal of Wildlife Management, a peer reviewed journal that contributes to basic wildlife science within the context of contemporary management and conservation issues;

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[6] *Supra* Note 2, at para. 337.

The New Evidence Satisfies the Test for Admission

4. In *R. v. Palmer*, the Supreme Court of Canada articulated four criteria to determine whether a Court should admit new evidence:[5]

I. The evidence should generally not be admitted if, by due diligence, it could have been adduced at trial;

II. The evidence must be relevant in the sense that it bears upon a decisive or potentially decisive issue in the trial;

III. The evidence must be credible in the sense that it is reasonably capable of belief; and

IV. It must be such that if believed it could reasonably, when taken with the other evidence adduced at trial, be expected to have affected the result.

5. APAI proposes to admit the foregoing nine documents as new evidence for this Honourable Court's consideration. APAI respectfully submits that each of the foregoing documents separately satisfies the four criteria set out in *Palmer*.

6. Firstly, the New Evidence should be admitted because it could not have been adduced at trial. This is satisfied as none of the foregoing New Evidence was in existence or available prior to the conclusion of the hearing.

7. Secondly, APAI respectfully submits that the New Evidence is relevant in the sense that it bears upon a decisive or potentially decisive issue at the hearing. Six of nine documents highlight bat mortality due to wind turbines, which directly concerns the criteria in section 145.2.1(2)(b) of the Environmental Protection Act (the "EPA"), that the Project operating in accordance with the REA will cause serious and irreversible harm to plants, animals, and/or the natural environment.

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[5] *Supra* Note 1, at p. 775.

c. A national charity, Bird Studies Canada, is Canada's leading science-based bird conservation organization, whose mission is to conserve wild birds of Canada through sound science, on the ground actions, innovative partnerships, public engagement and science-based advocacy;

d. Current Biology, a general journal that publishes original research across all areas of biology, in order to foster communication across fields of biology, reporting findings in any area of biology that have sufficient claim to be of general interest;

e. The United States Fish and Wildlife Service, a bureau within the Department of the Interior, who assists in the development and application of an environmental stewardship ethic for American society, based on ecological principles, scientific knowledge of fish and wildlife and a sense of moral responsibility;

f. The Operations Plan for the Construction of the Amherst Island Wind Project is a document published by Windlectric. According to the introduction, it is provided to Loyalist Township as prescribed by the Road Use Agreement, and commitments in the REA Application.

g. The letter from Mr. Robert Maddocks, the Chief Administrative Officer of Loyalist Township, who has held this role since 2014, and previously held the same role in the Township of Rideau Lakes, Leeds and Grenville;

h. Mr. Toby Thorne completing his thesis-based Masters in Biology at the University of Western Ontario, under the supervision of one of the leading bat experts in the world (Dr. Brock Fenton) where he has chosen to focus on bats in the Great Lakes region. His thesis is entitled "The Use of Great Lakes Islands by Migrating Bats."

i. Mr. Tom Adams is an energy consultant who has published and appeared as an expert witness many times on energy related matters. He is a past Board Member of the predecessor to the Independent Electricity System Operator ("IESO"), the primary provider of electricity in Ontario.

9. Lastly, APAI submits that the New Evidence, when taken with the other evidence adduced at the hearing, could reasonably be expected to affect the result. Collectively, the New Evidence addresses harm to bats and turtles as well as the efficacy of the proposed mitigation efforts:

a. The ECO Report, amongst other things, acknowledges the high death rates for Species at Risk (SAR) bats caused directly by industrial wind turbines in Ontario. It also recommends immediate action to stop these losses;

b. The JWM Report, amongst other things, establishes on the most current data available that 87% of all Little Brown Bats killed by industrial wind turbines were killed in Ontario;

c. The BSC Report, amongst other things, establishes on the most current data available that a significant percentage of bats killed in Ontario are the same Species at Risk (SAR) bats of special concern in this hearing;

d. The CB Report, amongst other things, establishes that EIAs and mitigation do not provide solutions to the risks and fatalities caused by industrial wind turbines;

e. The USFWS Report, amongst other things, establishes that there are large concentrations of bats in the Lake Ontario area, that there is a direct migratory corridor across the lake over Amherst Island, and that a major United States government agency is now recommending no development of industrial wind turbine projects in such areas;

f. The Operations Plan, amongst other things, establishes that there will be more than three times the volume of truck traffic the Tribunal believed would occur on Amherst Island as a result of the proposed Project, thereby putting Blanding's Turtles at far greater risk than the Tribunal was aware;

g. The Letter, amongst other things, establishes that the Project is not ready to proceed;

h. The Thorne Report, amongst other things, establishes that there are definitely Species at Risk (SAR) bats present in all parts of Amherst Island including in the vicinity of many of the proposed industrial wind turbines;

i. The Adams Affidavit, amongst other things, establishes that the Project is unnecessary, and whether it is denied or sent for further review, there will be no negative impacts to Ontario's power capacity etc.

11. The *Palmer* test requires consideration of this evidence, both individually and in the context of all of the other available evidence. In APAI's respectful submission, it is almost impossible to imagine that the foregoing New Evidence, taken either individually or collectively, would not be expected to affect the result here in some way.

Conclusion

12. In light of the nature and strength of the New Evidence it should clearly be admitted.

ORDER SOUGHT

13. APAI respectfully requests an Order adding to the record on this appeal the foregoing New Evidence pursuant to Rule 61.16(2) of *the Rules of Civil Procedure* and Subsection 134(4)(b) of the *Courts of Justice Act*, R.S.O 1990, c. C.43.

14. Such further and other relief as counsel may advise and this Honourable Court may permit.

All of which is respectfully submitted the 24th day of November, 2016

Eric K. Gillespie
Of counsel for the Appellant

SCHEDULE "A"

1. *Assn. for the Protection of Amherst Island v. Ontario (Ministry of the Environment and Climate Change)*, [2016] OERTD No. 36 (QL)

2. *R. v. Palmer*, [1980] 1 SCR 759 (SCC)

SCHEDULE "B"

RELEVANT STATUTES

***Rules of Civil Procedure*, R.R.O. 1990, Reg. 194**

Rule 37 Applies Generally

61.16 (1) Rule 37, except rules 37.02 to 37.04 (jurisdiction to hear motions, place of hearing, to whom to be made) and rule 37.17 (motion before commencement of proceeding), applies to motions in an appellate court, with necessary modifications.

Motion to Receive Evidence
(2) A motion under clause 134(4)(b) of the Courts of Justice Act (motion to receive further evidence) shall be made to the panel hearing the appeal.

***Courts of Justice Act*, R.S.O 1990, c. 43**

134. (1) Unless otherwise provided, a court to which an appeal is taken may,

(a) make any order or decision that ought to or could have been made by the court or tribunal appealed from;

(b) order a new trial;

(c) make any other order or decision that is considered just. R.S.O. 1990, c. C.43, s. 134 (1).

Determination of fact

(4) Unless otherwise provided, a court to which an appeal is taken may, in a proper case,

(a) draw inferences of fact from the evidence, except that no inference shall be drawn that is inconsistent with a finding that has not been set aside;

(b) receive further evidence by affidavit, transcript of oral examination, oral examination before the court or in such other manner as the court directs; and

(c) direct a reference or the trial of an issue, to enable the court to determine the appeal.

Letter of Concern Regarding Industrial Wind Development in the Algoma District

To: Mike Mantha, MPP Algoma-Manitoulin
Via Email: mmantha-co@ndp.on.ca (Sent: 2018 07 18; Acknowledged: 2018 07 24)

Ross Romano, MPP Sault Ste. Marie
Parliamentary Assistant to the Minister of Energy, Northern Development and Mines and Parliamentary Assistant to the Minister of Indigenous Affairs
Via Email: ross.romano@pc.ola.org (Sent: 2018 07 18)

Hon. Greg Rickford, MPP Kenora-Rainy River
Minister of Energy, Northern Development and Mines and Indigenous Affairs
Via Email: greg.rickfordco@pc.ola.org (Sent: 2018 07 31)

Hon. Rod Phillips, MPP Ajax
Minister of the Environment, Conservation and Parks
Via Email: rod.phillipsco@pc.ola.org (Sent: 2018 08 03)

Hon. Sylvia Jones, MPP Dufferin-Caledon
Minister of Tourism, Culture and Sport
Via Email: sylvia.jonesco@pc.ola.org (Sent: 2018 08 03)

Hon. Jeff Yurek, MPP Elgin-Middlesex-London
Minister of Natural Resources and Forestry
Via Email: jeff.yurekco@pc.ola.org (Sent: 2018 08 03; Acknowledged: 2018 08 03)

Hon. Jim Wilson, MPP Simcoe-Grey
Minister of Economic Development, Job Creation and Trade
Via Email: jim.wilson@pc.ola.org (Sent: 2018 08 03)

Hon. Victor Fedeli, MPP Nipissing
Minister of Finance
Via Email: vic.fedeli@pc.ola.org (Sent: 2018 08 03)

From: Executive Members of *Save Ontario's Algoma Region* (*SOAR*)
SOAR is an affiliate member of *Wind Concerns Ontario.*

Date: 2018 08 03

Since 2010, hundreds of Algoma District residents have expressed their concerns about industrial wind development in the Lake Superior Watershed Highlands north of Sault Ste. Marie.

It may not be possible to alter decisions made by the past Ontario government, but going forward, the present government may make decisions and choices which will help ensure a sustainable economy based on eco-tourism in Algoma's wilderness environment.

To assist in this task, the following observations and data concerning the development of industrial wind industry in Algoma are respectfully presented for your consideration.

Wind Concerns Ontario has provided data that clearly indicate that the attempt to harness the wind with industrial turbines to create a green energy economy has caused problems for humans and for the environment in our province.

In theory, it was not a bad idea: it just has gone horribly wrong.

Who would have thought that the plan to "green" the world by eliminating noxious pollutants in the process of creating "clean" energy would have rebounded with such dire results on human health and the environment which we are mandated to protect?

1. Despite mounting evidence, both anecdotal and science-based, to date the Ontario government has refused to acknowledge the impact of industrial wind turbines on Ontarians beyond the physical symptoms of vibro-acoustic disease. But, there is much, much more to consider in the determinants of human health.
2. Poverty impacts human health. The energy rates in Ontario which have skyrocketed due to the policies of "green" energy have impacted all Ontarians—especially those in lower income brackets and those who live in areas where a sustainable year-round economy is largely dependent upon eco-tourism in a natural environment untouched by the presence of industrial wind turbines.
3. Human Health *must* be addressed as defined by the World Health Organization (WHO).
4. The impact of industrial wind turbines on the environment *must* be addressed not only on *irreversible* harm but to the *potential* harm to all creatures and their wilderness habitat.
5. Despite the evidence of expert witnesses, to date the Ontario government has removed environmental protections, accepted flawed data from "researchers" hired by wind companies and dismissed the concerns of objectors as self-seeking. The comment from a lawyer hired by the Ministry of the Environment that "wind trumps" all evidence is, to say the least, an indicator of bias.
6. Although wind companies in Algoma were granted 20-year contracts, the Ministry of the Environment requires data of bird and bat mortality to be presented at post-operational community meetings for a 3-year period only. After that time, the public must request bird and bat mortality statistics directly from the wind companies.

The collective municipal voices of rural southern Ontario have expressed their concerns about the proliferation of industrial wind turbines.

Goulais River and Montreal River are located in unorganized townships where residents have no municipal representation. However, their concerns about industrial wind development must also be heard and heeded.

The Provincial Government serves the well-being of *all* Ontarians including those who live in the more sparsely populated, huge geographical areas of wilderness which make up some 85% of the province.

Although the Algoma District has only 0.8% of Ontario's population, three installations located in the Lake Superior Coastal Highlands north of Sault Ste. Marie produce 6% of Ontario's wind energy:

- **Prince Wind** (2006): Capacity Factor—approximately 26% in 2017
  (Note: Prince Wind pre-dates the Green Energy Approval Process)
  - 4th largest wind installation in Ontario and the 6th largest in Canada at 189 MW capacity
  - 126 GE 1.5 MW wind turbine generators on 80-meter towers
  - located in Prince Township on the northwest outskirt of Sault Ste. Marie
- **Bow Lake–Nodin Kitagan** (2015) Capacity Factor—approximately 35% in 2017
  - generates 58.3 MW
  - 36 – 1.6 MW wind turbine generators on 146-metre towers
  - located at Montreal River, 80 km northwest of Sault Ste. Marie
- **Goulais Bay** (2015) Capacity Factor—approximately 34% in 2017
  - generates 25.3 MW
  - 11-2.3 MW wind turbine generators on 155-metre towers
  - located at Goulais River, 30 km north of Sault Ste. Marie

Environmental Concerns:

Part of the concern about industrial wind development in Algoma is the cavalier response of both the Ontario government and the wind developers to *potential* harm to the environment.

Save Ontario's Algoma Region (*SOAR*) recently requested the Sault Ste. Marie office of the Ministry of Natural Resources and Forestry for information concerning the monitoring of bird and bat mortality in the three wind installations sited in Algoma.

The following response was received from Melanie Johnson, Regional Renewable Energy Coordinator, on 2018 06 26:

> Bill May, Resource Management Supervisor, Sault Ste. Marie District MNRF has forwarded me your email for a response.
>
> Proponents of wind facilities in Ontario are required to prepare reports detailing the post-construction monitoring results for a minimum of 3 years for all Class 3 and 4 wind power projects, as part of the Environmental Effects Monitoring Plan. MNRF supports MOECC and the Renewable Energy Approval Regulation by reviewing post-construction monitoring reports to ensure they are prepared in accordance with approved guidelines.
>
> The reports you are inquiring about are considered to be the property of the proponent. I would recommend that you speak directly to the proponent regarding your request to obtain copies of the monitoring reports.

To assure the concerned public that the bird and bat mortality statistics of all industrial wind installations are reliable, a third-party, objective assessment by scientifically trained professionals is required on an annual basis.

Environmental Facts:

- The Prince Wind installation is in the direct flight path of migratory birds funneling from the Upper Michigan Peninsular.
- The Goulais Bay Wind installation is in line with the Prince industrial wind turbines.
- The Bow Lake installation is in proximity to a known bat colony and migratory songbirds.
- The only monitoring station which can provide information about the migratory habits of birds in this area is the Whitefish Point Observatory located in Michigan. There is no Ontario- based collection of data for Algoma.
- The Environmental Review Tribunal for the Bow Lake wind project ruled in favour of the proponents despite expert witness presentations from the appellant which indicated potential harms did exist. (Transcripts of all ERT proceedings are available from the Ontario government.)
- The appellant of the Goulais project, could afford to employ neither the services of expert witnesses nor representation by legal counsel during the ERT. The only voluntary expert witness accepted by the ERT for the Goulais project was denied that status at the ERT for the Bow Lake project. No reason was given.

Request for Consideration:

- That the Ministry of the Environment, Conservation, and Parks be required to review the existing regulations with the intent of intensifying and supporting Environmental Protections.
- That the proponents (owners) of the three Algoma wind installations (Brookfield, Capstone and BluEarth/Nodin Kitagan) be required on an annual basis to pay for and publish to the public a third-party report of their respective bird and bat mortality rates and any resulting mitigations.
- That the conditions of appeal (i.e., harm to human health and irreversible harm to the environment) through the process of Environmental Review Tribunals be expanded to include the fullest definition of human health (i.e., the WHO definition) and all *potential* harm to the environment (flora and fauna) recognized by expert testimony.
- That the decision to cancel the position of a Science Officer as Advisor to the Ontario government be revoked. Science may not be political but it should be the basis for informed and wise political decisions concerning the environment.

Economic Concerns: Tourism in Algoma

According to the facts presented on the websites of the Sault Ste. Marie Economic Corporation and the Sault Ste. Marie Kinnewabi Tourist Association, tourism is an industry which is critical to the economy of Sault Ste. Marie and the Algoma District:

- In 2017, Tourism Sault Ste. Marie activity of attracting events and selling vacation packages generated more than 40,000 visitor days and $5.8 million in direct visitor spending.
- Between 2008 and 2017, this activity generated over 395,000 visitor days, $58.54 million in direct visitor spending, and millions more in indirect and induced economic spinoff.
- Tourism Sault Ste. Marie works to attract motor coach tours and other group travel to the community. The focus of these excursions generally centres around the Agawa Canyon Tour Train.
- In 2017, a total of 204 group tours, consisting of more than 12,000 visitors, came to the city.
- This activity generated approximately 26,000 visitor days and $3.9 million of direct visitor spending for the local economy.

In a "green" world, eco-tourism plays an increasingly significant part in year-round sustainable job creation especially in the Algoma District where the coastal highlands of Lake Superior are recognized throughout the world for their scenic beauty.

Facts: The Impact of Industrial Wind Turbines on Tourism in Algoma

- Batchewana Bay Day Park, Pancake Bay and Lake Superior Provincial Parks located on the coastline north of Sault Ste. Marie attract thousands of visitors each year.
- The industrial wind turbines located on the southern coast of Goulais Bay are visible from each park. The blinking red lights needed for aviation safety have impacted one of the most prominent tourist attractions—the Algoma night sky. Night and day the wind towers intrude on the wilderness experience sought by tourists.
- The Agawa Canyon Tour Train passes through the turbines of the Bow Lake installation.
- Despite appeals to the then Minister of Tourism, Culture and Sport, industrial turbines at Bow Lake were erected in the Algoma landscape which inspired the paintings of the Group of Seven—a Canadian cultural heritage.

Request for Consideration:

- Given that Sault Ste. Marie, Ontario and Sault Ste. Marie, Michigan form the international gateway to Lake Superior, the Minister for Tourism, Culture and Sport is requested to be mindful of the mandate to *Work with the tourism industry and regional tourism organizations to bring international investment.*
- In the Algoma District "being mindful" means curtailing the potential damage of the encroachment of industrial wind turbines on the natural scenic beauty and cultural heritage of the region which attract millions of dollars to the local economy each year.
- Funding must be directed into research for forms of affordable energy which is harmless to all life.

The Lake Superior Basin is a national treasure which all Canadians and visitors to Canada have the right to enjoy in its natural state.

The people of Ontario have as a common goal the protection, conservation and restoration of the natural environment for the benefit of present and future generations (Environmental Bill of Rights, 1993).

North American Platform Against Windpower

BLANDING'S TURTLE: NOW YOU SEE US (Ostrander), NOW YOU DON'T (Amherst) ERT rules schizophrenically to protect, then to destroy.

Yesterday's RULING OF THE ERT (Environmental Review Tribunal, Ontario, Canada), shows complete disregard for the Ostrander Ruling precedent as well as blatant and ongoing disrespect for the Eco system of Amherst Island. 26 turbines will "devastate" the Owl Capital of Canada, and turn quickly into another version of Wolfe Island killing fields," says Lange of NA-PAW. "How much more wildlife can Ontario spare in the pursuit of a useless, expensive, and destructive Greed Energy Project? Project after project turns into a health and wildlife disaster. What is most surprising is that ruling after ruling, solid evidence is ignored. Justices Justin Duncan and Robert Wright in this ruling, have astonishingly voted for certain destruction of this world accepted ecological history."

The following points are quoted from the ruling: you will note the egregious errors. Bats it is now known, are attracted to the insect life at the higher levels of turbines, near lighting, and actually view turbines as foraging and possible nesting areas. Bats are impacted by wind turbines MORE than by White Nose Syndrome. Human health IS impacted worldwide in completely similar manner, and the research of Stephen Cooper and many others, definitively proves beyond any doubt, the direct line of impacts, turbines on and off. Victims are indeed, their own measures of health. The evidence of Dr. McCunney, and Dr. Paul Kerlinger

we must recall, is paid for BY the developer. It is accepted widely that wind power, an oxymoron, does not produce meaningful power, and universally creates environmental havoc. Zero public good.

Health, Bob o Link, Bats, Blanding's Turtle, Raptors, Owls: quotes (blue type indicates experts or testimony for the Approval Holder)

- Dr. McCunney states that the studies show that "noise associated with wind turbines, including infrasound and low-frequency sound, is not a health risk." They share the opinion that the Project will not cause harm to human health.
- Drs. Mundt and McCunney dispute Dr. Phillips' estimate that five per cent of a population exposed to wind turbines will suffer serious harm because, they assert, it is based on an unproven assumption of causation. Drs. Mundt and McCunney testified that there is still no evidence that wind turbines cause serious harm to human health.
- The Appellant argues: By any reasonable measure, the conclusion that a minimum of 20 persons will suffer serious AERs through the operation of this Project is sufficient, in the respectful submission of the Appellant, to conclude that on the balance of probabilities this Project will cause serious harm to human health.
- The Approval Holder argues that the Tribunal should prefer the evidence of Drs. Mundt and McCunney to the evidence of Dr. Phillips as they are better qualified to give opinion evidence on the issues in this case. The Approval Holder's response to the Appellant's bias allegation is that CanWEA did not take part in editorial decisions or reviews of the manuscripts and they were independently reviewed.
- The Approval Holder and the Director submit that the current state of scientific knowledge has not changed: it has not been demonstrated that noise from industrial wind farms directly causes serious harm to human health and, at best, it shows an association between such noise and annoyance.
- The Appellant argues that there is such an overwhelming number of health complaints that they establish, conservatively and at a minimum, that industrial wind turbines will cause serious harm to the health of at least five per cent of the people who are exposed to them. The Appellant then applies this five per cent

multiplier to the 400 permanent residents on Amherst Island and concludes that the Project will cause serious harm to at least 20 of the permanent residents, which is a significant number.

- The Tribunal finds that the Appellant has not brought sufficient evidence to meet its statutory onus under the EPA of proving that the operation of the Project's wind turbines will cause serious harm to human health.

- ....throughout the hearing, the Appellant has been highly critical of the Approval Holder's assessment work of Amherst Island and its failure to find any Blanding's Turtles and its assessment of bird and bat habitat. However, the Tribunal notes that under O. Reg. 359/09, the Approval Holder was not required to assess and characterize the entire island. Rather, what was required was a site investigation considering natural features within 120 m of the Project location.

- The Approval Holder argues that Dr. Kerlinger's research, and Mr. A. Taylor's studies at Wolfe Island, demonstrate that any Bobolink displacement as the result of the Project would be "minor and short-lived" and Bobolink habitat would not be fragmented by the access roads on private land.

- Given that Bobolink are a threatened and declining species, there is a strong argument that the loss of any additional Bobolink is a serious matter. In some cases, a loss of a single member of a species at risk could be serious harm within the meaning of the EPA s. 145.2.1(2)(b) harm test. However, in this case there is a significant population of Bobolink on the island, even on KFN's smaller estimate of 2,800 birds.

- The Tribunal finds it more likely than not that the end result of the mitigation measures regarding Bobolink will mean that the Project will, at worst, have a neutral impact on the species on Amherst Island. If in fact there is a net loss of approximately 12 Bobolink per year, even after mitigation, as alleged by the participant, the Tribunal does not have sufficient evidence before it to make a finding that this would be serious harm to the island population of Bobolink. *In addition, the Tribunal finds that there will be a net gain of Bobolink habitat on the island. (Our emphasis)*

- Mr. Beaubiah (acting on behalf of the Cataraqui Region Conservation Authority ("CRCA"), is concerned that the Project will result in loss of raptor habitat, particularly highly productive breeding and foraging habitat, and displacement of raptors from their habitat. He said that Owl Woods on the eastern end of the island is significant wildlife habitat for Long-eared, Short-eared, Northern Saw-whet, Great Horned and Snowy owls. Because of the relatively high raptor

density on Amherst Island, a major concern of Mr. Beaubiah and the CRCA is that a reduction in habitat, wintering habitat in particular, will have a greater impact on the local population. Mr. Beaubiah testified that the Approval Holder's Natural Heritage Assessment reports are deficient. He said that the lack of behavioural studies and prey surveys means there is a corresponding lack of post-construction mitigation measures and this will likely cause serious and irreversible harm to raptors, including owls.

- Dr. Smallwood's evidence *(testifying surprisingly for the appellants, our note)* on birds is discussed in the previous section. His experience is with the impacts on Burrowing owls, Golden Eagles and other raptors at the Altamont Pass wind farm in California. *He explained that although raptor strikes with turbines are fairly low where turbines are adequately spaced out, raptors do suffer strikes with turbines in high wind conditions where they are unable to fully control their movements.*

- Dr. Kerlinger said that he has particular knowledge about owls as the result of a three-year Natural Sciences and Engineering Research Council of Canada post-doctoral fellowship at the University of Calgary, additional owl research and published articles about this work.

- *Dr. Kerlinger and Mr. A. Taylor testified that owls show good awareness and avoidance of wind turbines.* When hunting, owls are either on perches close to the ground or in low level flight, whereas the turbine blade sweep zone is at least 45 m off the ground for this Project.

- Mr. A. Taylor testified that there have been no owl mortalities at Wolfe Island, nor have any been reported in post-construction surveys at other Ontario wind projects. Although there is a higher raptor density on Amherst Island than Wolfe Island, Dr. Kerlinger said that there are fewer turbines on Amherst Island and they are approximately 10 m higher off the ground. Dr. Kerlinger distinguished the owl fatalities at Altamont Pass in California based on his experience with Burrowing Owls at Altamont where, according to Dr. Kerlinger, the situation is different because of the low turbine blade height and the higher density of turbines. In Dr. Kerlinger's opinion, *"it is more likely than not that owls will not be killed by the Project." (Our emphasis)*

- Mr. A. Taylor and Dr. Kerlinger said that the four wind turbines near Owl Woods will be at least 500 m from where owls roost, and will not create a barrier for the owls because of their spacing (at least 100 m tip-to-tip). Further, the bottom of the turbine blade tips will be very high off the ground (about 45 m). Dr. Kerlinger testified that many owl species "habituate to human activity" and,

for example, although Owl Woods is very popular with "birders" that has apparently not scared the owls away from that location.

- Dr. Kerlinger and Mr. A. Taylor said that as so little grassland will be removed for the Project, it is unlikely to have any material impact on the local vole population, the owls' favourite prey.

- The Approval Holder asserts that there is no evidence of material risk of harm to owls from the Project, let alone serious and irreversible harm. The Approval Holder argues that Mr. Beaubiah (Tom Beaubiah appeared for the participant, the Cataraqui Region Conservation Authority ("CRCA"), has merely expressed concerns, and there is no evidence that the Project will cause serious and irreversible harm to raptors, including owls.

- Little Brown Myotis, Northern Long-eared Myotis, and Tricolored bat species are listed as "endangered" under Ontario's ESA and federally. It is not disputed that these vulnerable species are declining in Ontario because of White-nose Syndrome ("WNS"). This disease is caused by a fungus that interrupts their hibernation with fatal results. The Little Brown bat population in particular has been decimated in Ontario.

- Dr. Davy testified that research work by Toby Thorne, a master's student with the University of Western Ontario, entitled "The Role of Islands in the Migration of Bats Across Lake Erie and Lake Ontario ..." and published in January 2015, confirmed that bats, including species at risk bats, use Amherst Island as habitat. In her view, and based on Daryl Cowell's evidence on karst topography, the bat habitat on Amherst Island likely includes hibernation sites, maternity colonies and roost sites.

- Regarding insect foraging, that is essential for bats, Dr. Davy pointed out that there are 21 wetlands on the island and, for example, there are three wetlands in proximity to proposed turbine S30. She also referred to research that bats use a variety of habitats where they forage for insects that come from nearby rivers, streams, ponds and lakes, and that there can be wider ranging swarms of mayflies and midges at various times, particularly on the South Shore.

- Dr. Scott Reynolds was qualified by the Tribunal as an expert in bats and the impact of wind energy projects on bats. He testified that there might be a small population of Little Brown Myotis on Amherst Island, but said that it is unlikely that there is a large resident population on the island because of the agricultural landscape, the WNS effect, and the lack of hibernacula on the island or close by. He does not expect there to be a significant level of bat activity near the proposed

turbine locations because the Project would be located in agricultural field habitat that is not preferred by the myotis species.

- Dr. Reynolds said that it is even less likely that Northern Myotis are present in the Project location because of their preference for forested habitat for roosting and foraging, and because they are not commonly present in Southern Ontario.
- Dr. Reynolds said that there has only been a "handful" of Little Brown Myotis at other wind projects in Ontario over the past three years.
- Dr. Reynolds' opinion is that the mitigation measures take a strong science based approach to protecting bats. He referred to the Mitigation Operation Plan dated November 20, 2015 that supplements the REA conditions for the purpose of protecting the SAR bats. He highlighted increased post-construction monitoring in the period of highest risk to the myotis species, precautionary blade rotation cut-out from the outset of the Project in low wind conditions when bats are most active, notification to MNRF in the event of a single mortality, and increased curtailment of a turbine where there is a second bat mortality by raising the wind speed at which the turbine will begin to operate. Dr. Reynolds said that the curtailment mitigation measures have been proven to be effective.
- The Appellant argues that even a small number of bat fatalities is still significant for species that have been decimated by WNS and are now endangered. The Appellant argues that "incidental bat mortality will occur with the Project and that this would be scientifically significant for Little Brown Bats, when considered at a local scale." The Appellant argues that it "is more likely than not that the Project will cause harm to Little Brown Bat at a local scale" and that "even the small-scale impacts on these remaining bats will lessen the species' chances of recovery over the lifespan of the Project." *The Appellant submits that the Project will cause serious and irreversible harm to the three endangered bat species that hibernate as they are vulnerable and their populations are in decline, Little Brown bats in particular.*
- The Director argues that Dr. Davy testified that there is only a "potential" for destruction of roosting sites and/or maternity colonies during construction and mortality due to collisions with the turbine blades. *On the other hand, the Director submits, Dr. Reynolds testified that bats are not likely to be on the island and, in any case, Little Brown Myotis and Northern Long-eared Myotis are unlikely to collide with turbine blades because they forage below blade rotation height.* He further testified that potential impacts to habitat are unlikely because there is no significant habitat on the island and it is not suitable for maternity colonies. The Director argues that the mitigation and protective conditions take a cautious approach.

- Likewise, as there is insufficient evidence of physical, land-based bat habitat on the island, the evidence cannot support a finding that such bat habitat will be destroyed or disturbed during the construction of the Project.

- The Appellant's argument is that even a small number of mortalities and small amount of habitat disruption will, over the life of the Project, cause serious and irreversible harm to bats. As indicated, the evidence is that there is a limited presence of SAR bats on the island, and the evidence is that bats use the island only for foraging and/or migration. To conclude, the Tribunal finds that the Appellant has not demonstrated on the evidence that engaging in the Project in accordance with the REA will cause serious and irreversible harm to bats, including Little Brown Myotis, Northern Long-eared Myotis, and Tricolored bat species.

- Blanding's Turtle is an aquatic species that is listed as threatened under the ESA. It is undisputed that Blanding's Turtles generally stay close to their resident wetlands but that occasionally, female turtles may travel great distances to lay eggs. It is undisputed that adult female Blanding's Turtles are key to the species' survival and are the most vulnerable to road mortality as they travel to lay eggs.

- Despite early disputes amongst the parties and witnesses about the presence of Blanding's Turtle, it is now undisputed that Blanding's Turtle is present on Amherst.

- Ms. Gunson estimated that there are likely 10-35 individual Blanding's Turtles on Amherst Island and that this population is *likely to be extirpated as a result of the Project.*

- In relation to population numbers, Dr. Brooks explained that wetlands in Ontario similar to the coastal wetlands contain approximately one Blanding's Turtle per hectare. As the wetlands are 600 ha, he estimated that 600 individual turtles was a good estimate but that 100-600 was a good range as a population estimate. Dr. Brooks explained that a two to three per cent annual mortality would be problematic for the species, but such loss would have to be chronic to be irreversible. He opined that it is unlikely that any mortality would be chronic as a result of the Project.

- The Approval Holder submits that the coastal wetlands are clearly the most ideal habitat for Blanding's Turtle on Amherst Island, and that these areas are not

impacted by the Project. It submits that APAI searches for turtles are a good indication that turtles are found mainly near the coastal wetlands since 44 of the 62 total sightings were in this area and, additionally, the 22 remaining sightings were near the coastline of Amherst Island and not near the Project location.

- Without additional evidence about every access road, the proximity to water features such as wetlands, and the potential for periodic flooding or temporary presence of water, the Tribunal is unable to make specific findings about the potential level of Blanding's Turtle activity at every access road.
- ...the Tribunal finds the weight of the evidence is that it is unlikely that the construction and use of gated access roads on private land and the upgrading and use of public roads for the Project will increase Blanding's turtle mortality and result in serious harm to Blanding's Turtle. The Tribunal finds that the Appellant has not established that engaging in the Project in accordance with the REA will cause serious harm to Blanding's turtle.

DECISION

The appeal by the Association for the Protection of Amherst Island is dismissed and the Director's decision to approve the REA is confirmed in accordance with s. 145.2.1(5) of the EPA.

- *Appeal Dismissed Director's Decision Confirmed*

"Justin Duncan" JUSTIN DUNCAN MEMBER

"Robert V. Wright" ROBERT V. WRIGHT VICE-CHAIR

Lawyer Eric Gillespie, representing Association to Protect Amherst Island summed up the ERT's stunningly bad decision to allow 26 industrial wind turbines at the ERT (Environmental Review Tribunal) today, August 3, 2016.

"Given a brief review of the decision today, and in consultation with our clients, it is clear that there are grounds for an appeal: those easily perceived issues are around human health impacts, the Blanding's turtle, and the obvious presence of

endangered bats, raptors, Bobolink, and world famous Amherst Owls. It would not surprise us if our clients decide to move forward to appeal."

NA-PAW hopes the ERT will hear from the world medical and acoustic/ILFN experts who have recently submitted a lengthy document to the World Health Organization, asking for consideration of the complaints in its review and preparation of new Guidelines for Noise, due shortly. The ERT we hope will hear also from bird and wildlife experts and concerned citizens about the "real" numbers of mortality, about their concerns over this ruling.

It is clear that the sanctity of age old retreats for wildlife, birds, bats and people living in balanced respect in various places in Ontario, is not protected, not revered, and is actually schizophrenically protected and then not, provided with hope from one ruling out of about 40, and subsequently incoherently trashed.

Please message the ERT, and Dr. Bruce Kruschelnicki, your point of view. Please copy the Premier and NA-PAW.

Ask Ms. Pietrzyk to forward to Dr. Krushelnicki.
Please also feel free to copy the Premier.
ERT Case Coordinator, Eva Pietrzyk at 416-314-4712 or

- By emailing to: erttribunalsecretary@ontario.ca
- By telephoning: Toronto: 416-212-6349 Toll Free: 1-866-448-2248

Eva.pietrzyk@Ontario.ca
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416 567 5115
Kodaisl@rogers.com

RESOURCES

http://www.transalta.com/facilities/plants-operation/wolfe-island/post-construction-monitoring This is Trans Alta self-reporting.

http://www.protectamherstisland.ca/owl-woods/

http://www.theglobeandmail.com/news/national/windfarm-turbines-deadly-for-birds-bats/article4392511/ (see quote below)

"A consultant's report covering the period between July and December of 2009 was released recently, indicating that 602 birds and 1,270 bats were killed by the turbines over that stretch. While the report says the numbers of dead birds and bats are similar to other wind farms in North America, Ottawa-based environmental advocacy group Nature Canada says the figures are actually surprisingly large and represent a significant threat to several endangered species.

"The monitoring reveals shockingly high numbers of fatalities of both birds and bats," said Ted Cheskey, manager of bird conservation programs at Nature Canada. He said the figures underline what his organization has been arguing all along, that "there should not be wind turbines put in important bird areas or migratory corridors."

http://www.scientificamerican.com/article/bat-killings-by-wind-energy-turbines-continue/

http://ontario-wind-resistance.org/2016/07/12/nexteras-wind-turbines-kill-at-least-16-raptors-per-year-in-sw-ontario/

American Thinker

October 8, 2018

4 Reasons Why 'Climate Change' Is a Flat-Out Hoax

By John Eidson

https://www.americanthinker.com/articles/2018/10/4_reasons_why_climate_change_is_a_flatout_hoax.html

First, a disclaimer: I am not a climate scientist. In fact, I am not a scientist of any kind. But I do have a degree in electrical engineering, which I mention only to point out that I am at least as qualified as the next non-scientist to form rational opinions about global warming claims.

In obtaining my degree, I took enough classes in chemistry, physics, and geology to develop a keen appreciation of the scientific method, the best way ever devised for winnowing the truth from fakery and deception. If taking the scientific method into account, no intelligent person can fail to see that the constant drumbeat of wild and hysterical claims about the climate are insults to the search for Truth.

Following are four reasons why I will bet my life that "climate change" is the greatest scientific and political hoax in human history.

1. Rampant scientific fraud

Ordinary people like me don't understand climate science, but we can spot cheating a mile away. Without the assistance of a complicit Western media in burying multiple indisputable cases of outright scientific fraud, man-made global warming theory would have been blown out of the water years ago.

One of the most brazen instances of inexcusable scientific misconduct is documented by photographic evidence gathered during a three-month investigation by a veteran meteorologist. As reported by Dr. David Evans, the National Oceanic & Atmospheric Administration (NOAA) placed *hundreds* of official global

warming thermometers in locations entirely unsuitable for gathering natural temperatures:

- Adjacent to hot engines of parked vehicles
- On asphalt-covered roofs
- Near hot exhaust vents of air conditioning units
- On heat-retaining airport tarmacs and paved parking lots
- Next to heat-retaining rock formations and brick buildings

Global warming is measured in tenths of a degree, so every artificial upward nudge creates a deceptive picture of actual temperatures. To avoid artificially elevated readings, NOAA's own official site location standards require that thermometers be placed at least 100 feet from any paved or concrete surface, and in a level, open area with natural ground cover. Those standards were clearly subverted, and every voter should demand to know why.

No supporter of man-made global warming theory who sees the photographs in the PDF linked to above – all of which have been downplayed, or outright ignored, by the complicit Western media – can fail to ascertain that the theory they support is being kept on life support by *scientific fraud.*

2. The duping of Mr. & Mrs. John Q. Public

As reported in Forbes, the following unguarded statement was made by one of the climate crisis industry's loudest drum-beaters, the late Dr. Steven Schneider, lead author of numerous alarming U.N. climate reports and former professor of climatology at Stanford:

We need broad-based support to capture the public's imagination, we have to offer up scary scenarios, make simplified dramatic statements, and make little mention of any doubts. Each of us has to decide what the right balance is between being effective and being honest.

In other words, one of the climate crisis lobby's most loyal sycophants told his like-minded colleagues that they not only must conceal evidence that casts doubt on global warming theory, but also craft their research in dishonest ways designed to create terror in the minds of a trusting public. It doesn't take a rocket scientist to

see that dishonesty and concealment of contrarian views have no place in legitimate science.

3. A long trail of wildly inaccurate predictions

As reported by Fox News, a 2015 report published in the journal Nature Climate Change compared 117 computer model projections during the 1990s with the amount of actual warming that occurred. Of the 117, only three were roughly accurate, while 114 over-estimated the recorded warming. (The lopsided results suggest that those doing the modeling may have been guilty of using an unscientific technique known as garbage in, garbage out.) On average, the computer models predicted *twice* as much warming as that which actually occurred.

The wildly inaccurate predictions reported by Nature Climate Change were not alone. In a terrifying May 11, 1982 prediction trumpeted in the Western media, Mostafa Tolba, executive director of the U.N. Environment Program (UNEP) decreed that an environmental "tipping point" was closing in: "Earth faces environmental disaster as final as nuclear war by the end of this century unless governments act now." That bone-chilling assessment was seconded seven years later, in July 1989, by another senior U.N. climate official, Noel Brown, who warned: "Entire nations could be wiped off the face of the Earth by rising sea levels if global warming is not reversed by 2000." When that tipping point came and went 19 years ago, others were concocted, including one by NASA scientist Dr. James Hanson, who declared in January 2009, "President Obama has just four years to save Earth." As one frantic tipping point after another falls by the wayside, a new one is invented, each of which is breathlessly reported by the complicit Western media.

4. Intentional concealment of inconvenient parts of climate history

In serving as willing propagandists for the climate crisis industry, Western media portray every severe weather event as the "worst ever," which they are now doing regarding the drought in the Southwestern U.S. and the flooding caused by Hurricane Florence. What the alarmists try to hide from voters at all costs are inconvenient parts of Earth's climate history, such as these:

- Ancient mega-droughts were infinitely worse than anything people living in modern times have seen. Example: Around the year 850 AD, a mega-drought in what is now the Desert Southwest lasted a staggering 240 years, and that catastrophic climate event was preceded a half-century earlier by another mega-

drought that lasted 180 years. Absent that kind of information, it's no wonder so many otherwise intelligent Americans have been conned into believing that the current drought is the "worst ever."

• The Great Hurricane of 1780 killed 20,000 people in the Caribbean. On Sept. 8, 1900, a Cat-4 hurricane obliterated the island of Galveston, Texas, killing an estimated 10,000 residents. In 1927, weeks of heavy rains along the Mississippi River caused flooding that covered 27,000 square miles, leaving entire towns and surrounding farmland submerged up to a depth of 30 feet and displacing 640,000 people, from Louisiana to Illinois. The Yangtze River flood of 1931, one of the deadliest single events in human history, was responsible for a death toll estimated at 3.7 million.

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You won't hear a peep about past ecological disasters in the debate over global warming. The climate crisis industry conceals inconvenient parts of Earth's climate history that undermine its "worst ever" claims.

Bottom line: Listed above are four reasons – I have *many* more – why I will bet my life that "climate change" is a flat-out hoax.

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Why We Have Nothing to Fear from CO2

A Supplement to Nothing to Fear

Foreword

Many articles have been written about the effect of CO2 on the Earth's temperature. An excellent example is Christopher Monckton's article, *Climate chaos? Don't believe it,* in the 2006, Sunday edition of the Telegraph.[1]

Articles such as this have been written using scientific language and data, potentially foreign to the person without a scientific or engineering background.

Similar and more recent articles can be found in Watts Up With That.

A recent example from Watts Up With That is an interview of Dr. Judith Curry[2] where she said:

> "On balance, I don't see any particular dangers from greenhouse warming. [Humans do] influence climate to some extent, what we do with land-use changes and what we put into the atmosphere. But I don't think it's a large enough impact to dominate over natural climate variability."

Meanwhile, supporters of the Anthropogenic Global Warming (AGW) hypothesis have overwhelmed the public with movies and dialogue emphasizing the potential negative consequences of climate change caused by greenhouse gasses, specifically CO2.

This brochure attempts to clarify the facts surrounding AGW for the non-scientist and the non-engineer, and show why we have nothing to fear* from CO2.

* The book, *Nothing to Fear,* describes the formation of the UNFCCC and IPCC, and contains facts about CO2 emissions. It also provides information on renewables, their effect on costs and reliability and their inability to successfully replace fossil fuels.

The CO2 Hypothesis

The science supporting the CO2 hypothesis is meager.

The basis for the CO2 hypothesis was the observation in 1896, by the Swedish scientist Svante Arrhenius, that burning fossil fuels might result in global warming.

This hypothesis was accepted as gospel beginning in 1990, and the UNFCCC and IPCC were established to pursue the effects of increased amounts of CO2 on global warming, and more recently, on climate change.

The United Nations Framework Convention on Climate Change (UNFCCC) was adopted at the Earth Summit in Rio De Janeiro. The UNFCCC treaty was ratified by 196 countries, including the United States.

The Intergovernmental Panel on Climate Change (IPCC) was established in 1998, and its role, as established by the UN is as follows[3]:

> "The role of the IPCC is to assess … [the] risk of *human-induced climate change*, its potential impacts and options for adaptation and mitigation."

This makes it clear that **the IPCC was not empowered to determine the cause of global warming.** The UN merely accepted that CO2 was the cause.

Since then, billions of dollars have been spent trying to cut CO2 emissions.

Governments around the world have implemented programs to force the adoption of so-called clean energy and to curtail the use of fossil fuels.

Why has this hysteria caught hold when the cause of global warming has not been established? The IPCC has not tried to identify the cause of global warming, nor has the UNFCCC. There has merely been an assumption that CO2 is the cause of global warming and climate change. Other factors have been ignored.

Historical Facts

When atmospheric CO2 levels began to increase with the beginning of the industrial revolution, largely from the burning of fossil fuels, many assumed CO2 caused the subsequent rise in temperatures.

Was this a valid assumption?

Atmospheric CO2 was at 280 parts per million (ppm) before the industrial revolution, and have been rising sporadically since then. They are now at 405 ppm. See Figure 1.

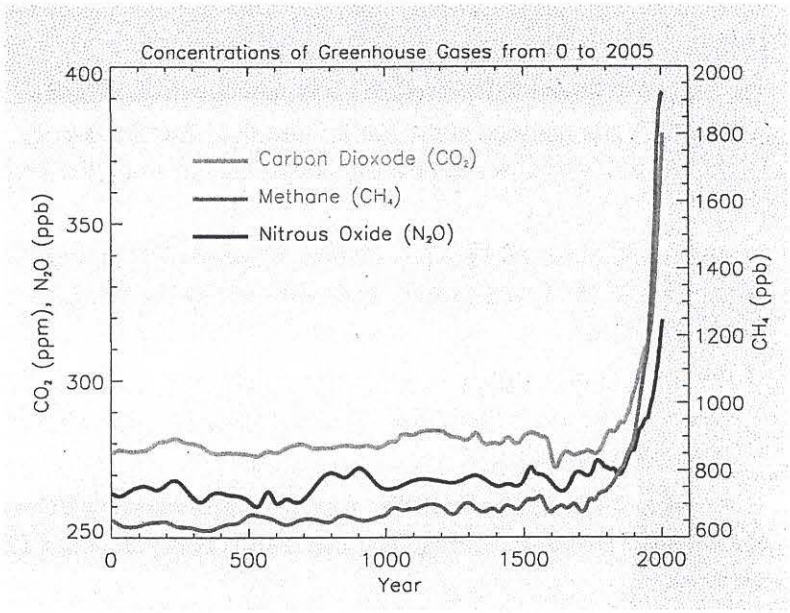
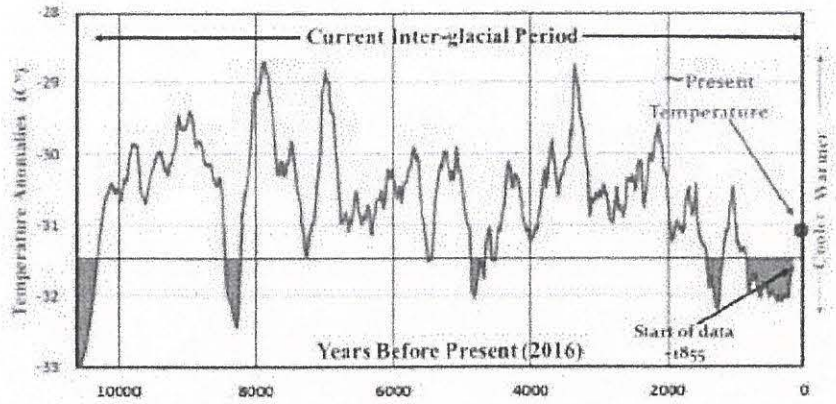


Figure 1, from IPCC AR 4 CO2, Methane and Nitrous Oxide levels from 2,000 years ago to the present. Note that CO2 levels have been at 280 ppm for the entire 2,000 years, until the mid-1800s.

What is the logic behind linking the rise of atmospheric CO2 and temperatures?

One way to examine the validity of this logic is to look at the Earth's temperature history over the past 10,000 years, that is, since the last ice age.



Historic temperature: GISP2 – Greenland Ice Sheet Project 2 [19]
Current temperature: after Loehle, C. 2007[20]. A 2000-year global temperature reconstruction based on non-tree ring proxies. *Energy and Environment* 18: 1049-1058.

Figure 2

Figure 2, provides a temperature history for the past 10,000 years.

During these 10,000 years, atmospheric CO2 levels rose gradually from 260 ppm, 10,000 years ago, to 280 ppm 4,000 years ago, and have remained essentially constant since then, until the mid-1800s, at 280 ppm.

Logic would dictate that if CO2 were the cause of temperature rise, there would have been, for every period where temperatures rose, a corresponding increase in atmospheric CO2 levels.

What are the historical facts?

During this 10,000 year period, temperatures varied substantially while CO2 levels remained essentially constant. There were around a dozen periods where temperatures were higher than today. As can be seen from Figure 1, temperatures were higher than today for more than 50% of the time over the past 10,000 years.[4]

For the past 4,000 years, the level of atmospheric CO2 has remained steady at 280 ppm until the mid-1800s.

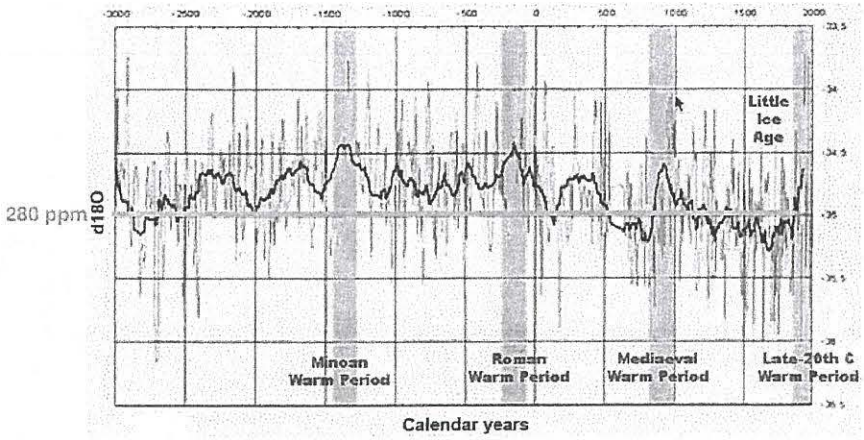


Figure 3. Temperatures for the past 4,000 years with atmospheric CO2 at 280 ppm. From GISP 2 Greenland ice core

Figure 3 shows temperatures going back 4,000 years, with the CO2 level of 280 ppm superimposed on the graph.[5] Once again, this establishes the fact that temperature variations have been independent of atmospheric CO2 levels.

It is very clear that temperature variations over the past 10,000 years, until the mid-1800s, were independent of atmospheric CO2 levels.

Some have claimed that Vostok ice cores from Antarctica showed different temperature variations than the GISP-2 ice cores from Greenland, and therefore, that Greenland's temperatures were not representative of global temperatures.

However, studies have shown that the Medieval and Minoan warm periods are clearly identified in Antarctica sediment cores and ice cores from the Law Dome site.[6]

Regardless, the Vostok ice cores showed there were substantial temperature variations while CO2 remained essentially constant.

If past temperature variations were independent of CO2 levels, why would the current rise in temperatures be any different?

CO2, A new Variable

The recent rise in CO2 levels introduces an additional variable, which shouldn't be ignored. At issue is whether atmospheric CO2 levels affect temperature rise, and, if so, whether the increase in temperature is significant.

The IPCC and others have examined the sensitivity of temperature to atmospheric CO2 levels.

Forty-nine scientists and engineers from NASA's Apollo program, the group that put a man on the moon, have banded together to form The Right Climate Stuff group, to study the global warming issue. They have determined that temperature sensitivity is no greater than 0.8 degrees C for a doubling of atmospheric CO2 levels.[7]

By their calculation, an increase in CO2 levels from 280 to 560 ppm would result in an unimportant and very manageable temperature rise of less than one degree C.

We currently are at 405 ppm, a long way from a doubling of atmospheric CO2.

It's been demonstrated that the IPCC computer models have overstated the sensitivity. Their projections of temperature rise have been proven wrong.

The frenzy surrounding the global warming issue is based on the IPCC's exaggerated sensitivity to increases in atmospheric CO2.

Doctor John Christy's, March 2017, Congressional testimony included charts proving that the IPCC temperature projections were wrong.[8]

One example:

Virtually all of the IPCC's 102 computer models have predicted there would be a hotspot in the atmosphere in the tropics, between 20° S and 20° N latitudes. The hotspot is shown in Figure 4, which is taken from Dr. John Christy's congressional testimony.

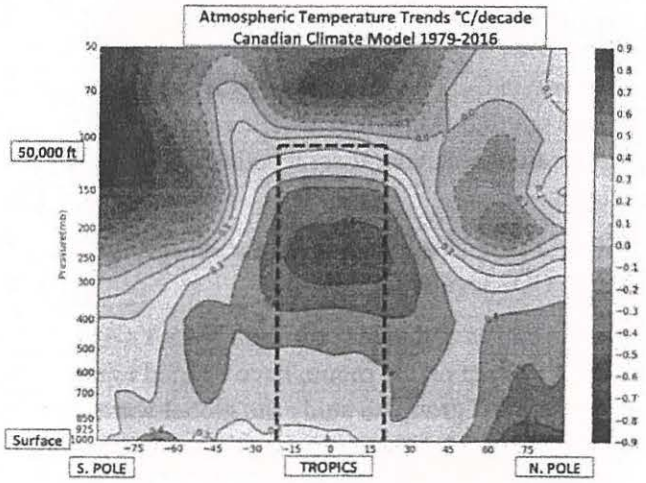


Figure 4, Hotspot between 20° S and 20° N latitudes

Actual satellite and balloon temperatures taken at these latitudes showed no such increase. **The hotspot doesn't exist**.

Doctor Judith Curry, referenced earlier, said: "I don't think [CO2's effect has] a large enough impact to dominate over natural climate variability."

In her latest paper,[9] Doctor Curry said, "There is growing evidence that climate models are running too hot and that climate sensitivity to carbon dioxide is at the lower end of the range provided by the IPCC."

Christopher Monckton's article, referenced earlier, also described why the IPCC's temperature projections are wrong.

While an increase in atmospheric CO2 may result in an increase in temperature, any such increase will be small and manageable.

The sensitivity of temperatures to increased CO2 levels is low, and not a threat to mankind. The Apollo TRCS group estimates a rise of 0.8°C if atmospheric CO2 levels rose from the pre-industrial revolution level of 280 ppm to 560 ppm in the future.

Higher levels of atmospheric CO2 are not only safe but beneficial.

Table 1.

CO2 Levels in the Atmosphere

(a) 8,000 ppm: The CO2 safe limit for US Navy submarines
(b) 5,000 ppm: The CO2 safe limit for the space station
(c) 405 ppm: Current CO2 level
(d) 150 ppm: The minimum atmospheric CO2 requirements to sustain plant growth

Note: Safe levels of CO2 from TRCS

Item (d) is extremely important. It shows that mankind has been living on the ragged edge of extinction, with atmospheric CO2 levels as low as they have been in the recent past. If CO2 levels had fallen below 150 ppm, most plants would have died, and mankind could have gone extinct. A very few plants, including corn, can subsist on less than 150 ppm, but it's unclear how far below 150 they could exist.

Any increase in CO2 levels above where they have been is insurance for mankind's continued survival.

Higher levels of CO2 increase plant growth and are beneficial. They can result in increased crop growth which can mean more food for mankind.

The recent greening of the planet is attributable to the recent increases in atmospheric CO2.

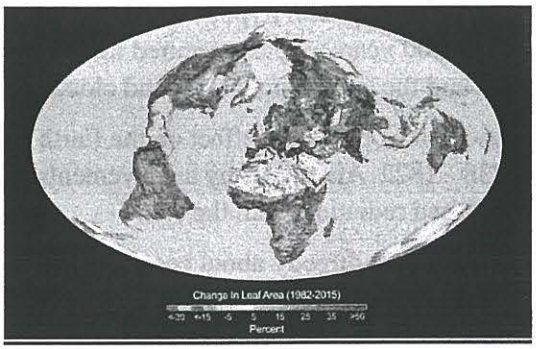


Figure 5, From Zhu et al Nature Climate Change 2016

The image shows the change in leaf area across the globe from 1982-2015

Figure 5, shows that the Earth has become greener, i.e., Leaf Area Index (LAI), over the past few decades, primarily as the result of increased atmospheric levels of CO2.

Here is what co-author, Chinese scientist, Zaichun Zhu, said about the results:

> "The greening over the past 33 years reported in this study is equivalent to **adding a green continent about two times the size of mainland USA.**"

Co-author, professor Ranga Myneni, Department of Earth and Environment at Boston University, said:

> "Results showed that carbon dioxide fertilization **explains 70 percent of the greening** effect. The second most important driver is nitrogen, at 9 percent. So we see what an outsized role CO2 plays in this process." (Emphasis added)

We not only have nothing to fear from CO2, but mankind will benefit from increased levels of atmospheric CO2.

A Realistic Reason For Temperature Rise

For 10,000 years, temperatures have varied widely without any stimulus from CO2. Over this period, the real cause has been natural variability.

While there have been several hypotheses for the cause of warming over the past 10,000 years, one has secured material scientific support: It revolves around the sun, cosmic rays, and cloud formation.

An early proponent of the Sun's effect on the Earth was the astronomer Herschel, 1738 - 1822. Among many achievements, Herschel discovered infrared radiation from the sun.

While he did not speak directly about cosmic rays, he established that the price of wheat and other grains were linked to the number of sunspots: If there were few sunspots, the price of wheat would be high. If there were more sunspots the price of wheat would be low.

He proposed that fewer sunspots resulted in colder temperatures, and poorer growing conditions, while more sunspots resulted in higher temperatures and better crop yields.[10]

Since then, the effect of cosmic rays on the Earth has been studied by several scientists.

One, an Israeli scientist, Nir Shaviv, Hebrew University, Jerusalem, has proposed that the Earth's passages through the Milky Way's spiral arms were the cause of major ice-ages.[11]

Another scientist, Svensmark, from the Danish National Space Institute, has proposed that the Sun affects cloud cover by affecting the number of cosmic rays entering the Earth's atmosphere.

He proposed that intense solar activity, as evidenced by a larger number of sunspots, increases the strength of the solar wind and the Sun's magnetic field which blocks, or deflects, cosmic rays from entering the Earth's atmosphere.

Therefore:

- Intense solar activity would permit fewer cosmic rays from entering the Earth's atmosphere, which would result in the formation of fewer clouds.
- Weak solar activity would have the opposite effect and result in more clouds.

Clouds reflect sunlight back to space and also shade the Earth. Therefore, more cloud cover results in lower temperatures on the Earth. This effect would seem obvious to anyone who has been outdoors on a sunny day when a cloud passed overhead, and the temperature suddenly fell.

Dramatic evidence of a strong linkage was provided by another astronomer, Walter Maunder, who at the age of 70, in 1922, linked the lack of sunspots between 1645 and 1715, to the bitter cold of that period known as the little ice age.

Numerous examples confirm the existence of the little ice age. The River Thames froze over with Christmas Fairs held on the ice. There is the novel *Hans Brinker, or the Silver Skates,* where the story is centered on skating the frozen canals in Holland.

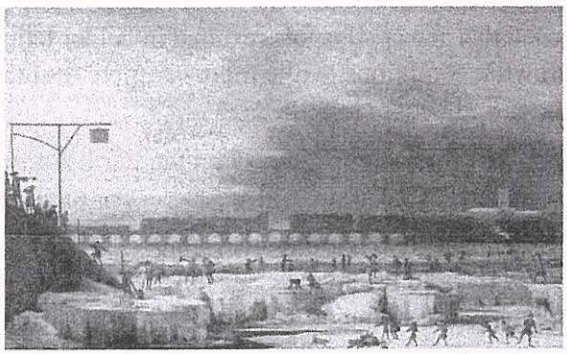


Figure 6, Painting, the *Frozen Thames,* in the Museum of London

The average sunspot cycle is 11 years, with the number of sunspots varying between each cycle. The Dalton minimum in the early 1800s is an example of where there were few sunspots, as is the Maunder Minimum.

Sunspot cycles have been plotted since 1610, as seen in Figure 7.

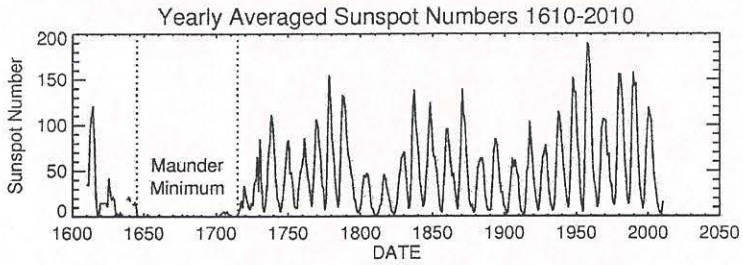


Figure 7, Sunspot cycles. Image from NASA

Sunspot activity during the second half of the twentieth century was greater than during any period prior to then.

Some scientists challenged the Svensmark hypothesis by claiming cosmic rays would not affect cloud cover.

There also was a belief that there had been fewer clouds before the industrial revolution and that sulfuric acid aerosols were needed for cosmic rays to form clouds. It was felt that it was the burning of fossil fuels with the advent of the industrial revolution that resulted in the presence of sulfuric acid aerosols.

If cosmic rays were unable to form clouds, it would put an end to the Svensmark hypothesis.

The debate surrounding the Svensmark hypothesis led to an experiment at the CERN research center.

The CERN research center in Europe derived its name from the acronym for the French "Conseil Européen pour la Recherche Nucléaire", or European Council for Nuclear Research.

This premiere research center conducted an experiment to determine whether cosmic rays could form clouds and under what conditions cloud formation would occur.

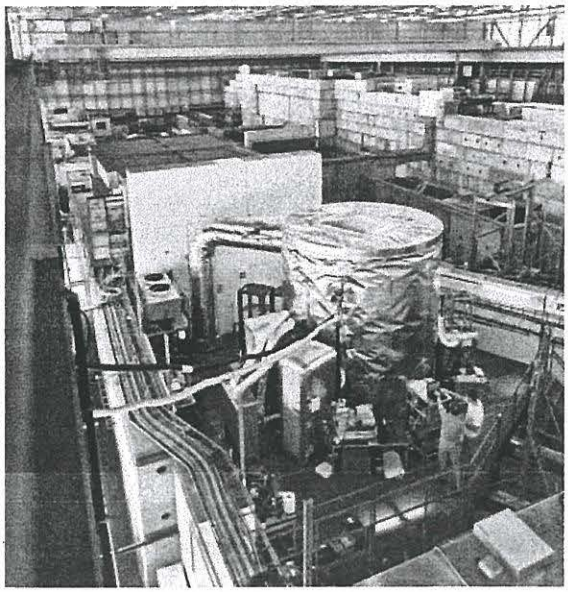
The results of the CLOUD experiment established two facts.

- The first put an end to the long held belief that there were fewer clouds before the industrial revolution
- The second proved cosmic rays could form clouds

It was learned from the experiment that hydrocarbons released by plants could provide the necessary conditions for cloud formation and that sulfuric acid aerosols were not needed.

Here is a direct quotation from a summary report:

> "[The scientists] introduced a mixture of natural oxidants present in the air and an ***organic hydrocarbon released by coniferous plants.*** The hydrocarbon was rapidly oxidized. ***The only other ingredient allowed in the chamber was cosmic rays***, high energy radiation from outer space, which made the molecules clump together into aerosols. ***Sulfuric acid was not required***. In fact, even when the researchers introduced low concentrations of sulfuric acid to the chamber such as might be found in unpolluted air, the aerosol formation rate was unaffected. In a second CLOUD experiment published simultaneously in Nature, researchers showed these same oxidized molecules ***could rapidly grow the particles to sizes big enough to seed cloud droplets.*** " *(Emphasis added)*



The CLOUD chamber was "nearly as big as a bus, [and] was filled with synthetically produced air, allowing precisely controlled chemical conditions." CERN *Photograph*: Maximilien Brice

Two facts can be derived from the CLOUD experiment.

1. Conditions existed before the industrial revolution that permitted cloud formation
2. Cosmic rays can form clouds

The CLOUD experiment provides scientific support for the Svensmark hypothesis.

The evidence is incredibly strong that the Sun affects the Earth's temperatures, and that it's the result of sunspot activity.

Conclusion

There have been a dozen periods over the past 10,000 years where the Earth's temperatures were higher than they are today, while atmospheric CO2 levels were basically constant.

(CO2 levels rose gradually from 260 ppm to 280 ppm over a period of 6,000 years, and then held steady at 280 ppm for the next 4,000 years, until the mid-1800s.)

This would indicate that atmospheric **CO2 levels did not affect temperatures over the past 10,000 years**, or at least until the mid-1800s.

With the recent rise in atmospheric CO2 levels, the Apollo, TRCS group has established that **temperatures could rise 0.8 °C with a doubling of CO2**, a rise that is similar to the increase in temperatures over the past 100 years. Such a small rise in temperatures is of little importance and very manageable.

Potentially more significant is that **higher levels of atmospheric CO2 are beneficial**, by increasing the greening of the earth and improving food production.

The Svensmark hypothesis is compatible with the many periods of higher temperatures over the past 10,000 years, while the CO2 hypothesis is not.

It's very likely that the Sun is the cause of climate change.

We have nothing to fear from CO2, and can, in fact, benefit from higher levels of atmospheric CO2.

Notes

1. Christopher Monckton article http://www.telegraph.co.uk/news/uknews/1533290/Climate-chaos-Dont-believe-it.html
2. Dr. Judith Curry Explains The Reality Of Bad Climate Science & Bad Politics, on Watts Up With That, http://bit.ly/2wajLfS
3. IPCC web site: http://www.ipcc.ch/organization/organization_history.shtml
4. Ivar Giaever https://www.youtube.com/watch?v=Dk60CUkf3Kw
5. Compilation of climate information http://www.greenworldtrust.org.uk/Science/Curious.htm
6. Antarctica temperature information http://bit.ly/2vTEOEi
7. The Right Climate Stuff presentation https://vimeo.com/211618571
8. J.R. Christy 29 Mar 2017, U.S. House Committee on Science, Space and Technology
9. Dr. Judith Curry, *Climate Models for the Layman*, GWPF Briefing24
10. *The Sun Kings*, by Stuart Clark
11. Nir Shaviv presentation http://www.youtube.com/watch?v=8QtnueIJGjc

Nothing to Fear from CO2 was published for educational purposes by Donn Dears LLC to establish scientific facts concerning global warming. Specifically:

- There have been periods over the past 10,000 years when temperatures have been higher than today and were the result of natural causes.
- Atmospheric CO2 levels have remained relatively constant at between 260 and 280 ppm until the mid-1800s.
- Temperature sensitivity to the doubling of atmospheric CO2 levels is potentially less than 1 degree C.
- Higher levels of atmospheric CO2 are beneficial and increase plant growth.
- It's very likely that the sun plays an important role in global warming. Aside from irradiance, the sun likely affects low level cloud coverage and temperatures by influencing how many cosmic rays enter the Earth's atmosphere.

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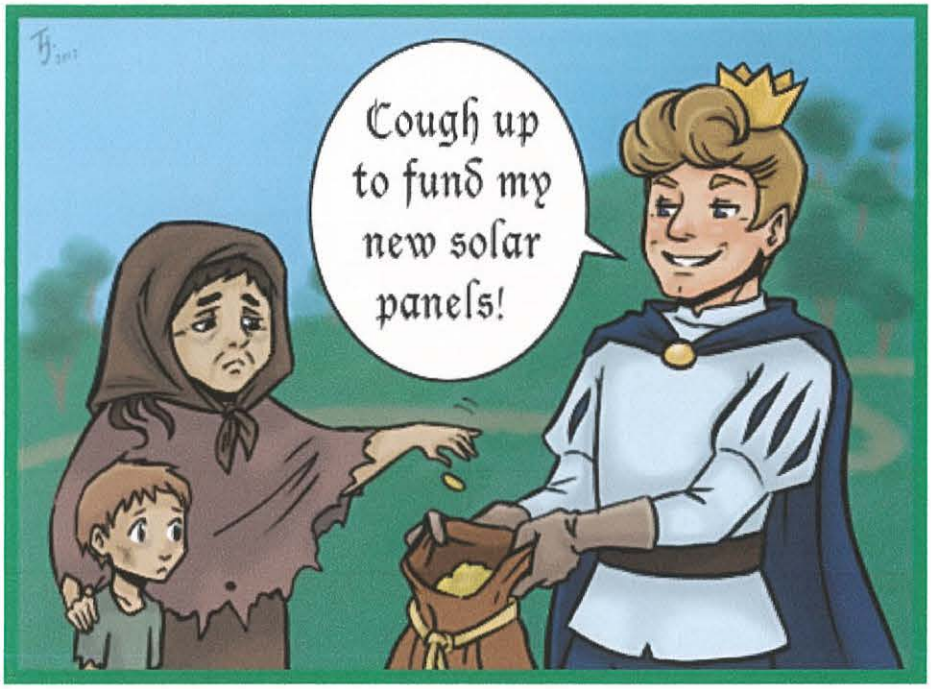
Annual Cost of Australia's Solar Subsidy Scam Hits $2 Billion & Sends Power Prices Into Orbit

October 27, 2018 by stopthesethings 1 Comment



The line that Australia's rocketing power prices will soon plummet is just a cruel hoax.

The subsidies for large-scale wind and solar under the Federal government's Large-Scale RET will total more than $60 billion over the life of that scheme: the Renewable Energy Certificates issued under the LRET have already added more than $15 billion to power bills, so far.

And then there's the billions in taxpayer's money ladled out by the Clean Energy Finance Corporation in soft loans to wind and solar power outfits, as well as billion dollar gifts and grants from the ARENA fund, eagerly lapped up by renewables rent seekers.

The other game in subsidy town is the Small-scale Renewable Energy Scheme (SRES), which is another Federal government subsidy rort, that benefits householders and businesses who slap solar panels on their rooves.

The piddling amount of 'look at me, I've saved the planet' power produced when the sun's up and the sky is clear is hardly worth the $1.3 billion a year cost of subsidies, born by those without rooftop panels. For $1.3 billion (the current annual cost of SRES subsidies) Australia could have laid a pretty solid down-payment on a 1,000 MW nuclear power plant, delivering power 24 x 365, to all and sundry, not just the privileged few.

The poorest and most disadvantaged will never afford solar panels and plenty of families simply can't afford power from the grid, either.

Australia's renewable energy debacle has left more than 42,000 families either without power or facing a daily struggle to pay for it: Australia's Renewables 'Transition' Leaves 42,000 Families in Abject Energy Poverty

For the wealthiest though, the $1.3 billion annual subsidies to small scale solar allow them to reduce their power bills at their poorer neighbour's expense, while pumping up their virtue signalling egos.

The SRES, like the LRET, runs until 2031. Which means that subsidies paid to householders under the SRES will add at least $17 billion (13 x $1.3bn) to the $40 billion in subsidies to large-scale wind and solar. For that kind of money, Australia could have built the best part of 5,000 MW of nuclear generating capacity, lasting a life time, instead of the short dozen years of economic life expected from solar panels and windmills.

The cost of the LRET and SRES is staggering; the consequences an economic disaster. Here's The Australian looking at the second greatest rort under the southern sun – and it looks like the earlier estimate of the annual cost of the SRES scam – at $1.3bn – is shy of the mark by a cool $700,000,000.

$2 billion solar subsidies to send household bills through the roof

The Australian

Perry Williams

17 October 2019

Energy consumers are set to pay nearly $2 billion for rooftop solar installation subsidies next year, hiking power costs by up to $190 for every household, an expert analysis has found.

The federal government's small-scale renewable energy scheme (SRES) — which the competition regulator wants wound down and abolished — will result in the cost of subsidies ballooning by 50 per cent to about $1.8 billion including GST in 2019, according to Sydney-based renewables trader Demand Manager.

The additional impost amid high electricity prices may accelerate calls for the scheme to be junked as new federal Energy Minister Angus Taylor comes under pressure to reduce household power bills.

The solar industry has previously called for the government to rule out ending the small-scale solar scheme, saying it would deprive households and businesses of their only means of lowering power bills.

But analysis of the cost of small-scale technology certificates, which are handed to consumers installing solar panels and then bought back by electricity retailers, shows a soaring cost to all power users.

About 30 million new certificates will be created this year and more than 36 million certificates are forecast to be supplied in 2019, the trader says. The "cost per household in Australia is in the order of $190 per household", Demand Manager owner Jeff Bye said in a report released yesterday. "The SRES is effectively an uncapped program — the more solar installations, the higher the SRES program cost."

A change to the solar subsidy may be imminent given the government's focus on reducing power prices, Demand Manager told its clients in the report.

The government-run Clean Energy Regulator earlier this month released figures showing 1600 megawatts of small-scale solar capacity would be installed this year — a 44 per cent jump on 2017 — and the equivalent generation that Victoria's Hazelwood coal plant supplied to the national grid before it was shut down.

Victoria's push to have 650,000 owner-occupied households receive cheap rooftop solar over the next decade will add a further $1bn to the overall cost of the SRES subsidy over its lifespan, its analysis found.

Origin Energy revealed in August the government's small-scale renewable energy scheme and state-based solar feed-in tariffs now accounted for up to 15 per cent of bill charges.

Consultancy Deloitte says that with solar and wind power in Australia now competing in price and performance terms with fossil-fuel sources of generation, the country's clean-energy industry should move on from any ties to subsidies.

The Australian Competition & Consumer Commission also savaged the subsidy in its July blueprint to reset the national electricity market, arguing government support for household solar had been a well-intended but misguided policy.

Solar schemes were too generous, unfairly disadvantaged lower-income households and had failed to adjust to the changing economics of household solar, it said. Rooftop solar subsidies should be axed and the states should take on the cost of "excessively generous" solar feed-in tariffs to ease the burden of green power schemes that it estimated cost households up to $170 a year.

The Australian

Middle class welfare: powering up with other peoples' money.

Some Of The Case Studies That Have Convinced Me That Industrial Wind Turbines Make People Sick, Which Supports My Belief That We Can Prove In A Court Of Law That These Wind Turbines Are Causing Annoyance and Illnesses.

By: William G. Acker
Acker & Associates
Prepared: December 27, 2015 through August 29, 2018

1. Cape Bridgewater Study in Australia

This wind farm was built in Cape Bridgewater Australia which was built by Pacific Hydro and is made up of 29 Industrial Wind Turbines that are 2.0 MW in size or a total capacity of 58 MW. What is unique about this study is it is only one of a few in the world where the Wind Turbine Developer (Pacific Hydro)agreed to provide wind turbine performance data during the acoustical study. Also Pacific Hydro allowed affected residents to select the acoustician who would undertake the study which is Steve Cooper with Acoustic Group Pty Ltd in Lilyfield Australia. The size of the Industrial Wind Turbines is important because studies have shown that the larger wind turbines produce more noise in the infrasound range and low frequency noise range and they operate at lower rpm's which takes them into the range of maximum nausogenicity identified by a 1986 Navy Study and supported in a graph by Robert Rand showing Blade Pass Rate (in Hz) and Turbine Nameplate Rating (MW). Also unique to this study residents were asked to record (using severity rankings) perceived noise impacts, vibration impacts and other disturbances which for the purpose of this study have been labeled sensation. Sensation includes headache, pressure in the head ears or chest, rining in the ears, heart racing or a sensation of heaviness in a diary format. The study used people who lodged complaints concerning the wind farm specifically to investigate a possible relationship to the observations and the wind farm that may not be apparent with a larger sample of people around the wind farm, in that it is acknowledged not all people complain about the turbines. The diary procedure provided regular observations (every 1 to 2 hours) not just the perceived changes using a 1 to 5 severity scale looking at sensation, perceived noise impacts, vibration impacts and other disturbances which were labled sensation. A ranking of 5 is a level that would make the specific residents in the study want to leave their premises to obtain respite.

a. A pattern of high severity when wind turbines were seeking to start (and therefore could drop in and out of generation).

b. A pattern of high severity with an increase in power output of the wind farm in the order of 20 % increase of power.

c. A pattern of severity with a decrease in the power output of the wind farm in the order of 20 %.

d. A pattern of severity when the turbines were operating at maximum power and the wind increased above 12 m/s.

e. Examination of the acoustic environment in terms of narrow band analysis confirmed the results of previous investigation (such as Falmouth & Shirley). It demonstrated that there is a unique signature attributed to wind farms that involves a peak at the blade pass frequency and the first five harmonics of that frequency. This unique infrasound pattern has been labled by the author in other investigations as the Wind Turbine Signature. The shutdown testing confirmed that the Wind Turbine signature is present when the wind turbines are operating but does not occur in the natural environment.The pattern confirms the presence of an amplitude modulated signal which is not present when the wind turbines are not operating.

f. Significant pressure pulsations (peak to trough) were found that were also found in Falmouth and Shirley Wind. These pressure pulsations are the main focus of Professor Alec Salt that may lead to an imbalance in inner ear fluid levels and pressure leading to Endocochlear hydrops.

2. Falmouth Massachusetts

This Wind Farm is located in Falmouth Massachusetts which was built by the Town of Falmouth and is made up of 2 Industrial Wind Turbines that are each 1.65 MW in size or a total of 3.30 MW. This project is unique in that the developer is the Town of Falmouth instead of a Local Utility or a Developer. What is unique about this study is that the town (the owner of the installation) participated in the noise study which has only happened in two cases that I know of. The noise testing identified amplitude modulation noise with very significant pressure pulsations from peak to trough in the 0 to 5 Hz range (infrasound range). The pressure pulsation was followed by harmonics that had even higher peak to trough pulsations which were not present when the wind turbines are shut down. The peak to trouigh pressure pulsations were around 12 dB. This is referred to as a Wind Turbine Signature in the Cape Bridgewater study. The town Selectmen (Aldermen) voted to shutdown and remove the wind turbines but when the Towns people heard that taxes would be raised to fund the removal the people asked for a town vote which decided to keep the wind turbines running. On November 22, 2015 the Barnstable Superior Court Judge Christopher J. Muse issued a preliminary injunction to Sharply reduce the turbine's hours of operation. The Court found that the defendants in the case face a substantial risk that they will suffer irreparable physical and psychological harm if the injunction is not granted. Under the ruling, Falmouth's two wind turbines must be shut down from 7 p.m. to 7 a.m. Monday through Saturday and all day on Sundays, Thanksgiving, Christmas and New Years. This is believed to be the first time that a Court in the U.S. has ruled that there is sufficient evidence that wind turbines near residential areas are a health hazard to families living nearby.

3. The Sound From A Wind Turbine Can Make Other Objects Vibrate (Such As The Body) If the Sound Frequency Matches A Resonant Frequency Of An Object.

Doctor Jay Tibbetts has been studying cases of blurred vision which has occurred to one of the Acoustical Engineers during his testing at Shirley Wind, and a number of residents of Shirley Wind, and some residents near Fond du Lac wind turbines. Jay believes that the pressure pulsations off of the wind turbines maybe vibrating the vitreous humour of the eye ball and thus causing blurred vision and or lost depth perception. Jay's current focus is on one of the residents who has blurred vision in both eyes. Blurred vision is mentioned a number of times in the Affidavits submitted to the Brown County Health Department.

4. Affidavits Submitted by Brown County Residents in Shirley Wind Indicating That The Wind Turbines Have Adversely Affected Their Health.

To my knowledge there now are around 32 Affidavits (representing 50 individuals) submitted to the Brown County Health Department which does not include around 6 people that want to submit but will not if their information is not kept confidential. In my opinion 50 people for a 8 Wind Turbine Project is very significant. Also 80 complaints have been submitted to the Health Department.

5. Wind Turbines Continue To Get Larger and Larger (both in size and MW Output) And the Noise Is Dropping In Frequency And The Content Of Low Frequency And Infrasonic Noise Is Increasing.

A article titled "Low Frequency Noise From Large Wind Turbines" which appeared in the Journal Acoustical Society of America in June 2011. This study clearly shows that the noise in the infrasound range is increasing as the wind turbine size increases. Also the wind turbine rpm is decreasing pushing the noise down into the maximum

6. Adverse Health Effects of Industrial Wind Turbines: a preliminary report. A document Prepared for the International Commission on Biological Effects on Noise (ICBEN) July 24-28, 2011. Prepared by Michael Nissenbaum MD, Jeff Aramini PHD and Chris Hanning MD.

This was a study conducted at Mars Hill and Vinalhaven Maine. This study is a controlled study of the effects of Industrial Wind Turbine noise on sleep and health that showed that those living within 1.4 km (4593 feet) of IWT have suffered sleep disruption which is sufficiently severe as to affect their daytime functioning and mental health. Dr. Nissenbaum is a specialist in diagnostic imaging, whose training and work involves Developing and utilizing an understanding of the effects of energy desposition, including Sound on human tissues. He is a former Associate Director of MRI at a major Harvard Hospital, a former faculty member at Harvard University and a published author.

7. **Closure of Mink Farm Located in Vildbjerg Denmark Due To Problems From A Wind Farm.**

In the fall of 2013 a new Wind Farm started up in Vildbjerg Denmark that is made up of 4 Wind Turbines that were 3.0 MW in size (the largest wind turbines installed on land). A mink farm owned by Kaj Bank Olesen is 328 meters (1076 feet) from that Wind Farm. Upon start-up in the fall the mink became aggressive, attacking one another which resulted in many deaths then within a month there were 320 female minks that had miscarriages and 1600 stillborn baby minks were found to have been delivered. The number is probably higher since the minks ate some of the stillborn pups. In addition 963 mink were sterile and another 2280 rejected male minks and failed to mate.The stillborn had many deformities and most were dead on arrival. The lack of eyeballs was the most common malformation. The veterinarians ruled out food, water and viruses as possible causes, the only thing different at the farm was the installation of the Wind Farm. The Wind Turbines are VESTAS model V112 3.0 MW units. These incidents are alarming as they constitute definitive proof that industrial wind turbines are harmful to the health of animals living near the wind turbines. A growing number of deaths and deformities of baby animals near wind turbines as well as high sterility ratyes in some adult animals is heightening fears among people living near wind turbines about potential impacts on their own health and the health of their children. There have been many reports of negative impacts from wind turbines on geese and other instances where health problems among livestock were observed including cattle deaths, high rates of stillborns and miscarriages among horses, chickens laying eggs with no shells or soft shells and birth defects among goats.

One good example of problems with animals locally is the Kevin Ashenbrenner Farm in Glenmore. Kevin and his cousin have seen their milk production drop off significantly from a high of 85 to 90 lbs of milk per cow per day down to below 39 lbs/cow/day. Kevin has also seen 19 of his cows die. Kevin also lost a new bull that he purchased that died within 3 weeks. In all of these deaths they did not find a cause. Kevin also had a calf that had badly swollen front ankles which he moved to another location which was 7 miles away from the wind turbines, that swelling went down significantly.in just 10 days.

8. **Professor Alec Salt at Washington University Medical School Department of Otolaryngology Study Using Guinea Pigs. His paper titled " Large Endolymphatic Potentials From Low_frequency and Infrasonic Tones in the Guinea Pig" published in the Journal of Acoustic Society America in March 2013.**

In this study exposing guinea pigs to infrasound noise. Sensors were placed on their brain which indicated that they were irritated by their exposure to infrasound. He then did a post mortem autopsy on the inner ear and found damage to the inner ear hair cells. This type of study cannot be conducted on humans.

Research by Dr. Alec Salt and his colleagues at Washington University School of Medicine in St. Louis Missouri , has explained how inaudible sound causes the kinds of adverse health symptoms reported by people who are exposed to wind turbine noise. That research has shown that infrasound is largely inaudible because inner hair cells, Which are most directly coupled to the brain, are relatively insensitive to very high frequencies, but the outer hair cells are sensitive to low frequency and infrasound components that are below the level that can be heard. Dr. Salt's research has shown that an anatomical pathway exists from the outer hair cells through the brainstem for infrasound to reach the brain. That pathway means that it is biologically plausible for infrasound to produce a variety of sensations, including pulsation, annoyance, stress, panic, ear pressure or fullness, unsteadiness, vertigo, nausea, tinnitus, and general discomfort. Other symptoms may include memory loss, disturbed sleep, blood pressure elevation and heart arrhythmias.

Another finding by Dr. Salt's research is that the presence of higher pitched sounds (between 150 to 1500 Hz) can suppress infrasound. This means that the ear is maximally sensitive to infrasound when higher frequency sounds are absent. While a building's walls and roof block some of the outside high frequency noise from entering the building, infrasound easily penetrates the structure (little to no attenuation). In this situation the infrasound entering the home can be most disturbing to persons inside their homes, because the higher pitched sounds are attenuated by walls and other physical structures.

9. Amplitude Modulation of Infrasound & Low Frequency Noise

One of the theories to health effects is that the Amplitude Modulation of Infrasound and Low Frequency Noise has negative effects on the body. Neurophysiologist Professor Alec Salt and Lichtenhan have been investigating what happens when the proportion of sound energy is down in the lowest frequencies. They have found that the inner ear is exquisitely sensitive to the lower frequencies when there is very little ambient background noise and that infrasound generated by wind turbines cause amplitude modulation.Amplitude modulation is more dominant in wind turbine noise and is more disturbing.Acoustic Engineer Richard James claims that the majority of the acoustic energy is seen in the frequencies of 0.50 Hz to 3.0 Hz. According Alec Salt if the inner ear is exposed to infra and low frequency noise long enough it can develop an imbalance in fliud levels/pressures leading to Endocochlear Hydrops. This would explain the ear pressure and ear pain that some people experience.

An early focus on infrasound in literature was on audible noise and infrasound created by heating, ventilating, and air conditioning systems in industrial plants, eventually resulting in the coining of the term Sick Building Syndrome. Infrasound as well as low frequency sound (20 to 150 Hz), in these settings has been linked to a variety of symptoms, including fatigue, headache, nausea, concentration difficulties, disorientation,

seasickness, digestive disorders, coughing, visual problems and dizziness. In the late 1990's Waye and colleagues found that exposure to low frequency ventilation noise that varied in amplitude over time was more bothersome, less pleasant, impacted work performance more negatively and lead to lower social orientation than low frequency sounds that are constant in intensity.

Amplitude modulated is a term often used to describe wind turbine noise (including Infrasound), refers to a sound that varies in intensity over either a short or long time period. The audible sound and infrasound from wind turbines typically vary over rather short time periods, generally on the order of seconds or fractions of a second. Wind Turbines generate measureable amplitude-modulated sound and infrasound and nearby residents find it highly disturbing. Symptoms vary from person to person, but they are well known to occur in a significant portion of such residents. The symptoms include sleep disturbance, annoyance, headaches, ear pressure or pain, dizziness, nausea, anxiety, and a general feeling of distress or discomfort. Some of the rarer symptoms are blurred vision and memory loss. This modulated noise produces significant pressure pulsations from peak to trough at the blade bypass frequency followed by harmonics that have even greater pressure pulsation. Fro peak to trough these pressure pulsations vary from 10 dB peak to trough up to 18 dB peak to trough at Shirley Wind, Falmouth and Cape Bridgewater. The Cape Bridgewater study called this Wind Turbine Signature or WTS. These pressure pulsations disappear when the wind turbines are shutdown.

Car Sickness is another form of illness created by pressure pulsations through an open car window. This illness has never been medically proven but the auto industry has worked hard to eliminate this problem. Studies show that a moving car with the rear windows open creates high velocity air that behaves as a source of specifically strong tonal low frequency noise which is annoying and can cause nausea. These studies indicate that long-term exposure of the energy rich low frequency noise can lead to harm to human health, and not only to the hearing organ but also functionality of other organs such as the central nervous system.

Cooling Tower Companies also recognize that infrasound and low frequency noise from cooling towers can be a problem. To prevent possible problems these manufacturers sell a line of cooling towers that produce very low levels of infrasound and low frequency noise.Bob and Leona Ehrfurth who live at 2048 Mary Queen Road in Green Bay are experiencing pressure pulsations from a Cooling Tower that is located at 1731 Morrow Street. Noise tests conducted by acoustical engineer Richard James found very similar pressure pulsations to that found at a the Enz Family home near the Shirley Wind Turbines. Doctor Herbert Coussons and I brought the Enz Family and the Ehrfurth Family together into Dr. Coussons office to review their illnesses and we Found the illnesses to be very similar.

10. Epidemiologic Evidence

a. A case-crossover study example. A case crossover study is one of the most compelling sources of epidemiologic data. It consists of observing whether someone's outcomes change as their exposure status changes. There are thousands of case crossover studies throughout the world.

The home of Darren & Sue Ashley located at 3820 Schmidt Road. Darren Ashley who lived in the Shirley Wind Project area began to experience fluid build-up in his ears and ear pain when he was home at night after the wind turbines began operation. When Darren went to work which was located far from the Shirley Wind Project area, he noticed that the fluid in his ears would drain. This is called a Epidemiologic cross-over study.

b. A case-crossover study example: (3820 Schmidt Road)
After the Shirley Wind Turbines started up Allissa Ashley was not sleeping well and was tired all of the time and she told her mother that she had ear pressure and ear pain. According to her mother Allissa has never had ear infections even as a small child this all began after the wind turbines started up. Then one day in May 2011 the wind turbines were starting and stopping frequently and on that day when Allissa arrived home from school and she told her mother that right away she began to experience ear pain. According to the mother you cannot see the wind turbines through any of the home windows and there is no audible noise. Then Allissa told her mother that the ear pressure went away so her mother went outside and noticed that

the wind turbines had stopped. So her mother told Allissa to tell her the next time that she felt pressure and or pain. A little while latter Allissa said the pain was back and the mother went outside and found the turbine running again. The within 30 seconds to a minute Allissa said the pain stopped and they looked outside and the turbines had shut off. It was at that time that Darren and Sue Ashley came to the conclusion that they needed to move their family out of the home. So the family moved into a camper away from the Shirley Wind Project and the families symptoms of headaches and ear pain went away but they still had sensitive ears. What is also unique about Allissa's experience is that her annoyance and pain correlate well with the Cape Bridgewater Study which found a annoyance level of 5 (the highest annoyance ranking) when the wind turbines were starting and stopping.This example also clearly shows that people can sense the wind turbine shutting off and turning on without any visual of their operation and without any audible noise and they can sense these on and off cycles within one minute. The Cape Bridgewater study calls this sensation.

c. A case-crossover example
Ben & Pamela Schauer and their 3 boys home at 6225 Highview Road. The entire Family experience health problems since the wind turbines started up. Pamela and the son Lance experience headaches when the wind turbines are operating and facing

their house (wind coming out of southeast).Pamela and Lance noticed that when they go into the home basement (below ground) their headaches go away within 10 minutes to 30 minutes. If they return upstairs when the wind turbines are running the headaches return within 30 mintues to 1 hour. The other son Michael also has headaches but when in school (away from the turbines) he has no headache problems. Lance also has no headache problems when in school. Ben experiences whooshing and pulsating sensation in his head that coincides to the rotation of the blades. He feels these pulsations on his body. Lance also experiences anxiety problems. His father Ben will take Lance on car rides away from the turbines to relieve the anxiety.

d. A case-crossover example:
The home of Dora Ashley located at 3712 Shirley Road. Since the Wind Turbines started up in November of 2010 Dora has experienced dizziness, ear pain and loss of sleep, increase in bold pressure and anxiety.. When she wants to feel better she goes to her daughters house in Wrightstown. On one visit which lasted three weeks her symptoms disappeared and her blood pressure dropped.

e. A case-crossover example:
In the Cappelle home at 5792 Glenmore Road Sarah and her son began to experience health problems when the wind turbines started up. Sarah began having problems with headaches,insomnia, ear pain, joint pain,muscle spasms, migrane headaches and vibration sensation through her entire body. Her youngest son began waking up at night every two to three hours some times screeming and panic attacks. When they moved away in 2012 the symptoms went away but they did notice that they were more sensitive when they went back to the wind turbine project site..

f. A case-crossover example:
In the Desotelle home at 4423 Shirley Road, Terry Desotelle began to experience health problems when the wind turbines started up. She experienced loss of sleep, ear problems, dizziness, nausea and anxiety. On a 5 day trip to Indiana her symptoms went away.

g. A case-crossover example:
In the Enz home at 6034 Fairview Road Dave & Rosemary Enz began to experience health problems when the wind turbines started up.They did not know of any health problems during the wind turbine project installation so they did not expect to have any problems. When the turbines started up both Dave & Rosemary became ill. Dave experienced a feeling of being unsteady and unstable,head pressure, blurred vision, an overwhelming desire to flee, panic attacks, ear pressure and pain, confusion, nausea and an inability to concentrate. Rosemary symtoms include memory loss, ear pressure and pain, overwhelming desire to flee, panic attacks, confusion, nausea and a inability to concentrate. In February 2011 Dave and Rosemary went on a weekend vacation and after a few days they noticed that they felt better and when they returned the symptoms returned. Dave and Rosemary then spent a month in the south away from the wind turbines during which the symptoms went away and they felt good again.

h. A case-crossover example:

The home of Darren & Jennifer Kornowske.Darren's symptoms include loss of sleep, headaches, migraines, anxiety, loss of concentration, muscle pain, hearing loss, loss of balance, clogging of the ears and depression. When he leaves for work in Appleton or Green Bay his symptoms start to leave starting with anxiety. When he works out of town like Atlanta, Chicago etc. after about one day he starts to regain better balance, his ears start to unclog, he sleeps all night without restlessness, headaches strat going away, muscles and joints stop aching and his over all work experience and production picks up.

Jennifer's symptoms after the wind turbine start up include loss of sleep, headaches, migraines, anxiety, loss of motivation, memory loss, loss of concentration, muscle pain, hearing loss, and loss of balance. After the first few weeks of the wind turbines operating the entire family took a get away trip to Appleton and stayed at a hotel for a couple of days. The entire family slept so good and felt so refreshed that after two days they wondered what could be causing the change at their home.

i. A case-crossover study:

In the home of Steve and Sarah Peters at 6141 Morrison Road health problems began when the wind turbines started up. On stat-up of the wind turbines Steve started to experience anxiety, pressure in ears, headaches, sinus problems and malaise. Sarah experiences muscle and joint pain, insomnia, dizziness and vertigo to the point of almost passing out. When they are not at home and away from the

turbines Steve's anxiety drops off and he is less prone to headaches. When Sarah is away from their home her dizziness drops off.

When the wind turbines started up their dog started to have violent seizures which he never had before the turbines start up. They took their dog to the veterinarian for an exam and the vet could not find anything physically wrong with him and the vet said it was highly unusual for a dog his age to begin having seizures. The dog is having seizures more frequently now which is a huge strain on his mental and his physical state. This is just one more case of animals adversely affected by Industrial Wind Turbines.

j. Revealed Preference case is information about individuals regarding the casual relationship and the intensity of costs inflicted upon them. Many people report expending substantial resources retrofitting their houses to reduce noise, selling their property at a loss, or abandoning their homes without being able to sell them.

The Dave and Rosemary Enz family is an excellent example of a family that has left their home and live out of a trailer in an effort to avoid the health problems at their home. There also is the issue of added cost to live in the trailer instead of their house which they have been doing for around 4 of DePere years now.

k. Revealed Preference case:

Darren and Sarah Ashley lived at 3820 Schmidt Road when the wind turbines started up and their illnesses started. To avoid health problems the Ashley's moved into a camper 12 miles away from the wind turbines. They lived in the camper for 100 days. Later the Ashley's purchased a second home and thus had to pay for two mortgages. The home they abandoned was a 5 bedroom 2 ½ bath home for six people to a much smaller two bedroom home with one bath.

l. Revealed Preference case:

Darrel and Sarah Cappelle lived at 5792 Glenmore road when the wind turbines and when the illnesses started. The moved out of that home and rented a home to get away from the illnesses. This home was a $200,000 home so they looked for a buyer but the only buyer they could find offered around $136,000 a $64,000 potential loss for the Cappelle's. The loan which was a FHA loan was denied by FHA because the home was near the Shirley Wind Turbines.

11. Wind Farm Developers That Settled With Injured Residents

a. Macarthur Wind Farm located in Victoria Australia

This project was installed by AGL which consist of 140 wind turbines that are each 3.0 MW (very large units) for a total capacity of 420 MW. It is the largest wind farm in the Southern Hemisphere. A survey of impacts of the Macarthur wind energy facility was conducted on 37 homes. The aim of the survey was to establish how many people are impacted by the noise, shadow flicker and television and radio interference. There were 23 households that were affected (66 %) and a total of 62 people (74%) were affected and 22 people were not. Of The 23 household affected 21 households (91%) reported changes to their health. A number of residents were bought out by the wind developer but these families had to sign agreements containing confidentiality clauses which is a common practice through out the world. Some homes were bulldozed and some were left unoccupied. The law firm Slater & Gordon the legal firm acting for the residents publicly confirmed this practice of using confidentiality clauses.

b. Tom Yunk located at N2630 Townhall Road Kewaunee Wisconsin

Tom Yunk had a farm at this address at the time that the Utlity WPS started construction on the Wind Farm in 1998 which consisted of 14 wind turbines called the Lincoln Wind Energy Facility with a Project Capacity of 9.24 MW or 0.66 MW each. The electrical output of this project was around 18,000,000 kwh /year (18,000,000 kwh/yr = 8760 hr/yr x 660 kwh/hr x 14 units x 0.2471 C.F.) When the wind turbines started up in the summer of 2000 Joe began to have health problems that he did not have before their start-up. He experience disturbing noise, shadow flicker, problems sleeping, stomach problems and a feeling of uneasy and irritability. At the stat-up of the wind turbines Tom had beef cattle

on his farm and he never lost any cattle before the wind turbines. After the wind turbines started up Tom began to loose cattle, he lost 10 animals over a two year period valued at $5000. He reported his illnesses to WPS but nothing was done. Within a year of start-up two families homes were purchased by WPS and those homes were demolished with bulldozers. At the time WPS was settling nuisance suits other neighbors his neighbor were offered buyouts way below market value however Tom never got any buyout offers from WPS. So Tom decided to sue WPS for the fair market value of his house. So he retained an attorney and filed suit with WPS and got WPS to buy his home.

c. Rodney Kok and his wife Sandra who lived at W1960 Longview Drive Cambria Wis.. Became ill as soon as the WE Energy's Glacier Hills Wind Park started up in 2011. This wind farm is made up of 90 turbines, each 1.8 MW in size (Vestas V90 units) The Kok home which is in the town of Cambria Wisconsin was purchased by the Utility WE Energies. This family also had chickens which stopped hatching eggs when the wind turbines started up. Rodney. This home is no longer occupied. They also had shadow flicker problems that lasted for over 280 hours/yr when they were told not to expect more than 10 to 15 hours/yr.

d. Dave Regnarus family home at N8274 County Road Cambria, Wisconsin
This family became ill as soon as the WE Energy's Glacier Hills Wind Park started up in 2011. This wind farm is made up of 90 wind turbines, each 1.8 MW in size (Vestas V90 units). The Regnarus home was purchased by WE Energy and that home has been torn down.

e. Al Smits family home at N8103 East Friesland Road Randolph, Wis.
This family became ill as soon as the WE Energy's Glacier Hills Wind Park started up in 2011. This wind farm is made up of 90 wind turbines, each 1.8 MW in size (Vestas V90 units). The Smit's home was purchased by WE Energy and this home Is no longer occupied.

f. Six former wind turbine hosts in Ontario Canada became ill when the wind turbines started up on their land near their home. The wind turbine developer bought the homes and land from these 6 families. These families had to sign gag orders preventing them from talking about their illnesses and their settlement. The family of Shawn and Trisha Drennans who later bought a home in that region and got sick from these wind turbines. Currently they are trying to get an Ontraio court to lift the gag order so that these families could speak about their illnesses when they lived on these properties

Note: On January 20, 2015 UWGB Professor Patricia Terry spoke that night to The Brown County Health Department. On that night she said that Wind Turbine Syndrome in the United States is mainly the Green Eyed Monster of Jealousy when your neighbor is making money and you are not. From my above cases you can clearly see that this is not the case for these people.

g. Suncor Energy & Acciona Energy Wind Farm called the Ripley Wind Power Project located in Ripley Ontario Canada. The project has 38 turbines that are 2.0 MW Enercon E82 Turbines.Listed below are some of the homes that had adverse health and annoyance problems. Of the 14 homes listed below, five homes so far have been bought by Suncor & Acciona. Owners of the homes bought by the developers had to sign gag orders if they wanted their homes purchased (by the developers) at fair market value:

(1) Property #1 was a beef farm with 400 head of cattle. The owner left the home and shut down his farm. This home was bought by Suncor?Acciona.

(2) Property #2 was a farm house and barn, he was the son of the Property #1 owner. This home was purchased by Suncor/Acciona. This house and barn was bulldozed by the developer.

(3) Property #3. This property and barn was leased by the Property #1 owner. It now is vacant. Was not purchased by the developers.

(4) Property #4 was owned by a Horse Trainer. The owner had problems with his horses related to the noise & shawdow flicker. This house also had electrical problems.This house was sold to Suncor/Acciona.

(5) Property #5 Family became ill and moved their farm to Manitoba. This home Was not purchased by the developers and is still up for sale.

(6) Property #6 owner (a farmer) had health problems and electrical pollution problems. A cash crop farmer purchased the land, the house was separated from the farm but is still on the market.

(7) Property #7 owned by horse trainer.This house had bad noise levels in the master bedroom at 74 dBA. The house also had electrical problems and the horses were bothered by shadow flicker and noise. This house was bought by Suncor/Acciona.

(8) Property #8 This home is a rental that was occupied by a family that left due to health problems from the wind turbines and thus left. This home is now unoccupied. This house was not purchased by the developers.

(9) Property #9 This house was exposed to noise levels over 40 dBA from the substation 1000 meters to the south. This house was purchased by Suncor/ Acciona and is stll vacant today.

(10) Property #10 has a owner that is reporting health problems and electrical contamination problems. Resolution is still to be determined.

(11) Property #11 & Property #12 are owned by the same owner. The owners are experiencing health problems. Preliminary testing shows electrical contamination.

(13) Property #13 This property owner is a host to some of the wind turbines. This family (which includes a sick daughter) is experiencing health problems but refuses to take action due to the restrictive clauses in the turbine leases.

(14) Property #14 This property owner is a host to some wind turbines. Problems with excessive infrasound are reported when winds are from the southeast. When this family becomes ill they stay in their second home in Paisley.

12. European Countries Have Written Noise Codes To Protect Residents From Problems from Industrial Wind Turbines and Other Devices.

The European countries of Poland, Germany, the Netherlands, Denmark and Sweden have written low frequency and infrasound noise codes to protect the public. To my knowledge there is no such code anywhere in the USA but acousticians like Richard James believe that a noise code could be written that would protect the public from this type of noise from Industrial Wind Turbines, Cooling Towers, Large Fans amd Boiler Systems.

13. Sick Building Syndrome – Per Acoustical Engineer Richard James

Modulated rumble low frequency noise produced by large fans has been one of the most frequently reported causes of adverse health effects. In the early 1960's a British acoustician observed that workers in a high rise office building sometimes reported symptoms similar to the wind turbine illnesses while at work. This effect was initially called Building Sickness Syndrome but was later changed to Sick Building Syndrome. The problem was so severe in some office buildings that workers refused to work in the office spaces and their employer's often used the situation to break long term leases with building owners. This led to a study in the U.S. by the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) to identify the cause and corrections. The study spanned over 20 years culminating in a research project by Dr Leventhall.

The study found that the cause of the symptoms was the large fans used for ventilation being improperly installed or having a defect in the drive train that caused a jerk in the rotation of the fan. The jerk caused the low frequency sounds to fluctuate rapidly. In buildings that had these design defects the worker/tenant complains, correction of the fans to eliminate all modulation made the work space useable again. The design criteria for HVAC systems supplying ventilation air to large office spaces are published in the ASHRAE Guide, a handbook for HVAC engineers. It was updated after the study found the cause and correction actions to include a procedure for assessing whether a building

is likely to cause sick building syndrome so that it can be corrected during the construction phase. It is worth noting that many of the workers who found the situation unbearable could not hear the rumble from the fans.

14. Since 1973 The United States Government Has Sponsored A Research & Development Program In Wind Energy In Order To Make Wind Turbines A Viable Technology.

Dr. Neil Kelly and his co researchers at the Solar Energy Research Institute (SERI) and the NASA Lewis Research Center under the sponsorship of the Dept. of Energy developed Utility Sized Wind Turbines before there was a utility sized wind turbine market.Their research strarted in 1975 and ended in 1996.This group developed built and tested a 0.10 MW unit 1975 to 1982), a 0.20 MW unit (1977 to 1984), a 2.0 MW unit (1979 to 1981), a 2.5 MW unit (1982 to 1988), a 4.0 MW unit (1982 to 1994), a 3.2 MW unit (1987 to 1996) and a 7.3 MW unit that was not built. In 1985 Dr. Kelley revealed a source of annoyance for residents living near a single downwind bladed wind turbine was producing impulsive infrasound and low frequency noise which resonated within building structures. Their research was detailed, thorough, and conducted in the best scientific fashion- curiosity about unintended consequences or annoyance being reported by residents. They wanted to find out what was causing the reported problems, in order to prevent them occurring in the future. The 2.0 MW Wind Turbine on start-up resulted in a dozen families with complaints within a 3 km (1.86 miles) radius of the turbine.

This research document was published in February 1985 based on analysis of the MOD-1 wind turbine which was a 2.0 MW unit. This report is a very detailed 262 page report. It should be pointed out that the 0.10 Mw, 0.20 MW the 2.0 MW and the 4.0 MW units were all downwind wind turbines. The 2.5 MW the 3.2 MW and the 7.3 MW units were all upwind wind turbines. In November of 1987 Dr. Neil Kelley released a report called "A Proposed Metric for Assessing the Potential Annoyance from Wind Turbine Low-Frequency Noise Emissions".

The effects were consistently reported to be worst in small rooms facing the noise source. Sensitization or conditioning was acknowledged - in simple terms people did not habituate or get used to the sound energy but became more sensitized to it with cumulative exposure. What was clearly established was that perception of the sound energy was well below the audibility thresholds for hearing in the infrasound range. This is a critically important point, because all too often it is asserted particularly by those with vested interest that it is the audibility thresholds which are the thresholds to consider, not the much lower infrasound perception thresholds. In other words people could feel the sound pressure or vibration and were disturbed by it at levels at levels where they could not hear. This is precisely what people living near wind turbines describe – that they can feel the pulsations or vibrations even when they cannot hear the turbines.

Subsequent laboratory experiments using volunteers working for SERI (rather than

wind turbine noise sensitized residents) reproduced the sound energy and the variable effects on those exposed. In other words direct causation of the reported annoyance effects from the impulsive reproduced sound energy identical to wind turbine noise was clearly established. This research was certainly noticed because it led to immediate changes in design from downwind bladed turbines to upwind bladed turbines, specifically to reduce or eliminate this problem of annoyance to the neighbors. However the safety thresholds for infrasound and low frequency noise exposure levels, established by Kelly in 1985 on the basis of their detailed field study and subsequent laboratory data, were not ever adopted in the noise guidelines for wind turbine noise. This research was presented at the American Energy Association Windpower conference in 1987, sponsored by the US Department of Energy.

It was initially thought that the new upwind bladed horizontal axis wind turbines did not generate high levels of infrasound and low frequency noise. NASA research

published by Shepherd and Hubbard in 1989 established that there was turbulent air feeding into the upwind turbines that could generate surprisingly high levels of infrasound and low frequency noise. This might explain why NASA went onto develop a 4.0 MW downwind wind turbine.

It is very clear from these documents that there is a direct casul link between impulsive Infrasound and Low Frequency Noise and annoyance symptoms which is still denied by the wind industry.

15. British Medical Journal Acknowledges Health Impacts of Wind Farms. The title of this document is "Wind Turbine Noise Seems to Affect Health Adversely and an Independent Review of Evidence is Needed". March 2012. Authors Dr.Christopher D Hanning and Professor Alun Evans.

This is an excerpt from the BMJ article:

> "Seems to affect health adversely and an independent review of evidence is needed. The evidence for adequate sleep as a prerequisite for human health, particularly child health, is overwhelming. Governments have recently paid much attention to the effects of environmental noise on sleep duration and quality, and how to reduce such noise. However, governments have imposed noise from industrial wind turbines on large swathes of peaceful countryside. The impact of road, rail, and aircraft noise on sleep and daytime functioning (sleepiness and cognitive function) is well established. Shortly after wind turbines began to be erected close to housing, complaints emerged of adverse effects on health. Sleep disturbance was the main complaint. Such reports have been dismissed as being subjective and anecdotal, but experts contend that the quality, consistency, and ubiquity of the complaints constitute epidemiological evidence of a strong link between wind turbine noise, ill health and disruption of sleep".

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His expertise in this field has been accepted by the civil, criminal and family courts. He chairs the Advisory panel of the SOMNIAstudy, a major project investigating sleep quality in the elderly, and sits on Advisory panels for several companies with interests in sleep medicine..Alun Evans, is an epidemiologist, Centre for Public Health, Queen's University of Belfast, Institute of Clinical Science B, Belfast, UK, who has been leading the fight in Ireland against industrial wind turbines being located near dwellings because of the adverse health effects on their inhabitants.

16. People Who Have Gone Through Considerable Medical Analysis To Understand Their Health Problems, That Started When The Wind Turbines Started Up. Theses Health Studies of Their Symptoms Did Not Find Any Explanation To The Symptoms Other Than the Pressure Pulsations from the Turbines. In Some of Theses Cases the Doctors Did Believe That The Problem Was The Wind Turbines and in the Other Cases the Doctors Could Not Explain the Cause of the Symptoms Based on Their Tests Conducted In Their Offices Away From The Wind Turbines.

a. Joan Lagerman of Malone became ill from the We Energies Blue Sky Green Fields Wind Energy Center as soon as it started up. In a effort to understand and relieve her symptoms she has seen her doctor, has gone through sleep studies and has seen a neurologist who has eliminated many possible causes including exposure to heavy metals. Joan's doctor does believe that the wind turbines are the cause of her health problems in fact her doctor contacted the Fond du lac Health Department about her concerns and she is a board member.

b. Michelle Buresh and Jerry Buresh are ill from the wind turbines in Shirley Wind. Michelle wanted to understand why she was ill so she saw doctors to find cures to her symptoms. She had hearing tests, MRI's, Basic Vestibular Evaluation, physical therapy, Blood Work for disease, deficiencies, pet hormone Test, Sinus CT Scan, Gastrointestinal Analysis, Opthamologist (focusing on the eyes), Review by 2 Neurologists, Review by her General Practioner, Vestibular Weakness Analysis, Review by an ENT Doctor, and a Naturopathic Nurse Practitioner who reviewed food allergies. In Michelle's case they could not find anything wrong with her that would explain her symptoms. Of course later she realized that the symptoms would stop when she was away from the wind turbines

17. People Who Have Hosted Wind Turbine Installations On Their Land Have Become Sick From The Wind Turbines.

a. Allen Hass is a farmer who owns 600 acres in Malone Wisconsin. Allen hosted

three We Energies Blue Sky Green Fields wind turbines on his land which pays him around $12,000 a year for the space. Upon start-up Allen started getting symptoms which include headaches and memory loss. His statement to the press include"The money does not make up for his health problems" and "I wish I never made that deal".

b. Dick Koltz who lives in Brown County signed a contract with Invenergy to host a wind turbine on his land. He has experienced illness from wind turbines in Fond du lac County before the wind turbine was installed on his land. He then tried to get out of his contract but could not.

c. David and Alidia Millicent hosted wind turbines on their land in South Australia who became ill when the wind turbines started up.

18. List of Symptoms –Document from the Waubra Foundation

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List of Symptoms

This section gives a detailed framework to assist with understanding the range and the pattern of symptoms being described by residents, workers and visitors.

People are affected by infrasound and low frequency noise (ILFN) and vibration from a wide variety of sources in both residential and occupational settings. Sources of ILFN reported to the Waubra Foundation include wind turbines, coal seam gas field compressors, coal mining activities, gas fired power stations. Some acousticians also report being affected whilst conducting attended measurements.

Residents can get started with a more simple summary

If you're new to the topic or looking for a less technical List of Symptoms, please get started with the Information for Residents section.

What is the pattern of symptoms?

For those affected, there is a clear and consistent correlation between exposure to the environmental noise and the development of characteristic symptoms. Not everyone is affected, although over time, more and more people report developing sleep disturbance or other symptoms.

The onset of symptoms is variable, even within families where individuals have identical exposures. Many farming or rural families have one or more members 'off farm' for long periods of time, especially during the day, for education or employment activities, meaning there will generally be very different exposures during the day.

Individual differences in susceptibility also play a role. A small subgroup of people with a history of migraine, inner ear pathology or motion sickness describe being affected from the first few days of exposure, with nausea and vertigo in the case of wind turbine noise, but the vast majority of affected residents are not affected in this way.

For most residents, the changes appear incremental over months or years. Many people describe not realising how they are being affected until either the source of the noise ceases for a period of time (rare) or they go away and start to notice the symptoms dissipate or vanish completely. Often people describe this happening repetitively, before they are sure their symptoms are related to the environmental noise.

For those rural residents who never get away, they often attribute it to 'getting older', 'menopause' or some other factor, until they start talking with neighbours and others with similar experiences, and realise that there may be other reasons for their symptoms.

Turbine hosts get symptoms too

David Mortimer, a wind turbine host from South Australia, has publicly described on a number of occasions how he just thought he was 'getting older', until he heard another resident from Cape Bridgewater speaking about his own symptoms, which were identical to those David had experienced for some years.

David describes being affected by the turbines much earlier than his wife. Once David made that connection between the symptoms and exposure to operating wind turbines, David and his wife then tried periods of time away from their home and kept track of what their symptoms and sleep patterns were like. They found their symptoms correlated directly with exposure to operating wind turbines.

The symptoms disappear when the Mortimers are nowhere near industrial wind turbines, but David and his wife have now become so sensitised that they can detect the unwelcome pulsating sensations particularly at night, out to 17 km from the nearest operating wind turbine.

This distressing perception of inaudible sound energy out to distances well beyond 10km has also been reported by residents who are sensitised both in Australia and internationally in the UK, France and the USA, particularly in areas with quiet background noise.

What is the most common symptom?

Recurrent sleep disturbance or waking up tired is the most commonly reported problem.

What are the acute symptoms?

Vestibular dysfunction/disorders or "wind turbine syndrome" symptoms

(see also Dr Owen Black MD's affadavit, and Dr Nina Pierpont's executive summary and report for clinicians submitted to the Federal Senate Inquiry)

- Sleep disturbance
- Headache, including migraines
- Tinnitus
- Ear pressure (often described as painful)
- Balance problems / dizziness
- Vertigo
- Nausea
- Visual blurring
- Irritability
- Problems with concentration and memory
- Panic episodes
- Tachycardia (fast heart rate)

Acute Sympathetic Nervous System 'fight flight' Symptoms & Problems

- Tachycardia (fast heart rate)
- Arrythmias, which residents might describe as palpitations
- Hypertension (high blood pressure) which has been reported by some residents to be considered unstable by their treating doctor or cardiologist, and to vary in response to exposure to operating wind turbines.

Related rare but serious conditions

The following three conditions are rare, but important to mention because they are potentially life threatening, and have been identified in Australia, Canada and Germany to correlate with wind turbine operation.

- **Tako Tsubo heart attack** — these are not the classic heart attack, involving acute blockage of a major artery to the heart muscle, rather they are caused by adrenaline surges which cause constriction of the little blood vessels called capillaries directly supplying the heart muscle
- **Acute hypertensive crisis (Australia, Ontario)** - sudden onset of dangerously high blood pressure, often accompanied by severe headache, nausea, sensation of their heart 'leaping out of their chest'. The usual cause for these symptoms and this diagnosis caused by adrenaline surges would be an underlying adrenal tumour, called a phaeochromocytoma. However in the residents reporting this problem, that diagnosis of an adrenal tumour was specifically excluded by subsequent medical investigations
- **Crescendo angina** — i.e. worsening severe cardiac ischemic chest pain which was previously successfully relieved with anginine spray, when not exposed to operating wind turbines. The best clinical description of this came from a couple in Germany highly sensitised to ILFN after 18 years of exposure, who were stuck in a vehicle on an

autobahn near large industrial wind turbines. The same phenomena has been reported in Australia by a resident subsequently advised verbally by his cardiologist never to go back home to Waterloo

Other characteristic symptoms (some have a chronic exposure component but manifest with acute symptoms)

- Episodes of sensation of body vibration (specifically lips, chest cavity and abdomen)
- Episodes of intense anger (reported in workers as well as residents, also noted to a much lesser extent with short exposure to infrasound and low frequency noise (ILFN) in Professor Leventhall's experimental research in an office occupational setting in 1997)
- Bleeding from ear drum following intense and painful sensation of ear pressure, in the absence of trauma or previous symptoms
- Deteriorating hearing (confirmed sometimes with audiological assessment)
- Menstrual irregularities in women marked by heavy bleeding and noticeable hormonal cycle changes
- Significantly decreased ability to "multi task" impacting noticeably on resident's ability to perform usual tasks
- Noticeable difficulties with mental arithmetic, when previously able to calculate easily
- Hyperacusis – extreme sensitivity to "normal" sounds which in some circumstances has persisted for over 6 years after removal from the exposure to ILFN
- Disorders of thyroid metabolism which stabilize when away from ILFN
    - Disorders of diabetes control which stabilize when not exposed from ILFN
- Disorders of blood pressure control, which stabilise when not exposed to ILFN
- Migraines and severe headaches described by sufferers as "like a vice around the head"
- Episodes of perceiving that their heart beat is trying to "get in sync" with the blade pass of the turbines, which some people describe as being like an arrythmia but others do not. It is universally described as unpleasant

Chronic symptoms

Sleep disturbance & its consequences

Sleep disturbance itself has been attributed by residents to the following, which they report does NOT happen when they are not exposed to operating wind turbines, and correlates with wind direction and weather conditions on the nights when they are affected in this way:

- Audible noise of the turbines (especially if their home is not well insulated, or the windows are open, and they live close to the turbines)
- Waking at night in the characteristic 'panicked' state (many residents living far from turbines report this symptom despite not being able to see or hear the turbines when they awake)
- Violent and disturbing dreams in adults and children, which can happen repeatedly over the same night. In the case of children, they can be extremely distressed and difficult to console
- Increased need to urinate, sometimes as often as every 10 minutes for a period of up to one hour (sometimes this affects numerous people in the house at once)
- Bedwetting in children reported by parents to have been previously dry at night for some years

Known clinical consequences of repetitive sleep disturbance/deprivation

The adverse health consequences of insufficient sleep have been well known to clinical medicine for decades, and are increasingly being reflected in the peer reviewed published literature. They include the following:

- Cardiovascular disorders (including hypertension) ischemic heart disease, angina

- Diabetes
- Mental health disorders such as depression and anxiety, and increased suicide risk
- Impaired immunity, leading to increased acute and chronic infections, and in the longer term malignancies (cancers)
- Fatigue-related work impairment and accidents. This is a serious issue for rural communities and farms, where workplace injury is already a significant problem
- Fatigue driving heavy vehicles and school buses (a safety concern for the entire rural community)
- Fatigue in workers such as health care workers (Australia), air traffic controllers (USA), well known to lead to impaired judgment which will detrimentally impact on the safety of the wider community, in addition to personal health problems for those individuals

Chronic stress (Psychological & Physiological) & its consequences

Illnesses either caused or exacerbated by chronic stress have been well documented in published peer reviewed research literature for many years, and are being reported by these residents. Some overlap with those listed above for sleep disturbance, which is itself a source of stress. They include the following:

- Cardiovascular disorders (including hypertension), ischemic heart disease, angina, and transient ischemic attacks (precursors of strokes)
- Diabetes
- Mental health disorders such as depression and anxiety, often severe (suicidal ideation)
- Impaired immunity, (elevated cortisol being one component) leading to increased acute and chronic infections, delayed healing, and in the longer term to malignancies (cancers)
- Disrupted human fertility and hormonal cycles
- Exacerbation of pre-existing inflammatory disorders, including arthritis, asthma, inflammatory bowel disease, SLE (Lupus), or the development of new inflammatory conditions which coincide with exposure to ILFN & vibration

Is there a link between ILFN and Post Traumatic Stress Disorder (PTSD)?

Repetitive physiological stress events as well as a once off major acutely stressful event like a fire or a flood or a major accident have both been linked with subsequent development of PTSD.

There are residents living near ILFN sources who have reported that symptoms of their pre-existing PTSD (resulting from Vietnam War experiences or childhood sexual abuse) are triggered with exposure to operating wind turbines. Other residents with a history of PTSD have reported feeling the symptoms of a panic attack coming on when driving past operating turbines (these individuals were unaware of any possible connection between ILFN and anxiety symptoms, and were strong supporters of wind turbines at the time).

Helicopter noise, and blast noise and vibration from mining have also been reported by other clinicians as triggers for recurrence of PTSD symptoms in their patients. All these are also known sources of ILFN & vibration, as well as sources of sudden impulsive noise.

There are also reports of people who develop PTSD **after** exposure to operating wind turbines, having no previous psychiatric problems. One former resident at a wind development has ongoing problems with residual PTSD seven years after they moved away, having been bought out and silenced by the wind developer.

Stress and dental disease

Stress is an acknowledged long term contributor to dental disease via a number of mechanisms including impaired immunity and a dry mouth from repetitive physiological stress episodes. Increased severity of dental infections has certainly been reported by some residents living near turbines who report this as one of a number of health problems.

Tissue damage

The conditions below have been reported from Germany in residents exposed to operating wind turbines for over 10 years.

- Pericardial thickening
- Mitral and tricuspid valve thickening
- Characteristic mouth ulcers described in Vibroacoustic disease

The cardiac tissue pathology is identical to that described in workers and others studied by the Portuguese researchers who first described vibroacoustic disease (VAD), now being diagnosed in others including most recently in Taiwanese aviation workers.

The occurrence of symptoms correlating with ILFN exposure

All of the above problems listed have the characteristic pattern of improving partially or completely when the turbines are off, or when the residents are away from their homes or source of other ILFN.

Some residents also report subsequently being affected by other sources of ILFN, such as when flying in some aeroplanes, or when exposed to LFN from heating and cooling (air conditioning) compressors, or travelling in some motor vehicles. This is not unknown to acousticians, and is evidence of that individual's sensitisation to ILFN, described by Professor Leventhall in 2003. The only known solutions are either removal of the source of the ILFN, or relocating away from it.

What happens with ongoing exposure? Do people "get used to it"?

What is being consistently observed is that the symptoms progress, and the mental and physical health of many sick people deteriorates with ongoing exposure to ILFN, if they cannot move away.

This pattern of deterioration was well described in the scientific literature relating to chronic stress by Bruce McEwen in 1998, in an important review article in the New England Journal of Medicine. (**McEwen, Bruce** "Protective and Damaging Effects of Stress Mediators" New England Journal of Medicine 1998, 338 171–179)

There is no clinical or experimental evidence that people "get used to" the sound energy in low frequencies, especially once they are "sensitised".

18. Can Expectations Produce Symptoms From Low Frequency Noise & Infrasound Associated With Wind Turbines?

First, most of the individuals who have reported adverse health effects from wind turbine noise, some of whom have abandoned their homes, are not people who were adequately warned of potential health effects prior to their exposure. In fact, many individuals who report adverse health effects were advocates of wind energy prior to being exposed. This is the case of many people in the Shirley Wind Project area and other wind turbine projects in Wisconsin. Some of these people who became ill did not understand why they were ill and thus saw many doctors to understand why they had symptoms making them ill. Two examples are Joan Lagerman and Michelle Buresh.

Also how do you explain all of the negative health impacts we have seen on animals like the mink farm in Australia, or the death of cattle, or the chickens that either stopped laying eggs or laid eggs with thin shells. So it is easy to disprove that theory that the symptoms are psychosomatic.

There are many cases in Wisconsin and throughout the USA where the people supported wind turbine projects until they started up and the people got sick. One excellent example is the wind project called the Fox Islands Wind Project in Vinalhaven Maine that was installed by Fox Islands Electric Cooperative which is a utility cooperative that provides electricity for the residents of Penobscot Bay Islands, North Haven and Vinalhaven. Vinalhaven is the home to the Fox Islands Wind Project that is three 1.5 MW industrial wind turbines. In July 2008 ratepayers voted 382 to 5 (98.71 % Voting for the project) to authorize the FIEC Board to Directors to proceed with developing plans to erect three wind turbines on a site located on the interior of Vinalhaven. In the first 10 minutes of operation around 20 households in Vinalhaven began to complain about the noise, pressure pulsations and later lack of sleep and health problems. So one cannot say that these people were having a psychosomatic symptoms. There are 32 adults that live within 1500 meters (0.93 miles) of the three wind turbines.

Perhaps the most compelling argument proving that the wind turbine did not cause Psychosomatic (Nocebo Effect) health symptoms is NASA's first utility sized wind turbine project caused health illnesses to the residents living near that wind turbine. These people did not experience psychosomatic health symptoms because they did not know about health problems from industrial wind turbines. So this is not a nocebo effect or anxiety generated by heightened awareness of industrial wind turbines. The health symptoms are documented in NASA Reports by Dr.Neil Kelley.

19. Epidemiological Study of Health Effects of Persons Living Within 1100 meters Of the Mars Hill Wind Turbine Project. This project has 28 wind turbines that are 1.5 MW in size. Study by Dr. Michael M. Nissenbaum.

	Subject Group	Control Group
a. Group Size	**22 Adults of 30 Adults (73.33 % Participation)**	**27 Adults**

b. Distance From Turbines	1100 meter 3608.93 feet 0.6835 miles	5000 meters 16,404.23 feet 3.1069 miles
c. Reported a new onset of worsened sleep disturbance	18 Adults (82%)	1 Adult (4 %)
d. Sleep disturbance included waking up in the middle of the night	17 adults (77 %)	
	Subject Group	Control Group
e. Increased headaches since start-up.	9 Adults (41 %)	1 Adult (4%)
f. Increased migraine frequency	2 Adults (9 %)	
g. New or worsened problems with dizziness	3 Adults (14 %)	0 Adults (0 %) No auditory or vestibular complaints
h. Reported Tinnitus	3 Adults (14 %)	0 Adults (0 %)
i. Reported a new problem with ear pulsations	3 Adults (14 %)	0 Adults (0 %)
j. Reported periodic ear pain	1 Adult (5 %)	0 Adults (0 %)
k. Troubled by shadow flicker	7 Adults (32 %)	0 Adults (0%)
l. Nausea	2 Adults (9 %)	0 Adults (0 %)
m. Dizziness	4 Adults (18 %)	0 Adults (0 %)
n. Triggering migraine headaches by shadow flicker	1 Adult (5 %)	0 Adults (0 %)
o. A feeling of unease created by shadow flicker	2 Adults (9 %)	0 Adults (0 %)
p. Unintentional weight changes	8 Adults (36 %)	1 Adult (4 %)
q. New or worsened psychiatric symptomatology, including feelings of stress	13 Adults (59 %)	0 Adults (0 %)

r. Anger	**17 Adults (77 %)**	**0 Adults (0 %)**
s. Anxiety	**7 Adults (32 %)**	**0 Adults (0 %)**
t. Irritability	**6 Adults (27 %)**	**0 Adults (0 %)**

u. Hopelessness	**12 Adults (55 %)**	**0 Adults (0 %)**
v. Depression	**10 Adults (45 %)**	**0 Adults (0 %)**
w. New or increased prescriptions for psychiatric medication	**4 Adults (18 %)**	**0 Adults (0 %)**
x. Considered moving away	**22 Adults (100 %)**	**0 Adults (0 %)**
y. Reported that their quality of life has been negatively affected by the Mars Hill Wind Turbine Project	**21 Adults (95 %)**	**0 Adults (0 %)**
z. Reported new and increased prescriptions for various health ailments since Project start up o Dec. 2006	**15** **Cymbaalta** **Mirtazepine** **Trazodone** **Hydrocodone** **Topamax** **Anxiolytics: 2** **BP Meds: 3** **Lexapro** **Zoloft** **Meloxicam** **Tylenol III**	**4** **Antihypertensives: 3** **Antiarthritic :1**

Comment By Dr. Nissenbaum: It is my professional opinion that there is a high probability of significant adverse health effects for those whose residence is located within 1100 meters of a 1.5 MW turbine installation based upon the experiences of subject group of individuals living in Mars Hill, Maine. One hundred percent of the persons he interviewed reported that they considered moving away, but none of the Control Group admitted to considering moving away during that time.

Later Dr. Michael Nissenbaum, Jeffery Aramini and Christopher Hanning published a epidemiological study document called: "Effects of Industrial Wind Turbine Noise

on Sleep and Health", in Noise & Health September 2012. This study is an investigation of two sites: Mars Hill and Vinalhaven, Maine.The Vinalhaven Project is three 1.5 MW wind turbines. This study came to similar conclusions to the above study.The Conclusion for this study is: We conclude that the noise emissions of Industrial Wind turbines disturbed the sleep and caused daytime sleepiness and Impaired mental health in residents living within 1400 meters of the two IWT installations studied.industrial wind turbine noise is a further source of environmental noise, with potential to harm human health. Current regulations seem to be insufficient to adequately protect the human population living close to IWT's. Our research suggests that adverse effects are observed at distances even beyond 1 km. Further research is needed to determine at what distances risks become negligible, as well as to better estimate the portion of the population suffering from adverse effects at a given distance".

20. Falmouth Massachusetts Study- "Wind Turbine Acoustic Investigation: Infrasound And Low-Frequency Noise- A Case Study". Authors are Stephen E. Ambrose, Robert W. Rand, and Carmen M.E. Krough. This is a SAGE Document on September 11, 2012.

In this study, they compared measured sound levels to time-synced observations of changes in health symptoms while the authors (observers) –who were the investigators themselves-were not aware when the turbine blades were rotating or not rotating. A video recorder that faced the turbines and an audio recorder placed outside the home were used to document the sounds using quantitative and qualitative measurements that were time-synced to the observations of health effects. Using a time-history analysis, the investigators experienced a large number of negative health symptoms, which are given in their Table 2, and those symptoms were closely time-synced to the start-and-stop operations of the wind turbines. This is compareable to a single-subject research design, and it provides good evidence that wind turbine noise is related to adverse effects.

For total unweighted sound exposure, the investigatos were exposed to dynamically modulated pressure pulsations every 1.4 seconds (Notus 1.65 MW Blade pass rate) at the study house (Figure 15). The pressure pulsations at Shirley wind were every 1.40 seconds per blade passage. After being indoors for 15 minutes, the pulsations totaled 642 peak pressure events. Every hour there are 2570 pressure events. After completion of this study the team developed infrasound measurements at the Neil and Betsy Anderson home. This Figure 2 plots the Sound Pressure Level in dB verses the Frequency Hz of the sound. This diagram shows the pressure pulsations from peak to trough from 1 Hz and below through 10 Hz. The pressure pulsations shown are the first blade bypass followed by Harmonics of 1 x BPF, 2 x BPF(first harmonic) 3 x BPF, 4 x BPF, 5 x BPF, 6 x BPF, 7 x BPF and finally 8 x BPF. The peak to trough noise peaks out at around 14 dB (peak to trough), which is a ignificant pressure pulsation. According to acoustical engineer Richard James the majority of the acoustic energy is seen in the frequencies of 0.50 hz to 3.0 Hz. The absolute

pressure level of the noise is not the issue or concern, it is the rate at which the pressure changes.Malcolm Swimbanks paper from the 2012 NY Noise Con is a good explanation of how amplitude modulation of wind turbine acoustic energy can result in symptoms even when the average pressure level is relative low. Salt's paper from the same conference shows how factors such as spectrum shape can also affect the SPL at which symptoms are reported. Richard's measurements show that the average levels at blade pass frequencies are generally 60 dB or higher at the BPF although some show SPL's of less than 60 when the home's occupants are also reporting adverse symptoms.

In my opinion most of the adverse health effects from industrial wind turbines is due the dynamically modulated pressure pulsations. In my opinion if we write a noise code that limits these peak to trough pulsations to 3dB (peak to trough) at the residential property line, the health symptoms due to this modulated noise should disappear. Some European Noise Codes use this guideline of 3 dB (peak to trough). The question is can the Brown County Health Dept. testers, test for this modulated Noise peak to trough values at Blade Bypass and its harmonics?

These codes will also need to limit shadow flicker and audible noise that can also cause annoyance and or health symptoms..

21. **Self Reporting Surveys to Resident Living in the Waterloo Wind Farm in South Australia. This wind farm has 37 Vestas V90 industrial wind turbines that are 3.0 MW in size which started up in 2011. Upon start-up there were many negative sleep loss and health impact complaints from the residents and effects on livestock (most notably poultry).**

    a. Case #1 – Survey of households within 5 km (3.1069 miles)
        (1) Number of surveys sent out: 75
        (2) Number of surveys completed: 48 (64 % response rate)
        (3) 50 % of residents were moderately affected to very affected
        (4) 38 % had adverse health effects

    b. Case #2 – Anonymous Self Reporting Survey of Households near a 10 km (6.2137 miles) zone of the Waterloo Farm. Conducted by Mary Morris.

        (1) Number of Surveys to homes sent out: 230
        (2) Number of Surveys by homes that were completed: 93 (40.43 %)
        (3) Number of homes disturbed by impacts including noise, shadow flicker and problems with TV reception in the 10 km zone: 46 (49 %)
        (4) Day time noise disturbance: 36 (39 %)
        (5) Night time noise disturbance: 37 (40 %)
            (a) Number with sleep disturbance: 27 (29 %)

Survey of people in a 5 km (3.1069 miles) -41 Households in this zone

(1) Day time noise disturbance: 23 (56 %)
(2) Night time noise disturbance: 23 (56 %)
(3) Experienced sleep disturbance: 16 (39 %)

22. Mrs. Anne Schafer has complied this preliminary survey report from data collected from an anonymous survey of residents living within 10 km (6.2137 miles) of the AGL Macarthur Wind Development in southwest Victoria. The first VESTAS V112, 3 MW Industrial wind turbines started operation in October 2012. A total of 130 wind Turbines were installed.

(1) 66 % of the responding households reported being adversely impacted
(2) 100 % reported night time adverse effects including sleep disturbance
(3) 91 % reported negative effects on the resident's health
(4) 46 % of the households lived between 2 km and 5 km from the nearest turbine

(5) 18 % lived between 5 km and 10 km from the nearest turbine
(6) The furthest household reporting adverse impacts live 8km to 9 km (4.97 mi to 5.59 mi)

23. Statement made by Epidemiologist Carl V. Phillips, PhD in his SAGE article "Properly Interpreting the Epidemiologic Evidence about the Health Effects of Industrial Wind Turbines on Nearby Residents ", August 2011.

Carl's Statement: "There is overwhelming evidence that wind turbines cause serious health problems in nearby residents, usually stress-disorder type diseases, at a nontrivial rate. The bulk of the evidence takes the form of thousands of adverse event reports. There is also a small amount of systematically-gathered data. The adverse event repots provide compelling evidence of the seriousness of the problems and the causation in this case because of their volume, the ease of observing exposure and outcome incidence, and case-crossover data. Proponents of turbines have sought to deny these problems by making a collection of contradictory claims including that evidence does not "count", the outcomes are not "real" diseases, the outcomes are the victims' own fault, and that acoustical models cannot explain why there are health problems so the problems must not exist. These claims appeared to have swayed many nonexpert observers, though they are easily debunked".

24. Carl V. Phillips testimony on June 30, 2010 in Madison Wisconsin to the Public Service Commission of Wisconsin.

Partial Statement: "So. I'm an epidemiologist and policy researcher. I'm specifically expert in how to optimally derive knowledge for decision making from epidemiological data. I have a PhD in public policy from Harvard University, and I did a post doctoral fellowship in public health policy and the philosophy of science.

I've spent most of my career as a professor of public health and medicine, most recently at the University of Alberta and I currently direct an independent research institute. I reviewed the literature on health effects of wind turbines on local residents, including the reports that have been prepared by industry consultants and the references therein and I have reached the following conclusions which I present in detail in a written report that I believe will be submitted (to the commission). First there is ample evidence that some people suffer a collection of health problems including insomnia, anxiety, loss of concentration, general psychological distress as a result of being exposed to turbines near their home. The type of studies that have been done are not adequate to estimate what portion of the population is susceptible to the effect, the magnitude of the effect or exactly how much exposure is needed before the risks become substantial, but all of these could be determined with a fairly simple additional research. The best evidence we have which has been somewhat downplayed in previous discussion is what's known as case cross-over data, which is one of the most useful forms of epidemiological study, where both the exposure and the disease are transitory. That is, it's possible to remove the exposure and see if the disease goes away, and reinstate it and see if the disease reurs which is exactly the pattern that has been observed for some of the sufferers who have physically moved away and sometimes back again. With that study design in mind we actually have very substantial amounts of data in a structured form, contrary to some of the claims that have been made. And more data of this nature could easily be gathered if an effort was made. Moreover, people's avoidance behavior. They're moving from their homes and so forth, is a clear revealed preference measure of their suffering. Such evidence transforms something that might be dismissed as subjective experience or perhaps fakery to an objective observation that someone's health problems are worth more than the thousands of dollars they've lost trying to escape the exposure".

Carl V. Phillips submittal of a document to the Public Service Commission of Wisconsin on Docket No. 1-AC-231 which is document PSC REF#:134274. In this document Carl makes the following statement:

Epidemiology is the study of actual health outcomes in people, and thus is the only science that can directly inform us about actual health risks from real-world exposures. Related biological and physical sciences often provide useful information about health risks, but they are ultimately trumped by epidemiology because real-world exposures and the human body and mind are so complex that we cannot effectively predict and measure health effects except by studying people and their exposures directly.

There is ample scientific evidence to conclude that wind turbines cause serious health problems for some people living nearby. Some of the most compelling evidence in support of this has been somewhat overlooked in previous analysis, including that the existing evidence fits what is known as case-crossover study design, one of the most useful studies in epidemiology, and the revealed preference (observed behavior) data

of people leaving their homes, etc., which provides objective measures of what would otherwise be subjective phenomena. In general this is an exposure-disease combination where causation can be inferred from a small number of less formal observations than is possible for cases such as chemical exposure and cancer risk.

In this document Carl also said:

In particular, my scientific analysis is based on the following points, which are expanded upon below:

1. Health effects from the turbine noise are biologically plausible based on What is known of the physics and from other exposures.

2. There is substantial evidence that suggests that some people exposed to wind turbines are suffering psychological distress and related harm from their exposure. These outcomes warrant the label "health effects" or "disease" by most accepted definitions, though arguments about this are merely a matter of semantics and cannot change the degree of harm suffered.

3. The various attempts to dismiss the evidence that supports point 2 appears to be based on a combination of misunderstanding of epidemiologic science and semantic games. Multiple components of this point appear below.

24. The World Health Organization in their 1999 Guidelines for Community Noise document made the following comment:

"It should be noted that a large proportion of low-frequency component in a noise may increase considerably the adverse effects on health".

25. The Royal Society is an independent Scientific academy of the United Kingdom and the Commonwealth, dedicated to promoting excellence in science. The Royal Society Open Science is a peer-reviewed open access scientific journal published by the Royal Society which covers all scientific fields. In August 2014 the journal published a study called "Low-Frequency Sound Affects Active Micromechanics In the Human Ear" by Dr. Markus Drexl and his team at the University of Munich. Dr. Drexl is with the German Center for Vertigo and Balance Disorders and the Department of Otorhinlaryngology, Head and Neck Surgery.

Noise Induced hearing loss is one of the most common auditory pathologies, resulting from overstimulation of the human cochlea, an exquisitely sensitive micromechanical device. The cochlear is a spiral shaped cavity which is essential for hearing and balance. Dr. Drexl showed in lab conditions that low frequency sounds (including infrasound) have a surprising strong effect on sensory cells in the inner ear. A total of 21 volunteers with normal hearing were exposed to 30-Hz tone for 90 seconds at a

sound pressure level equivalent to 80 decibels. The researchers used a phenomenon

referred to as spontaneous otoacoustic emissioms (SOAE's) to explore how the inner ear responded to the signal. SOAE's are scarcely perceptible acoustic signals that are produced by the inner ear and can be detected with a sensitive microphone inserted in the ear canal. Dr. Drexl said: It turns out that low-frequency sounds have a clearly definable modulatory influence on spontaneous otoacoustic emissions. After being exposed to a 30-Hz signal for 90 seconds, the subjects' SOARs exhibited slow oscillations in frequency and level, which persisted for up to two minutes. Otoacoustic sounds normally stay at the same frequency but when volunteers listened to low frequency noises the sounds their ears emitted began to slowly oscillate in frequency. The researchers say this is an indication that low frequencies were altering the mechanisms at work in the inner ear. The oscillation lasted for up to two minutes after the low frequency sound was played to the volunteers. "Strikingly, the effect of the low frequency stimulus on the cochlea persists for longer than the duration of the stimulus itsel, "Drexl points out. This can be interpreted as a change of the mechanisms in the inner ear, produced by low frequency sounds. This could be the first indication that damage might be done to the inner ear. Further experiments will probe the possibility that this phenomenon may be linked to noise-induced auditory damage, one of the most common causes of hearing impairment in industrialized countries.

Outer hair cells, which are responsible for amplifying sound waves in the ear, are more sensitive to low frequency sounds than inner hair cells. They are thought to be responsible for otoacoustic emissions and these results show that they could be affected when exposed to low frequency sound waves.

The team say the results could have repercussions in assessments of risk potential of exposure to low frequency sounds, for example those produced by wind turbines, block-type thermal power stations, and air-conditioning systems.

"We don't know what happens if you are exposed for longer periods of time, (for example) if you live next to a wind turbine and listen to these sounds for months or years".

So in summary it is possible that wind farm infrasound can cause hearing damage. We are seeing this happen to Leona Ehrfurth who is exposed to infrasound Generated by Cooling Towers on the east side of Green Bay. I would also like to Point out that Professor Alec Salt found damage to the inner hair cells of guinea Pigs exposed to Low Frequency noise, which is covered in his SAGE article called "Large Endolymphatic Potentials from Low Frequency and Infrasonic Tunes in The Guinea Pig".

26. Fibrosis ,Thickening and Scaring of Connective Tissue as a Result of Injury from Exposure to Low Frequency Noise and Infrasound. This includes damage to Lung Tissue, Heart Tissue, Blood Vessel Walls, Cardiac Valves and Pericardium Sac. Exposure will result in abnormal growth of collagen in blood vessel walls, tracheal wall pleural sac, stomach wall, and kidney glomeruli. Also the cilia that line the respiratory tract are severely damaged. The following article on Vibroacoustic Disease was presented at the 11 th International Meeting on Low Frequency Noise and Vibration and its Control "Vibroacoustic Disease- The Response of Biological Tissue To Low Frequency Noise".

27. Sensitization of people exposed to industrial wind turbine noise.

Some people experience annoyance and health problems as soon as they become exposed to the noise from industrial wind turbines. However there are also people who not experience symptoms until they have been exposed to the noise for some time. A good example of this is Pam Schauer who lives with her family near the Shirley Wind Project in Glenmore Wisconsin. Pam's family experienced symptoms as soon as the wind turbines started up, but Pam did not experience any symptoms until around 6 months after start up. So in summary it took 6 months of exposure to the noise before she became sensitized to the noise.

Dr. Sarah Laurie's testimony to the Australian Senate talks about a couple David and Alida that have negative health symptoms from Industrial Wind Turbines. David experienced health problems on start-up of the turbines but Alida did not experience symptoms until 4 years after start-up, therefore it took her some time to become sensitised to the wind turbine noise.

Dr. Neal Kelly who worked with NASA to develop Industrial Utility Wind Turbines was involved with a significant acoustic survey on a new 2.0 MW Industrial Wind Turbines that caused significant negative health problems to the residents In Boone County. This 1985 report indicates that residents became sensitized to the wind turbine noise.

28. Analysis of Aerodynamic Sound Noise Generated by a Large-Scaled Wind Turbine and its Physiological Evaluation.

The Japanese study which measured the brain responses of Japanese wind turbine workers when exposed to reproduced wind turbine sound, showed clearly and objectively that the brain could not attain a relaxed state. This research of aerodynamic noise generated from modern large-scale wind turbines (Enercon E40 three Bladed Upwind 600 Kw) was measured and analyzed from an engineering point of view. The measurement items were the sound, the sound pressure level (including the infrasound with extremely low frequency band) and the corresponding physiological evaluation. Fifteen test subjects (Wind Turbine Technicians who work

in close proximity to modern large scale wind Turbines) received various sound stimuli, including the recorded aerodynamic noise and a synthetic periodical sound, were examined with an electroencephalogram (EEG) as a physiological evaluation. It was observed from the mapping patterns of brain waves (which included alpha rhythm, beta rhythm, theta rhythm) that alpha rhythm, which indicates a relaxed and concentrated state, after the sound stimulus with the frequency band of 20 Hz, showed the lowest value among the other cases. That is, the test subjects cannot keep relaxed and their concentration, after hearing the sound stimulus at the frequency band of 20 Hz. The induced rate of alpha rhythm decreased further when the test subjects listened to decreased frequency sound meanwhile, beta rhythm, which shows a strain state, after the sound stimulus with the Frequency band of 20 Hz, showed the highest value among other cases. Therefore, the infrasound (low frequency and inaudible for human hearing) was considered to be an annoyance to the technicians who work in close proximity to modern large scale wind turbines.

29. Question From Richard James to Professor Alec Salt. "Does Infrasound From Wind Turbines Affect The Inner Ear?

Professor Alec Salt said that the average G Weighted Noise from Wind Turbines with Upwind Rotors has been around 70 dBG. This is substantially below the Threshold for Hearing Infrasound which is 95 dBG, but is above the Outer Hair Cell (OHC) Stimulation of 60 dBG. This suggests that most wind turbines will be producing an Unheard stimulation of the OHC.

30. Additional Information from Professor Alec Salt

Alec Salt, professor at Washington State University in the Cochlear Fluids Research Laboratory, has written several papers and presented to conference on the infrasound or low frequency noise, most recently at the international Inter-Noise conference in New York in August 2012. In a communication to Wind Concerns Ontario and others, Dr. Salt said that he is convinced now more than ever, based on his research, that the infrasound produced by industrial wind turbines can cause harm to human health, and and further, that the harm may be irreversible for some people with long exposure.

Infrasound affects individuals even though it cannot be heard, he demonstrates, and can result in sleep deprivation which in turn can cause indirect health effects, such as elevated blood pressure, anxiety, memory dysfunction and more. "This is not speculation." Dr. Salt said in his presentation to the international scientists. "The phenomenon now needs to be studied in more detail." The wind power development industry, however, completely denies the impact of infrasound, saying that sound that cannot be heard, cannot have an effect.

31. Health Problems at the Lammefjordens Stauder Nursery in Gislinge Denmark

Boye Jensen the nursery owner for the Lammefjordens Stauder Nursery had to shut

down his 43 year business due to loss of employees due to illness from the wind turbines installed near his business. All the female employees were complaining of irregular menstruations and several had permanent headaches. The women were complaing of unusual bleeding and problems with their menstrual cycles.

32. Effects Wind Turbines Have on Domestic Animals, Farms & Wildlife

We know that animals living in the vicinity of Industrial Wind Turbines suffer a wide range of pathologies. Of highest concern are the deaths of otherwise healthy animals, the stillbirths, exploded lungs, blade strikes and the deformities in newborns and yearlings. Since animals can't read propaganda material, or listen to the radio or TV, nor surf the Internet, you then cannot say that their pathologies were caused by anti-wind campaigns or nocebo effect. Listed below are some of the cases where Industrial Wind Turbines have caused harm to animals. Mounting anecdotal evidence suggests for caution before building wind turbines in areas near people, animals and wildlife and livestock. It is dangerous to assume that industrial wind turbines are safe when you look at the evidence:

a. In Vildbjerg Denmark a mink farm had 1600 stillborn baby minks one month after start-up of the 3.0 MW wind turbines. See page 4 item #7.

b. In Taiwan a goat farmer Kuo Jin-Shan lost 400 goats since the start-up of eight wind turbines installed by Power Company Tai-Pow. The farmer blames the deaths on the near-by wind turbines. His claim is backed by the Ministry of Agriculture inspector Mr Lu Ming –Tseng.who said unusual sounds can impact animals appetite, growth and sleep. The farmer has stated that the goats had been unable to sleep and began losing weight prior to their deaths. Taipower has agreed to help pay the farmer to move his flock to a quieter place. The ministry of Agriculture says it suspects that the noise may have caused the goats demise through lack of sleep.

c. Farmer Kevin Ashenbrenner in the town of Glenmore Wisconsin near the Shirley Wind Project has lost 19 cows, 1 bull and 30 calves including a significant drop in his milk output. His family has also suffered from severe headaches and migraine headaches. One cow that was ill, was removed from the site and taken to a farm far away from the Wind Turbines and that cow recovered.

d. A horse trainer in Ripley Ontario Canada had problems with his horses when the 2.0 MW Wind Turbines owned by Suncor Energy started up. As a result the Horse trainer moved to another location and the house was sold to Suncor. See Page 12 Property #4.

e. In 2006 a Wind Turbine Project started up called the Kingsbridge 1 Wind Power Project. The project is located on privately-owned leased lands located between Goderich and Kincardine Ontraio. This project has 22 Industrial Wind Turbines

that are 1.8 MW Vestas V80 turbines. A cattle farm owned by Ross and Darlene Brindley was driven out of business due to the negative health of their cattle after start-up of the Wind Turbines in 2006. A statement of claim filed in Superior Court of Justice, said that their cattle exhibited aggressive and erratic behavior, including kicking of newborn calves, prolapsed birthing, weight loss, decline in fertility, a high incidence of mastitis, calves being deformed at birth and a high incidence of stillbirths. The problems with the herd resulted in the closure of the business.

f. In Ontario, Canada a goat farmer reported that all 20 of his nanny goats miscarried or had kids that died within hours of birth. In that year the farmer did not have any kids that survived.

g. In 2012 when the Waterloo Australia Wind Farm started up farmer Neil Daws chickens started laying yolkless eggs. Later they did not lay any eggs. One of his neighbors a long term sheep farmer reports a three-fold spike in birth defects since the turbine start-up. Lambs have been born with no ears, with three legs and hoofs turned backward. THE Waterloo Wind Farm has 37 Vestas V90-3MW turbines each 80 meters (262.47 ft) tall with 44 meter long (144.36 ft) blades.

h. The Ocean Breeze Emu Farm owned by Dave and Deb Van Tassel in Gullver's Cove Nova Scotia was forced to close due to the loss of 30 of their 38 emus. The deaths began in 2010 when Nova Scotia Power started up 20 Industrial Wind Turbines that were 1.5 MW each. During the 18 + years before the wind turbine start-up they did not have any problems with their birds, no unexpected deaths and no agitation. Nova Scotia Power started up this wind facility called Digby Neck Wind Farm in December 2010. The closest wind turbine to the Ocean Breeze Emu Farm was 850 meters (2789 ft) from the farm.

i. Chicken Farmer James Vollmer lives in Malone Wisconsin near the WE Energy Blue Sky Green Field Wind Energy Center. This Wind Energy Center has 88 Industrial Wind Turbines that are Vestas V82 turbines rated at 1.65 MW. In addition to his health Problems and his family health problems Jim has had major health problems with his chickens since the start-up of this Facility on May 19, 2008.In his 21 years of raising chickens Jim has never had the problems that started since May 19, 2008. Out of 150 chickens Jim lost 50 chickens and numerous birth defects which he never had before. The birth defects included missing eyes, eyes sticking out of their head, twisted beaks, deformed heads and malformed legs. He later found a study that was done by the United States Army Aeromedical Research Laboratory on the Effects of Vibration and Amplitude on Developing Embryos. This study goes into great depth and the procedure they used in the study of how the birds hatch rates were diminished from low frequency vibration. It also caused the same birth defects that he had struggled with. He had raised several thousand birds over the years and had never experienced these problems until the wind turbine start-up. Jim had tried moving some of his chickens to locations away from the turbines and they would sleep for about three days straight and then would

recover. Jim had also noticed a reduction in wildlife around his farm. Prior to the wind turbines he had up to 22 barn swallows in nests in his barn rafters, but since the turbine srart-up the swallows have left. He also noticed that barn owls are now gone. It is Jim's opinion that his chickens cannot sleep properly which is causing the problems.

k. A recent study conducted by the Royal Veterinary College and the Zoological Society of London conducted a study of health effects on badgers by monitoring nine badgers living within 1km of wind turbines verses 16 badgers (control group) living at least 10 km from any wind turbines. They monitored the cortisol levels in the hair of the badgers and found that the hair of the badgers living less than 1 km from the wind turbines had 264 % higher cortisol level than the badgers living at more than 10 km from any wind turbines. Their conclusion was that the affected badgers suffer from enhanced hypothalamo-pituitary-adrenal activity and are physiologically stressed. So in summary the stress levels of the badgers living near the wind turbines was 265 % higher than the control group living more than 10 km away from the turbines. This study was conducted in 2013.

l. Ann & Jason Wirtz bought their farmhouse near the Town of Oakfield in Dodge County on June 1, 1996. On this farm they raise alpacas. In March of 2008 Invenergy started up their Wind Farm called the Forward Energy Center located in Dodge and Fond du Lac County Wisconsin. This Wind Farm has 86 wind turbines that are GE 1.5 MW units or 129 MW total. The closest turbine is 1300 feet from the Wirtz home. Upon start-up the Wirtz Family had troubles sleeping at night, and there was troubles with their animals as well. Ann says the alpaca became jumpy the first day the turbines went on line. Normally they are calm. But on the day the towers started up, they seemed to panic. They were on their back legs right away. Ann said the herd had always been docile and healthy, with no breeding problems. Since the wind farm started up, their temperament has changed and none of the females have been able to carry a pregnancy to full term. Pregnancy always results in miscarriage or stillbirth.

m. Joe Yunk a farmer located at N2630 Townhall Road Kewaunee Wisconsin lost 10 beef cattle after the start-up of the WPS Lincoln Wind Energy Facility which started up in the summer of 2000. Mr. Yunk had not lost any cattle prior to the wind turbine start-up. Many families including Joe Yunk had experienced health problems after the start-up. WPS bought two family homes near Joe's home who were claiming illness. So Joe retained a lawyer and filed suit with WPS. Joe gave deposition in the summer of 2008 and was scheduled to go to trial in September 2009. In August 2009 he was offered $163,000 (on a property appraised at $168,000, Joe took the offer.

33. Poland National Institute of Public Health & The Polish Senate

On July 1, 2016 the Poland National Institute of Health & the Polish Senate passed a new law that adopts a mandatory setback for industrial wind turbines of 10 times the turbine height or around 4270 feet on a 2.5 MW Turbine.The National Institute of Health had evaluated the problems they were having with industrial wind turbines and are of the opinion that wind farms situated too close to buildings intended for permanent

human occupation may have a negative impact on the well-being and health of the people living in their proximity. In the Institute's opinion the laws and regulations currently in force in Poland are not only inadequate ro facilities such as noise from wind turbines, but they also fail to guarantee a sufficient degree of public health protection. The methodology that was used for environmental impact assessment of wind farms (including human health) was not applicable to wind speeds exceeding 5 meters per second. In addition, it did not take into account the full frequency range (in particular, low frequency) and the nuisance level.

34. Towns That Have Voted Against Wind Farms

(1) Stiles Brook Wind Project in Vermont

The Wind Farm Developer Iberdrola Renewables proposed a 28 wind turbine Wind Farm for the towns of Windham and Grafton Vermont. This project would use 3.45 MW turbines for a total 96.6 MW total. Iberdrola Renewables LLC is a company located in Valencia Spain with offices in the USA. As part of this project Iberdrola would pay $715,000/yr to the town of Windham and $285,000 to the Town of Grafton ($1,000,000/yr Total for both towns), which is primarily property tax payments. Then due to the public objection to this project Iberdrola modified their proposal. First they offered to reduce the project to 24 Wind Turbines (or 82.8 MW) and then later to 16 Wind Turbines (or 55.2 MW). In addition Iberdrola increased their revenue offer from $1,000,000/yr to $1,500,000/yr which is broken down as follows:

	Payment to Windham	Payment To Grafton
a. Property Tax Payment	$395,000/yr	$230,000/yr
b. Supplemental To Town	$105,000/yr	$30,000/yr
c. Community Use	$150,000/yr	$25,000/yr
d. For Residents -Partnership	$350,000/yr	$215,000/yr
e. Total	$1,000,000/yr ($1162/yr/voter)	$500,000/yr ($428/yr/voter)

On November 8, 2016 the towns took a vote on this project and renounced the Stiles Brook Wind Plan. The residents votes are listed below:

	Votes For The Project	Votes Against the Project	Total Votes
Windham Vermmont	101	181	282
Grafton Vermont	158	235	392
Totals	259	416	675

So based on the above votes, 61.63 % of the voters voted to reject the project. With Vermont State approval Iberdrola could still move ahead with this project but they

decided to cancel this project. Iberdrola is offering their plans for a fee if a developer is interested in this project.The American Bird Conservancy and the Windham Foundation opposed this project.The State Vermont Secretary questioned the legality of the Partnership Payments to residents but the Vermont Attorney General's Office reviewed the issue and decided the payments did not violate state election laws.

35. Unusual Bleeding and Problems with Menstrual Cycles

A 10 turbine wind farm installed by the Developer Vattenfall in the Holbaek Municipality in Denmark has female workers at the Lammefjordens Perennial Farm complaining of irregular menstruations and have permanent headaches. The owner of this nursery Boye Jensen had 5 female workers quit due to their health problems. Boyce the had to shutdown his business. The Holbaek Municipality has instructed Vattenfall to stop the turbines in Hageholm until they can produce approved noise measurements. The Wind Turbines are 2.3 MW Siemens uints. This installation is called the Hageholm Windmills Park at Holbaek Denmark. Boye Jensen and his wife became ill at their home and have Rented a house in Gisling to get quiet and sleep. Other families have left their homes. Some residents have experienced tingling in the hands and chest tightness.

36. Developmental Tissue Damage Causing Flexural Deformities In The Front Limbs Of Foals at the Lusitano Stud Farm In Portugal.

In November 2006 a Wind Farm in Portugal called the Alto Do Folgorosa Facility started up the first 4 of 9 total wind turbines that were 2.0 MW each. One of the 4 units was later removed due to legal action and in September 2008 they installed six additional units. Near this wind farm is a Lusitano Stud Farm near the Lisbon Municipality of Torres Vedras Portugal.The wind turbines are approximately 350 m (1148 ft) to 800 m (2625 ft) from the stud farm. This stud farm had been in operation since the year 2000 breeding normal and physically sound horses, but in 2008 the observed new born foals developed flexural deformities. Due to illnesses from the turbines the family had to leave the home at the stud farm. Tissue analysis of the defected tendons were performed and reveled the classical features of LFN-induced biological responses: thickening of blood vessel walls due to proliferation of collagen in the absence of an inflammatory process. This all came out in a study performed at the School of Veterinary Medicine, Technical University, Lisbon Portugal. The study war written up as a Master's Thesis titiled " Acquired Flexural Deformity of the Distal Interphalangic Joint in Foals" By Professor Mariana Alves- Pereria. In this study these horses were monitored for a Period of four years. The study was performed by Teresa Margarida Pereiraosta e Curto. A total of 11 affected animals were studied, 9 were born at the stud farm and 2 were Acquired from a different breeder.Six of the horses were males and 5 were females. The two foals brought to the stud farm were brought to help investigate a possible genetic cause and these two also developed deformities after 6 months. Two of the affected foals were placed in a pasture away from the intial one and two others were admitted at the Faculty of Veterinary Madicine of Lisbon. In those animals, except for one that had to be euthanized for humane reasons, an improvement was observed on their condition,with partial recovery of the deformity.

37. Acoustical Engineer Steven Cooper of Australlia proves that wind turbine sensitized people can sense the inaudible infrasound noise from wind turbines.

Steve Cooper is the acoustical engineer who conducted a significant noise study of the Wind Farm known as Cape Bridgewater (see #1 in this document). Steve used the inaudible Infrasound noise in his lab exposing wind turbine sensitized people to this noise. These became sensitized to this noise during their exposure in their homes near the Cape Bridgewater Wind Farm. Mr. Cooper used this inaudible noise to see if the people could sense this wind turbine noise. All of the people could sense the noise each time Cooper turned the noise on. The Wind Industry has been saying that the noise is inaudible therefore it can't effect a persons health.Sensing the inaudible noise is step one to proving the illnesses.

https://www.masterresource.org/wind-turbine-noise-issues/wto-wind-turbine-noise-as-a-health-hazard/#comment-72650

World Health Organization: Wind Turbine Noise as a Health Hazard (opening recognition likely to lead to more acknowledgement)

By Sherri Lange -- October 17, 2018

"The wind industry has denied and ignored evidence directly linking wind turbines and sleep disruption leading to negative human and animal impacts worldwide. Expect WHO's new Guidelines to give rise to new standards to mitigate if not eliminate this ongoing suffering."

"The burden of environmental noise with wind turbines is not episodic or random: for the most part its effects are constant and unrelenting…. This is an undeniable health pressure of enormous magnitude."

Abstract: While only "conditional," acknowledgement is given to pulsation (impulsive amplitude modification, as Dr. Steven Cooper calls it) and ILFN (Infra and Low Frequency Noise), the new World Health

Organization report underscores the failure of current regulations of dB to manage health impacts from industrial wind installations worldwide.

The other irrefutable conclusion is that the wind industry has been given a regulatory path to profits with an unfathomable license to hurt in the form of sleep deprivation (and associated disease) for a very long time. Master Resource reported earlier on the findings of the Australian Senate Select Committee on Wind Turbines (June 29, 2015). This court established that there is a direct pathway to disease resulting from wind turbine noise.

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For years, a host of professionals and interested parties have asked World Health Organization to include wind turbine noise in its Guidelines. For the first time, WHO has announced guidelines for wind turbine 'noise.'

While issued only for the **European Region** (with data compiled from various continents), worldwide industry, governments, and interested and impacted people will all take note. *(Key people in the presentation of copious and reputable information to the WHO for years, have been Christine Metcalfe of the UK, and Dr. Sarah Laurie of AU.)*

This Guideline recognizes that the "noise" is more than 'annoyance' (and "annoyance" is of lesser concern than **sleep deprivation**)–and that chronic noise contributes to cardiovascular disease; lack of sleep, hearing

loss, tinnitus and stress; and increased changes in blood pressure and heart health. These, of course, are well known impacts to communities and professionals worldwide. These negative impacts have, however, been slow to be recognized at levels such as the WHO.

The impacts recognized by the WHO Guidelines are likely to cause some concern for the wind industry that has chronically, methodically, and systemically, over a long period of time, blocked the flow of information, denying, obfuscating, and blaming helpless victims for "poor coping skills."

Analyses of the WHO findings are happening around the world, with some looking to the anticipated mass of class action lawsuits, and others more cautiously examining the omissions, and overly cautious, and even erroneous WHO findings, which conclude that there is insufficient evidence to provide night time wind turbine noise guidelines.

Also, but only gently underscored, not highlighted in the Wind Turbine Noise Guidelines, are the now obvious and historically reported impacts of ILFN, shadow flicker, vibration, pressure pulsation.

A summary of findings:

Officially launched to countries and stakeholders in Basel, Switzerland on 10 October 2018, the document identifies levels at which noise has significant health impacts and recommends actions to reduce exposure. For the first time, a

comprehensive and rigorous methodological framework was applied to develop the recommendations.

"Noise pollution in our towns and cities is increasing, blighting the lives of many European citizens. More than a nuisance, excessive noise is a health risk – contributing to cardiovascular diseases, for example. We need to act on the many sources of noise pollution – from motorized vehicles to loud nightclubs and concerts – to protect our health," says Dr Zsuzsanna Jakab, WHO Regional Director for Europe. "The new WHO guidelines define exposure levels to noise that should not be exceeded to minimize adverse health effects and we urge European policy-makers to make good use of this guidance for the benefit of all Europeans."

Five Advancements

Compared to previous WHO guidelines on noise, this version contains five significant developments:

- stronger evidence of the cardiovascular and metabolic effects of environmental noise;
- inclusion of new noise sources, namely wind turbine noise and leisure noise, in addition to noise from transportation (aircraft, rail and road traffic);
- use of a standardized approach to assess the evidence;
- a systematic review of evidence, defining the relationship between noise exposure and risk of adverse health outcomes;
- use of long-term average noise exposure indicators to better predict adverse health outcomes.

The executive summary can be found here:

For average noise exposure (WIND TURBINES), the GDG (Guideline Development Group) conditionally recommends reducing noise levels produced by wind turbines below 45 dB Lden, as wind turbine noise above this level is associated with adverse health effects.

The report has conditional statements:

No recommendation is made for average night noise exposure Lnight of wind turbines. The quality of evidence of night-time exposure to wind turbine noise is too low to allow a recommendation.

To reduce health effects, the GDG conditionally recommends that policy-makers implement suitable measures to reduce noise exposure from wind turbines in the population exposed to levels above the guideline values for average noise exposure.

No evidence is available, however, to facilitate the recommendation of one particular type of intervention over another.

WHO's use of "conditional" is opposed to "strong." The report defines strong as being likely to be reasonably adopted into policy in most cases, while conditional references require a policy-making process "with substantial debate." "There may be circumstances or settings in which it will not apply."

The Burden of Environmental Noise Exposure

There is an additional emphasis in the Guide to acknowledge the "burden of environmental noise" exposure.

The public health burden from environmental noise Exposure to noise can lead to auditory and nonauditory effects on health. Through direct injury to the auditory system, noise leads to auditory effects such as hearing loss and tinnitus. Noise is also a nonspecific stressor that has been shown to have an adverse effect on human health, especially following long-term exposure. These effects are the result of psychological and physiological distress, as well as a disturbance of the organism's homeostasis and increasing allostatic load (Basner et al., 2014). This is further outlined in the WHO narrative review of the biological mechanisms of nonauditory effects (Eriksson et al., 2018)....

Sufficient information was deemed available to quantify the ***burden of disease from environmental noise*** *(our emphasis) for cardiovascular disease, cognitive impairment in children, sleep disturbance, tinnitus and annoyance. The report, based on a limited set of data, estimated that DALYs lost from environmental noise in western European countries are equivalent to 61 000 years for ischaemic (sic) heart disease (IHD), 45 000 years for cognitive impairment in children, 903 000 years for sleep disturbance, 22 000 years for tinnitus and 654 000 years for annoyance (WHO Regional Office for Europe & JRC, 2011).* ***These results indicate that at least one million healthy years of life are lost every year from traffic-related environmental noise in western Europe. Sleep disturbance and annoyance, mostly related to road traffic noise, constitute the bulk of this burden.*** *(Our emphasis) Available assessments place the burden of disease from environmental noise as*

the second highest after air pollution (WHO Regional Office for Europe & JRC, 2011; Hänninen et al., 2014; WHO 2014b).

While the new 2018 Guidelines suggest there is insufficient evidence for the WHO to prescribe or suggest acceptable night time noise levels for wind turbines, other WHO documents suggest strongly that the evidence has accrued and been applied for other agents of noise: road traffic, rail, air traffic, etc. These guidelines, such as for Community Noise, suggest that children and the ill, who spend more time proportionately in beds and sleep modes, will require reduced noise levels.

How loud is too loud? WHO asks:

The WHO guidelines for community noise recommend less than 30 A-weighted decibels (dB(A)) in bedrooms during the night for a sleep of good quality and less than 35 dB(A) in classrooms to allow good teaching and learning conditions.

The WHO guidelines for night noise recommend less than 40 dB(A) of annual average (Lnight) outside of bedrooms to prevent adverse health effects from night noise.

An Open Letter drafted by Ms. Metcalfe to Mme Heroux and members of the panel developing these guidelines, compellingly requests:

One of the sources of noise you are investigating is that from wind turbines which was not addressed in previous guidelines. We welcome your review

because, despite mounting anecdotal and academic evidence, for too long mitigation against adverse health effects following the construction of wind turbines has been absent from planning guidelines and noise pollution regulations in many European countries, especially with respect to sound below 200 Hz. There is a pressing need for new guidelines to encourage governments better to safeguard the health of their citizens. You will be aware that these problems are not confined to Europe. Neither are they confined to human beings. We are hopeful that your deliberations will result in tough new European guidelines which in turn will prompt a serious worldwide examination of all aspects of this problem, including the widely-reported effects on animals.

While the Guidelines now acknowledge the impacts of wind turbine noise and implications to negative health, including cardiovascular diseases, corollary questions of devastating impacts to animals, linger. Also absent is acknowledgement of the growing call for night time shut down of wind turbines, completely. Given that nighttime shut down of turbines is more and more becoming a demand from the impacted and communities, this appears to be a glaring oversight. (This is not a demand likely to be adopted by any developer, anywhere.)

Sweden already has regionally adopted a 40dB(A) "praxis" (accepted practice), which is not proving useful, and experts there have noted that even a few night time disruptions are as harmful or more so than multiple exposures and disruptions during the day. (Information provided in an email from Ove Bjorkland.)

Lack of Current International Standards of Measurement for Noise and Pulsation/Pressure Levels

WHO Guideline appears to have something for everyone. Some developers and cooperating governments will gloat that they are already operating at or below the WHO 45 dB *L*(*den*) suggested guideline. Others may find it a useful tool to pressure for a downsize of their existing regulations. *There are no international regulations.*

We add that current regulations, decided by country, region, or even locally, on audible noise caused by the unique and various grinding, vibrating, screeching, and whomping sounds of a wind turbine, do nothing for health protection with respect to the even more dangerous sub acoustic impacts.

The cocktail of acoustic events, many registered by the body, not the ear, impact entire lives, and that of companion animals, or livestock, and these cannot be ignored, nor measured simply with dB. An acoustic report from the University of Notre Dame states that: "there is no completely satisfactory manner to measure the subjective effects of noise, or the corresponding reactions of annoyance or dissatisfaction…."

This report goes on to say that at the present time, "there are no common international noise standards or regulations for sound pressure levels."

What would have added substantially to the WHO "conditional" acknowledgement of harm from wind turbine noise, would have been a

hefty or certain "nod" to infra and low frequency impacts and pressure pulsation. These impacts have numerously been reported and recognized by volumes of professionals, including Dr. Mariana Alves Pereira, whose work on vibro-acoustic disease is irrefutably clear. Below, Dr. Laurie confirms the body of research conducted by NASA some thirty years ago.

"There has been pretence that there is no evidence of harm at the levels of infrasound and low-frequency noise being emitted. This is untrue. There is an extensive body of research conducted by NASA and the US Department of Energy 30 years ago, which: established direct causation of sleep disturbance and a range of physiological effects euphemistically called 'annoyance',"

– Dr. Sarah LaurieCEO, Waubra Foundation. Testimony before the Australian Senate Select Committee on Wind Turbines, June 29, 2015. (Quoted in Master Resource, August 6, 2015)

Despite inadequacies, the WHO Guidelines are now finally inclusive of wind turbine "noise" and these now bolster what has been known for over 30 years: harm has been and continues to be administered. As erroneously suggested by the industry, victims are **not** poorly adapting, or having poor coping skills, or inflicted with prior tendency to fear or neuroses.

The harm is real, ongoing, and sinister, because people have known, do know, and continue the profiteering.

The burden of environmental noise with wind turbines is not episodic or random: for the most part its effects are constant and unrelenting (nothing like an occasional aircraft over the house, nor the 70 plus dB experienced at a concert for a few hours). This is an undeniable health pressure of enormous magnitude.

As the WHO prescribes various adjustments or mitigation, say, for road traffic (choice of tires, road surface, lowering traffic flow, different adjustments to road tunnels, insulation, etc.), it acknowledges that it does not have the ability or facts to recommend mitigation for the burden of wind turbine noise. However, to so many now studied persons about noise and night time sleep disruptions, the remediation is fairly obvious.

This particular burden, wind turbine noise, one unto itself in terms of environmental noise, unique in noise dynamics, heard, and felt sound pulsations/pressures, deserves a full-blown international guideline/regulation on all the sound "assets" of the machine.

Shortcomings

While the WHO acknowledges finally after many years that health effects can be reduced from industrial wind, and "conditionally" recommends that "policymakers implement suitable measures to reduce noise exposure from wind turbines in the population exposed to levels above the guideline values for average noise exposure," its

recommendations are disappointingly scant or non-existent on three very important impacts:

- pressure pulsation and ILFN, and vibration.
- acknowledgement and recommendations of the tens of thousands or even millions of persons worldwide, many children and elderly, who have registered complaints of seriously disrupted sleep. These are anecdotal and recorded in numerous papers and findings. Missing completely is the seriously necessary Guideline for Night time noise with wind turbines.
- Impacts reported worldwide to animals, livestock, pets, wildlife. Of every description, wild, domesticated and "husbanded".

The wind industry has denied and ignored evidence directly linking wind turbines and sleep disruption leading to negative human and animal impacts worldwide. Expect WHO's new Guidelines to give rise to new standards to mitigate if not eliminate this ongoing suffering.

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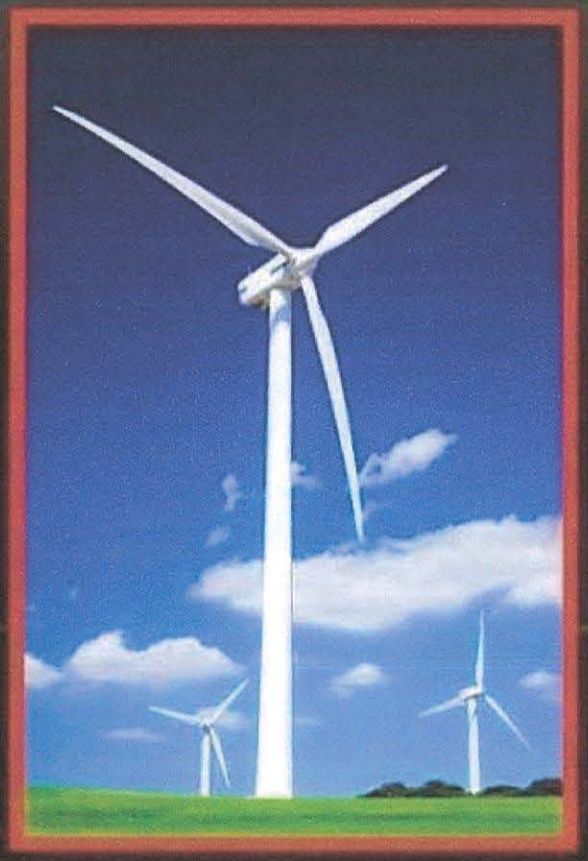
WIND: IDIOT POWER

Sponsored by: The Secret Society Of Anti-AGW-ACC Cultism



https://plus.google.com/communities/105386304309909999553

A two-megawatt windmill contains 260 tons of steel, requiring 170 tons of coking coal and 300 tons of iron ore — all mined, transported and produced by hydrocarbon-spewing processes and machines.

A windmill could spin until it falls apart and *never* generate as much energy as was invested in building it.

April 13, 2016

In respect of Comments made by Dr. Geoff Leventhall to The National Institute of Public Health --- National Institute of Hygiene (Wind Turbine Policy) Poland

As well as additional relevant commentary

To whom it may concern:

We have had an opportunity to review the comments to the National Institute of Public Health, and the Public Institute of Hygiene, on the suggested revised policy on setbacks for wind turbines and related matters, Poland, provided by Dr. Geoff Leventhall.

The comments we offer here are from a group that has variously studied industrial wind for literally thousands of hours, likely now ten thousand; we comment from our position of providing information, consultation, and linking of groups and individuals, professionals, to each other on the topic of industrial wind, as well as acting as a support group for victims. We also sadly receive weekly, or sometimes daily phone calls and messages from victims of wind. Our particular ability to comment on Canadian and Ontario standards of setbacks is close up and personal. We also reference our work with other North American groups, who are members of our umbrella, or who have contacted

us to ask for assistance and support, or who wish us to be aware of their suffering. We offer our observations and respectful suggestions.

I myself, as CEO of NA-PAW, am a resident of Ontario, Canada, and have written on the failures of the Health Canada study, as well as the bookend piece, prepared by the Canadian Council of Academies. We suggest, as many others have, that these two studies, are incorrect or improperly conducted, in our view, should not be reference points for other jurisdictions in the placement of turbines. These two "studies" are deeply flawed, as has been pointed out by many. They have failed to disclose data, even to the media, and the subjects themselves who reported to various Stats Can representatives did not find the study results reflective of their reporting. Groups of vulnerable citizens were excluded from this study (no one under the age of 18 was included), and an astonishing number of homes, and farms, were vacant, or absent from the study, for a variety of reasons, and not accounted for. One reason of course, might be home abandonment, sales, foreclosures, some citizens bought out by a developer, to have the home razed. Given the dollar amount allocated to this important study (HC), many have pointed out how little it might have cost to discover the reasons, and in fairness *add in the reasons for these properties, homes, to have been excluded from the findings.*

> *"For a watchdog federal health branch to suggest that there are no health effects from Wind Turbine Noise, when Ministry of the Environment Officials with firsthand knowledge have confirmed the problems and so too has the Environment Review Tribunal itself, is completely astounding," said Lange of the North American Platform Against Wind Power (NA-PAW). "Try telling this to a family with family members who are chronically sleep deprived and unwell, unable to live and sleep in their own homes, that has lost 30% or more of its livestock, or who has for eight years been living in the shadow of multiple installations, and perilously near to a clearly dangerous substation. Try telling this to folks who have left their homes after being bought out and gagged by the developers."*

Citizens are not being taken OUT of harm's way, but increasingly placed directly in the line of fire."

As noted in many critiques of the HC study, the study itself references its advocacy FOR wind development in Canada, with the hope of 20% by 2020. An impossible dream, mercifully.

As Denise Wolfe writes in her critique:

"The continued success and viability of wind turbine energy in Canada, and around the world, will rely upon a thorough understanding of the potential health impacts and community concerns. It is absolutely astonishing that Health Canada should express concern over the "continued success and viability of wind energy" (our emphasis) in the context of a study supposedly designed to objectively measure the potential negative health impacts that could result from exposure to wind turbine noise. The information provided in this review is the foundation for the opinion that the Wind Turbine Noise and Health Study information so far released by Health Canada cannot be used as the basis for the claims that are being made by Health Canada that there is no association between wind turbines and specific adverse health effects 2 ."

It is easy to see the premise and objective of the study: *Designed to provide "continued success and viability" of wind power.* Sadly, policy has upped the health of Ontario residents. We currently know of 146 families who have vacated homes, been bought out by developers, or who have sold at greatly reduced values, or who have moved out of province, or dozens, even hundreds more, who currently live in second residences, or in the parking lot at Walmart, in an RV. People do not simply move out of beloved homes for no reason.

Again, as an organization with outreach to all parts of North America, and with daily relationships with professionals and individuals with high level research skills in other countries, we all have the ability to see the synchronicity of experiences with industrial wind. Symptoms and reports are the same, and even the distances at which victims

report ill health and ill health of animals, livestock, pets, are of a common ground. *Proximity IS causing harm.*

One thing is absolutely clear: Ontario's standard of 550 meters has created a disaster zone. It is without any question putting people and animals in harm's way. And as Dr. Robert McMurtry, Order of Canada, and esteemed retired orthopaedic surgeon tells us: there is no way to really ascertain what is a safe distance, because inner ear physiology and individual sensitivities are unique. He adds that some report ill health at much longer distances than 2 km. Indeed, Dr. Sarah Laurie suggests that 10 km is a starting point for safety.

It is interesting to hear Dr. Leventhall refer to the ERT (Environmental Review Tribunal) as a valid reference point on health and turbines: indeed, the ERT has historically NOT wished to measure health, and has in the first ERT (Chatham Kent) provided the small proviso that turbines can be deemed to cause harm, but the degree is not known. This statement has provided much anxiety to those victims whose bodies are receptacles for lack of sleep, tinnitus, migraine, inability to concentrate, fullness of the head and chest, high blood pressure, increased risk of disease, associated health breakdowns and deterioration, and whose lives have been impacted in many instances, dangerously. I myself have received well over 100 phone calls from individuals in deep distress, honest, hardworking people whose lives are turned upside down. Some of these persons have children, who suffer without knowing how to pronounce the word, turbine, or tinnitus, have had to visit emergency rooms 11 times for earaches, and who on removal from the proximity to turbines, appear recovered. Again, the ambiguous statement by the ERT has left us with an almost idiotic semantic problem: who defines serious harm, as Dr. Christopher Hanning asks, and who decides, and how much suffering will continue as this ridiculous bit of verbiage gets packaged around the world?

We wish to point out that in Ontario, the ERT is a completely flawed process, designed to do one thing: push industrial wind with the appearance of fairness, and a very fast quasi judicial timeline, in order again, to give even more justification to a permitting process that is unfair. One crime on top of another. The process itself is described in a recent blog by Wolf Hill.

> *"The ERT appears to be nothing more than a Kafkaesque-Potemkin-kangaroo-emperor-with-no-clothes court.*
>
> *The GEA and its companion, the ERT have allowed wind energy companies, eager to cash in on the Ontario Liberal government's 20-year-guaranteed, above-market returns, to ride roughshod over democratic rights of people and municipalities. The kleptocratic subsidy scheme is footed by the taxpayers, and consumers' electricity charges triple as a result.*
>
> *Wind project opponents are spending inordinate amounts of time and money to fight a losing battle, the contest rigged from the start. For wind project opponents, the ERT appears to be nothing more than a Kafkaesque-Potemkin-kangaroo-emperor-with-no-clothes court."*
>
> *The ERT gives people the **illusion** of offering democratic equality and justice before the law.*
>
> *In reality, it forces them to accept the industrialization of rural Ontario against their will, while depleting their wallets and spirit."*

We ask you to seriously reflect on our Ontario experience, the real one. Please also view a comment by our colleague in Germany, Marco Bernardi, who is responding to siting considerations in Wisconsin, USA, as well as a petition to the MOECC (Ontario Ministry of

the Environment and Climate Change), of today's date referencing again homes too close to a wind turbine with obvious health impacts.

We wish to address a few of the disagreements we have with the Dr. Geoff Leventhall paper submitted to your government.

Point 2, Line 8: as referenced by Dr. Leventhall. Dr. Leventhall in our view trivializes the noise impacts from industrial wind turbines, because there are obvious other sources of troublesome noise in our environments. However, it is well established that industrial wind turbines are tricky business in this regard, as they have impulsive characteristics, and multiple "organisms" of noise, noise and effects from vibration, shadow flicker, and ILFN, not generally heard audibly, but certainly causing impact. It is hard for us to imagine this cocktail of impacts, and how it might and does affect people, especially the vulnerable, the children and elderly.

> *"Studies carried out in Denmark, The Netherlands, and Germany (Wolsink and Sprengers, 1993; Wolsink et al, 1993), a Danish study (Pedersen and Nielsen, 1994), and two Swedish studies (Pedersen and Persson Waye, 2004, 2007) collectively indicate that wind turbines differ from other sources of community noise in several respects. These investigators confirm the findings of earlier research that amplitude-modulated sound is more easily perceived and more annoying than constant-level sounds (Bradley, 1994; Bengtsson et al, 2004) and that sounds that are unpredictable and uncontrollable are more annoying than other sounds (Geen and McCown, 1984; Hatfield et al, 2002)." Wind turbines: What audiologists should know: By Jerry Punch, Richard James , and Dan Pabst*

Our consideration of line 8, the value or lack thereof, of the Ontario ERT (Environmental Review Tribunal), has already been discussed above.

Regarding the statement:

"However, after giving this opinion, the Tribunal found that wind turbines designed according to Ontario regulations did not cause serious harm to human health. The minimum separation distance for Ontario is 550m. In the past few years there have been 12-15 further Environmental Review Tribunals in Ontario. None of these have found that wind farms, when designed according to the criteria required by Ontario regulations, cause harm to human health." (Leventhall)

Our notes: There have been over 40 ERTs with relation to industrial wind in Ontario, and the bar set by the Tribunal to establish "serious" health concerns was fairly well understood early on in the process, **to be something unattainable**. Despite the testimony of experts such as Dr. Robert McMurtry, Rick James, and numerous others, the ERT lawyers for appellants were unable to convince the Tribunal with the reality of impacts in Ontario. The only "stays" or temporary holds obtained by appellants have been on environmental grounds, and those two victories, partial, have not yet had final decisions handed down. The ERT is merely a rubber stamp for ready set go approvals.

In essence, the ERT is a Kangaroo court, one that is designed to fail the public in the chase for so called "renewables." As of yesterday (Collingwood and Clearview), another ERT appeal began its course, this one to be challenged also on the basis of Criminal Law.

Point 3, Line 13: Dr. Leventhall indicates that the ambient noise levels, pre construction, are "well established," and imputes that manufacturers provide safe levels of sound at established distances using established methods. "The use of prediction then prevents risk to human health." This is patently false. Please review the information from this site, wind wise, MASS, where again the levels actually measured by a resident reflect something quite else. Prediction is not reality, especially when one wishes to observe pre ordained outcomes.

Point 4, Line 15 references again minimization of ILFN effects. It is well-known that ILFN does cause harm to humans and wildlife and pets. Please see these references, which are only a small sample of available data and information. http://www.windvictimsontario.com/ October 14, 2014. The Brown County Board of Health issued a "Human Health Hazard" warning regarding its year long study of residents and experts:

"The Brown County Board of Health voted tonight to declare the Shirley Wind Turbine Development a Human Health Hazard. The decision was based on a report of a year-long study conducted by the Enz family with assistance from Mr. Rick James to document acoustic emissions from the wind turbines including infrasound and low frequency noise, inside homes within a radius of 6 miles of the Shirley Wind turbines.

The wording of the motion was as follows:

"To declare the Industrial Wind Turbines in the Town of Glenmore, Brown County. WI. a Human Health Hazard for all people (residents, workers, visitors, and sensitive passersby) who are exposed to Infrasound/Low Frequency Noise and other emissions potentially

harmful to human health. "The context is in reference to Brown County Code 38.01 in the Brown County Ordinances, in Chapter 38, relating to Public Health Nuisance (section (b) Human Health Hazard).

"Human Health Hazard" means a substance, activity or condition that is known to have the potential to cause acute or chronic illness or death if exposure to the substance, activity or condition is not abated.

http://www.windvigilance.com/about-adverse-health-effects/low-frequency-noise-infrasound-and-wind-turbines

It is even more confusing, perhaps, because Dr. Geoff Leventhall writes previously:

"More specifically Geoff Leventhall, a ***coauthor of the wind energy association*** sponsored "Wind Turbine Sound and Health Effects" states:

> *"The symptoms of... Wind Turbine Syndrome...sleep disturbance, headache, tinnitus, ear pressure, dizziness, vertigo, nausea, visual blurring, tachycardia, irritability, problems with concentration and memory, and panic attack episodes associated with sensations of internal pulsation or quivering when awake or asleep...I am happy to accept these symptoms, as they have been known to me for many years as the symptoms of extreme psychological stress from environmental noise, particularly low frequency noise." [24]"*

We are unclear as to how tinnitus is induced "psychologically," and the symptoms he describes, as patently observable from ILFN, are some of the reported universal

symptomatology. It appears that writing for the wind institute itself, has perhaps tilted the logic.

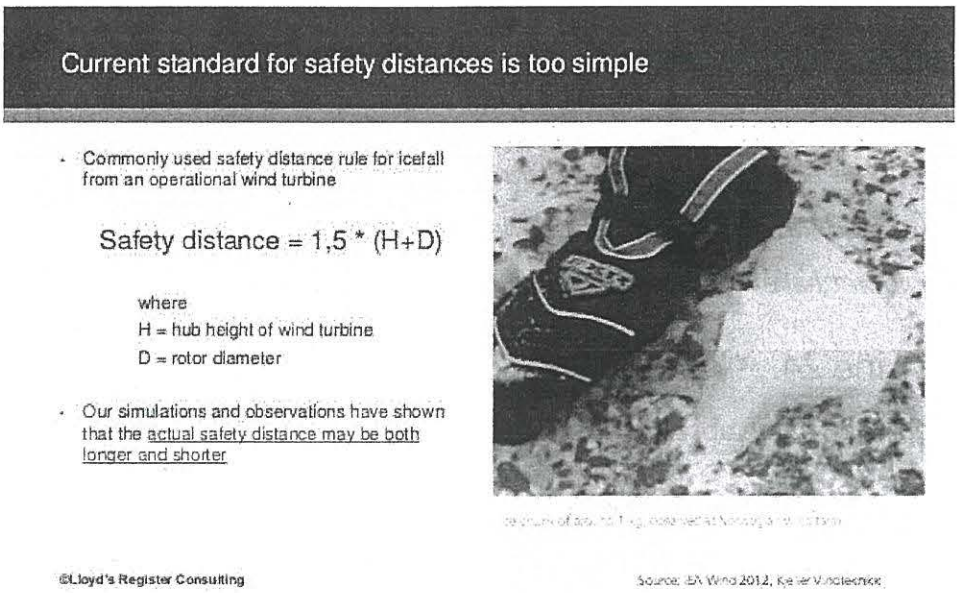
Dr. Leventhall then references the anecdotal claims of effects, and relates those to "attitudes," and beliefs. This is the typical mantra of the industry itself: that people are predisposed to dislike turbines, and hence experience the nocebo effect. Please see NA-PAW's comments on this assertion here.

> *"Perhaps, the wind intelligentsia says, the disgruntled are unhappy that they are not profiting from the wind turbine installations. Perhaps the subjects are just a bit crazy, even indulging in the so called, Nocebo effect, whereby negative anticipation of a project infects one with inordinate fear and possible physical reactions.*
>
> *Reading victims' statements on their experiences from around the world is like reading a very clear compendium of shared experiences: medical effects (tinnitus, pressure, dizziness, nausea as an example), including emotional impacts from sleeplessness, and not excluding effects of vibration shadow flicker, audible noise, and ILFN.*
>
> *Add to this the stress of not being understood, not being taken seriously, even possibly by family physicians, in cases. The innuendo and propaganda machine has been working effectively, and it has not been easy for even medical professionals to immediately see the trees in the fog of "clean, green, free." Sherri Lange, Master Resource, Not in Their Minds: Denial in the Wind Turbine Debate (Link above)*

Point 6, Line 19 references the safety of Ice Throw, according to Dr. Leventhall. Please note these examples of ice throw that have not proven quite so tidy as the description provides.

https://www.youtube.com/watch?v=4EmYe2u6J6g

Wisconsin example above



Please also see this article from the UK. It describes chunks of ice showering a home, necessitating the turbine to be shut down.

> *"A spokesman for Cornwall Light and Power said: "Following reports of ice shedding on Saturday, we shut down our wind turbine at Whittlesey.*
>
> *"Our people have visited the site and nearby residents, and we have agreed that the turbine will not generate until we are fully satisfied that there is no risk of ice shedding."*

Point 8, Line 22. "Shadow flicker can be controlled." False. There are children and adults with various types of autism, who absolutely cannot withstand the assault of shadow flicker. While it may be true that not enough research has taken place about shadow flicker, there is clear evidence that it is problematic for some. It can only be

controlled by closing it out, which to an average homeowner, does not seem a viable solution. See this site, Wind Vigilance. Does one wish victims to never leave a darkened room?

> *"Wind turbine shadow flicker has the potential to induce photosensitive epilepsy seizures however the risk is low with large modern models and if proper planning is adhered to. [11],[12] Planning should ensure the flash frequency does not exceed three per second, and the shadows cast by one turbine on another should not have a cumulative flash rate exceeding three per second. [13]"*

Point 10, Line 24. "Sleep disturbance is very subjective. Many people have poor quality sleep, even in the absence of external noise." (Leventhall)

Minimizing sleep deprivation caused by wind turbines, is disturbing. To ascribe that "most people" suffer sleep deprivation, in order to soothe the serious known effects from wind turbine installations, seems to us extremely problematic. The wealth of knowledge and array of data and studies on sleep deprivation, and the established cause and effect of wind turbines on sleep patterns and health effects, is now overwhelming in volume and sincerity, and the assertion that victims' sleep is equally disturbed to other urban noise impacts, is insulting to those who live near the arrays. Frankly, some, many of these victims call it "torture."

In Falmouth, the Andersens submitted testimony that chronic sleep deprivation, headaches, dental injuries, and headaches, to name a few, which contributed to a suspension of a turbine operational hours.

> *"The Andersens have submitted affidavits and medical records supporting their claim that the nuisance produced by the turbines has resulted in substantial and continuous insomnia, headaches, psychological disturbances, dental injuries, and other forms of malaise. The court finds the Andersens' claims that they did not experience such*

symptoms prior to the construction and operation of the turbines, and that each day of operation produces further injury, to be credible. Taking this evidence of irreparable harm in conjunction with the moving parties' substantial likelihood on the merits of their claim to uphold the ZBA's finding of an ongoing nuisance created by daily 7am to 7pm turbine operation, the court finds there is a substantial risk that the Andersens will suffer irreparable physical and psychological harm if the injunction is not granted.

Please read Dr. Chris Hanning. Wind turbine noise, sleep and health.

http://www.windvigilance.com/about-adverse-health-effects/wind-turbine-noise-sleep-and-health-by-dr-hanning

Point 11, Line 25. Again, only too disparaging of very legitimate health concerns, including depression, in victims of wind.

Point 14, Line 35. Countries world wide have failed variously to protect human and wildlife and livestock health. The assumption that government policy to promote wind turbine proliferation also serves to protect human health, is patently incorrect. Countries world wide have capitalized on false assumptions (climate change fear mongering) to justify close working relations with developers, in an almost obscene closeness, certainly in North America, so that some pockets become enriched, while others suffer property values losses, ill health, livestock damage and/or mortality, broken communities. In addition, they suffer energy poverty due to the escalating cost of electricity. In Ontario, a recent expose showed politicians hosting fund raisers with wind and solar developers at outrageous per plate fees, coinciding not surprisingly, with another announcement of more projects "coming down the pipe."

Point 19, Line 52. *"A 2km setback between wind turbines and buildings is not generally required in other countries. The NIPH-NIH position paper claims that "the recommended value stems from a critical review of study results published in peer-reviewed scientific journals". However, it does not give any references to these journals. One should be aware that all peer reviewed journals are not of equal standard and that the quality of peer reviews is not equal.*

Point 20, Line 57. A distance of 0.5-0.7km is the typical distance at which noise criteria are satisfied and this range is used widely as a minimum separation distance. For example, 550m in Ontario." (Leventhall)

We will comment on these two points together. Countries are now doing what Poland is now engaged in. We applaud your government for its close examination of safe setbacks and encourage you to also regard the cost benefit studies that you may have done, or perhaps are preparing to do. In several instances, municipalities and town councils are indeed adopting much more stringent setbacks and preparing we would say, as in Somerset NY, almost prohibitive packages of requirements. Please see this article in Master Resource. Again, referencing Ontario, which is an abysmal failure in the protection of human health, is something quite surprising.

We add these comments by a German colleague, Marco Bernardi, whose note to Wisconsin today regarding a siting issue, speaks volumes. (Quoted with Mr. Bernardi's permission) *Following the notes from Marco Bernardi, please see a link to a petition in Ontario, Canada, to the MOECC, Minister of the Environment, of today's date. We also*

append a letter to Wisconsin Public Service Commission, by Dr. Sarah Laurie, of again, today's date. (PDF file attached)

From: *"'Marco Bernardi (windwahn.de)*
To: *napaw*
Sent: *Wednesday, April 13, 2016 9:25 AM*
Subject: *Re: Highland Wind, Town of Forest, Wisconsin*

I am writing you as a wind power victim. I have to live for over 20 years aside wind turbines. For the first 18 years I lived at a distance of 320m to 750m to the nearest 6 turbines. After the dismantling of these 6 turbines in 2014 the nearest turbine is 2,5 km away. In total I am overlooking more than 150 turbines in an radius of 15 km and I am still suffering from the ILFN output.

What I have learned in all these years is that there is no habituation, only a permanent sensitization.

In Germany, two important things are in progress.

The first thing is that The German Institute for Standardization (DIN) currently updates a norm that regulates the sound pollution of technical systems near residents. The frequency spectrum in this norm (DIN 45680 - Measurement and assessment of low-frequency noise emissions) will be expanded. The range will start at 1Hz. Actually the definition of the frequency range is "Third octave bands with center frequencies of 10 Hz to 80 Hz"

The most important innovations will be:

a. calculating A-weighted assessment level is omitted
b. the separate assessment of clearly protruding component sounds and low-frequency noise without significantly protruding single tones were combined into one common process.
c. wind turbines will be added to the list of emitters.

The second thing is the constitutional complaint, which will be filed with the Federal Constitutional Court in a few days.

In this constitutional complaint the evidence is provided that there is an extraordinary high output of ILFN from wind turbines and that there is an relationship between ILFN output and health effects. ***The result of the constitutional complaint is that there is a minimum distance to dwellings of 3 km.***

Please consider this experiences and information from a long-term ILFN victim in your decision.

Best regards
Marco Bernardi

ONTARIO PETITION TO ENVIRONMENT MINISTER
https://www.change.org/p/minister-of-the-environment-and-climate-change-make-unifor-accountable-for-turbine-s-

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Respectfully submitted by

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RESOURCES

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http://news.nationalpost.com/news/canada/wynne-defends-6000-a-head-fundraising-dinner-with-her-and-energy-minister

https://www.masterresource.org/wind-siting-issues/siting-wind-new-york-i/

https://appec.wordpress.com/appec-concerns/health/

OVERVIEW OF THE IMPACTS OF THE GREEN ENERGY ACT ONTARIO. COMMENTS ON BILL 34 TO REPEAL THE GEA.

Thank you very much for the opportunity to comment on Bill 34, to Repeal the Green Energy Act.

The North American Platform Against Wind Power represents about 380 groups, and millions of persons, who are deeply concerned about the proliferation of industrial wind. We daily access events and colleagues, experts, in Europe, and Japan, for example, and share these with our memberships, and with energy blogs that we contribute to.

The consciousness about the failures of wind and solar is exponentially growing. It is no longer something that is suspect, considered "fringe," or "alternative." The cost of these two "renewables," is something now recognized as untenable, destructive on all measures.

Sadly Ontario shares with Germany, now well known job losses, policy failures, and environmental disasters. Ontario is now often referenced as an example of what "not to do with green energy policy." Germany, once the poster child of "Energiewende," is touted as a Bust, not a Boom. 800,000 persons cut off from expensive electricity as they had to choose between heating and eating. Many taking to the forests for fuel and heating. (Germany is still building out coal fired and importing nuclear from France via the back door.)

https://www.forbes.com/sites/jamesconca/2017/10/10/why-arent-renewables-decreasing-germanys-carbon-emissions/#4e53c32868e1

It is time for Ontario to capture the free fall, and reverse disastrous policies, literally up end them.

In 2009, the government of Ontario stated:

> *"The Government of **Ontario** is committed to fostering the growth of **renewable energy** projects, which use cleaner sources of **energy**, and to removing barriers to and promoting opportunities for **renewable energy** projects and to promoting a **green** economy." Green Energy and Green Economy Act, 2009.*

In 2017, then Minister of Energy Glenn Thibeault admitted:

Ontario Energy Minister Glenn Thibeault has issued a mea culpa on the way the Liberal government implemented its Green Energy plan.

Thibeault says the implementation of the Green Energy Act has led to "sub-optimal outcomes" for consumers and to increased prices in electricity for families and businesses in Ontario.

In a speech delivered Friday to the Economic Club of Canada, the energy minister indicated that Ontario's Feed-in-Tariff program, or FIT, has resulted in over-manipulation of the province's energy sector and to the removal of competitive incentives for energy producers.

https://globalnews.ca/news/3272095/ontario-energy-minister-admits-mistake-with-green-energy-program/

> *"At its core, Ontario's renewable energy procurements were absolutely the right policy," Thibeault said. "However, it was the 'how' and not the 'what' that drove price considerations. How we implemented those policies led to a number of sub-optimal outcomes."*

In truth, sub-optimal outcomes may now be seen as the made- in-Ontario euphemism of the century. *In hindsight we could also say that renewable energy procurements (wind and solar, biomass, and hydro) have turned out to be ridiculous, shameful, and disastrous.*

Forty times the fair rate of hydro, preferred access, long term contracts, with clear sailing provided by other EPA regulations.

Ontario's FIT program was launched in 2009 as a way of procuring renewable wind, solar, hydro and biomass energy. The program's primary objective was, and still is, to replace coal-powered electricity.

The Independent Electricity System Operator, or IESO, signed long-term contracts with energy producers that guaranteed rates well above fair market value for the length of the contract. Wind, solar and biomass

producer were given 20-year contracts, while hydro producers were given 40-year contracts. (Initial prices in the FIT program was about 80 Cents per kWh for solar, later reduced to around 50 cents per kWh.)

https://www.fraserinstitute.org/article/ontarios-green-energy-act-bad-bargain-ontarians

Ontario's pursuit of wind-power was particularly ill-considered because provincial demand tends to be out of phase with our wind patterns. In Ontario, 80% of wind-power generation occurs when demand is so low that the entire output is surplus and must be dumped on the export market at a substantial loss. The province's Auditor General estimates that Ontario has already lost close to $2 billion on surplus wind exports: figures from the electricity grid operator also show the ongoing losses are $200 million annually. The wind grid is also inherently inefficient due to the fluctuating nature of the power source. The report calculates that due to seasonal variability, seven megawatts of wind energy are needed to provide a year-round replacement for one megawatt of conventional power.

What's particularly distressing is that all of this pain could have easily been avoided. A 2005 report commissioned by the government showed that if the province simply continued with ongoing retrofit projects of its existing energy-generation fleet, all of the claimed benefits of the GEA could have been secured at one-tenth the cost. Sadly, that report was kept confidential and subsequently ignored.

But what about all the green jobs that the Ontario government promised? The government originally promised the GEA would create 50,000 jobs. Alas, those benefits also proved illusory: the government now admits the 50,000 jobs claim was not based on any formal analysis; that most of these green jobs would be temporary, and the estimate didn't account for the jobs that would be killed by escalating electricity costs under the GEA.

It is not news anymore that Ontario has sunk to a new low: job losses, manufacturing losses of around 300,000 in the last 8 years, some due to the recession, and mostly as some realize, due to the direct impacts of the high lost of power: the Green Energy Act can easily be seen as the enabler.

And Ross McKitrick and Mr. Green conclude: "And all for extremely modest air pollution reductions that could have been achieved at a fraction of the cost."

OBJECTIONS TO REPEAL OF THE GEA

> *"The government is doubling down on its message that Conservatives want no part of the jobs and investment in the $26-trillion global clean economy," Schreiner said in a statement. (Fact: the Conservatives are dedicated to job creation and efficiencies, and conservation.)*

Greenpeace Canada said while the act was known principally as a way of procuring renewable energy, it was included in a number of other progressive environmental policies, which will now be rolled back if the bill passes. (Our comment: what are these "other environmental policies"? Ontario has been hit by an environmental wrecking ball.)

"Although a symbolic blow to renewable energy, this is another sign of the Ford government's intent to take us back to the 1990s on environmental policy," said Shawn-Patrick Stensil, a senior energy analyst with the organization. (Is the Ford government's initiative to clean up the Green Energy MESS, really backward, or a push to a future devoid of waste, jargon and cronyism?)

"An objective of the Green Energy Act was to empower citizens and communities to flight climate. What we haven't heard from the Ford government is how it will enable Ontarians to take advantage of the declining cost of renewable energy and reduce their greenhouse gas emissions." (Climate, or weather, should never be a driver of policy. The cost of renewables (wind and solar) are referred to as declining in cost. But enter energy illiteracy: Germany and Denmark have the highest cost of power in Europe, despite massive proliferation of wind and solar. Turbines also increase GHGs, and have done nothing to reduce C02 globally.)

Another group, Environmental Defence, said moving away from renewable energy would be costly. (Our comment: staying with overinflated FIT programs for wind and solar will cripple us even more. Dropping or renegotiating contracts can save billions.)

THE TRUE COST OF SUBSIDIES.... THE OBJECTIONS ABOVE DON'T HOLD WATER

The global clean economy:

https://www.sciencedirect.com/science/article/pii/S0921800916303494

CALGARY, ALBERTA, CANADA (PRWEB) MAY 04, 2017

Friends of Science Society has issued a new report entitled "Grounded in Reality" that rebuts the recent claims of the Smart Prosperity Institute's April 2017 policy brief "Accelerating Clean Innovation in Canada" that proposes cleantech as an economic driver and means to stop climate change. Friends of Science Society says these premises are flawed.

"Cleantech and decarbonization are the Holy Grail of investment and government subsidy hype," says Michelle Stirling, Communications Manager for Friends of Science Society, "but practically speaking there

have been numerous catastrophic failures of cleantech in recent years, both as investments and as subsidized programs."

Smart Prosperity Institute bills itself as a policy think tank based at the University of Ottawa claiming it delivers world-class research.
Friends of Science Society says Smart Prosperity makes an illogical leap between the economic and cleantech success of certain countries, and assumes the potential for the same result in Canada without examining the context.

In a March 25, 2013 Wall Street Journal interview, Joseph Dear, the former CIO of CalPERS called cleantech a 'noble way to lose money.'

"Our report - "Grounded in Reality" – looks at some of the key success factors of nations like Finland, Israel, Denmark and Sweden which feature 'cluster' qualities touted by Harvard economist and author Michael Porter as competitive factors for economic success," says Stirling.

Friends of Science says that on decarbonization, the Intergovernmental Panel on Climate Change (IPCC) offers no evidence to support their push for wide-scale wind and solar as an alleged cost-effective replacement for coal, as discussed in correspondence of Nov. 5, 2015 with the IPCCC, posted on the Friends of Science blog.

Prof. Michael J. Kelly of Cambridge published a paper in MRS Energy and Sustainability on May 23, 2016 showing that wind and solar could not even support basic society in terms of energy return on energy invested and some climate change mitigation actions 'make things worse.'

Smart Prosperity focuses on the externalities of 'carbon pollution' while making a case for 'cleantech' investment in wind and solar or electric vehicles.

Friends of Science says that if the negative externalities were counted in, these forms of 'cleantech' would not be competitive. Examples include the destructive mining practises for wind farm magnets, as reported Oct. 23, 2013 by the Institute for Energy Research or the lack of managing toxic waste from solar panels, as reported in the Financial Post, Feb. 11, 2013.

"Grounded in Reality" points out that highly competitive cluster nations have active ports, while Canada's ports and export pipelines are blocked by green activists, as reported by Vivian Krause in the Financial Post Oct. 3, 2016.

"Every form of 'cleantech' is made from high-demand fossil fuels," says Stirling. "Smart Prosperity's report lacks context and is misleading."

About

Friends of Science has spent over fourteen years reviewing a broad spectrum of literature on climate change and have concluded the sun is the main driver of climate change, not carbon dioxide (CO2). Friends of Science is made up of a growing group of earth, atmospheric and solar scientists, engineers, and citizens.

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OUR COMMENTS

What has happened with Ontario's rush to wind and solar, is a crushing blow to democracy, a bruising of economic power, and community vibrancy, as well as a blow to Environmental principals and protections, as never before. Far from "empowering" people and communities to fight climate change," it has truly been an opposite force, pushing some species to extinction, grabbing habitat, polluting water supplies (Chatham Kent), inducing a forest fire while pile driving in extreme heat in Northern Ontario.

Despite "extreme fire hazard" conditions and a region-wide fire ban, a number of workers say crews continued to blast rock and use heavy machinery that had set off several small fires earlier last week. The workers asked CBC News to withhold their names out of fear of losing their jobs.

Iconic landscapes are now littered with useless eco junk, much of which cannot be recycled. Other new features of this rush to renewables, include toxified landscapes from electrical pollution from turbines, substations and transmission lines, a largely un regulated proliferation, or a Kafkaesque proliferation with few brakes or even imaginary controls, no true rules for decommissioning, powerless citizens at every level, and many of whom cannot even reside in electrically toxic homes. How many are living in cottages, removing themselves at night, or sleeping in the parking lots of Walmart? How many have impacted pets and livestock? How many have simply left the province?

We welcome the even symbolic Repeal of the Green Energy Act. It is an absolutely necessary recovery point, with hopefully many more corollary benefits as time goes on. The adoption of the Green Energy Act 2009 has been the start of a slippery slope, a trail of lies, broken promises, and failed agendas. The Repeal of this Act will help to begin to reset the pins. We ask

respectfully that all parties continue what has begun in the Legislature at this time: **Rethink, Repurpose, and Regain. Quoting then Minister Thibeault, "it is not the what, it is the how," we maintain that it is the what, the how, the where and the why, that has been completely incorrect, leading to the euphemistic "sub-optimal results."**

At this opportunity in front of the Committee, we wish to address in particular the absence within Bill 34 of the repeal for EPA 142.1 (3). We respectfully ask that this repeal be added to Bill 34. You may say it has no useful purpose anymore anyway, in view of the reshaping of the Bill 34; however, the language of this EPA section is not suitable to include in our view, in any piece of Ontario legislation. It is stagnant, counter to Ontario's ethos, and extremely DISINGENUOUS. *It basically says, you Mr. and Ms. Public, will have to prove irreversible harm. It is obvious to us that this is front end loading success for developers. It has proven so in Ontario.*

SNAPSHOT OF RESULTS OF EPA Section 142.1 (3), proving serious and irreversible harm. This is to us, a "dead man walking," clause and indeed has proven to be exactly this, as time has witnessed over 40 ERT's that have denied access to justice to communities.

We request an immediate repeal of EPA Section 142.1 (3)

(3) A person may require a hearing under subsection (2) only on the grounds that engaging in the renewable energy project in accordance with the renewable energy approval will cause,
(a) serious harm to human health; or
(b) serious and irreversible harm to plant life, animal life or the natural environment.

The section in question has provided lack of justice for communities around the province. It has shown consistent evidence of bias in favor of developers. It has shown disrespect for people wishing to testify, and in the end has been the enabler for the Ideologically driven agenda of profit taking at the expense of regular tax payers.

How is it possible for individuals to PROVE irreversible harm? Simply, it is a barrier that jumps to a conclusion, one never or rarely, very rarely, having a favorable outcome to residents, communities, and wildlife, and then only after lawyers and millions of dollars. Who will recompense these communities?

One example of literally hundreds of judicial bias within the ERT process, is for Amherst Island. Please see the factum of new evidence in November 2016. The evidence is overwhelming. Yet today, there are 23 wind turbines churning away at Amherst. Blanding's Turtles are apparently protected at White Pines, but not at Amherst.

Another example is from Clearview Collingwood: see the bat map with details of even three endangered species, carefully developed by GPS by Citizen Scientist Richardson, completely blowing out of the water the evidence by Dr. Reynolds esteemed bat expert, who claimed there was no habitat for bats, hence no bats. Citizens constantly charged with doing the job of the government: to protect endangered, at risk and other flying animals, water, and their own health.

In many instances, the Judiciary for the ERT showed bias and preferential treatment for witnesses for the Developer. The province, unfortunately, had/has become a wind turbine partner.

Having witnessed some these ERT hearings across various parts of Ontario, including Amherst, Chatham Kent, the visible lack of impartiality was heart-wrenching. Preferential treatment for many, including Dr Robert McCunney, who testifies on behalf of developers, more than 100 around the world, testifying that there is no evidence of harm to human health. Completely ignoring the world accruing evidence, now compounded by the admission of the World Health Organization of problems with wind turbine "noise." This same witness has very recently testified for the Nations Rise 33 turbine project, on behalf of the developer, near Stormont, Ontario. How is a known paid specialist FOR the developers allowed to continue apparently advancing serial perjury?

SUBSIDIES

"Auditor General Bonnie Lysyk reported in 2016 that Ontario electricity consumers had overpaid $9.2 billion for green energy, because the Liberals ignored the advice of their own experts on how to price it."

Please see Michelle Stirling for her superb survey of green subsidies in Canada. Staggering numbers.

https://www.youtube.com/watch?v=D9-clNI8S6Q&feature=youtu.be

MICHELLE STIRLING

NO SUCH THING AS A LOW CARBON SOCIETY

RED INK AND GREEN SUBSIDIES

See attached for Stirling and Robert Lyman.

JOB LOSSES

In countries like Spain and the U.K., which launched their own versions of the GEA a decade ago, the job losses are now being confirmed by independent analyses. In the U.K., a report by Verso Economics used the Scottish government's own macroeconomic model to show that, despite receiving net transfers of about £330-million ($521-million) from the rest of the U.K. for its renewables sector, Scotland still experienced a net job loss from wind power, and for the U.K. as a whole, 3.7 jobs were lost for every job created in renewable energy.
In Spain, researchers at King Carlos University found that, on average, each job in the wind sector cost the country more than £1-million, implying a loss of 2.2 private sector jobs for every new job created in the renewables sector.

Overall objections

- Lack of transparency and justice; using ideology to promote policy and profit taking for the few
- Unfair and loaded ERT system, causing inevitable conclusions in favor of developers, and costly defences by communities
- Economic hardship for all Ontarians; jobs lost
- Use of climate theories, and fear mongering, to advance erroneous "virtue signalling;" we should never develop policy on the back of "weather" that may or may not happen. Many now anticipate global cooling, and still others say climate change should be termed as "weather."
- Profit taking of the highest order; with collateral damage to land, water, and wildlife that cannot be reclaimed in perhaps over 100 years

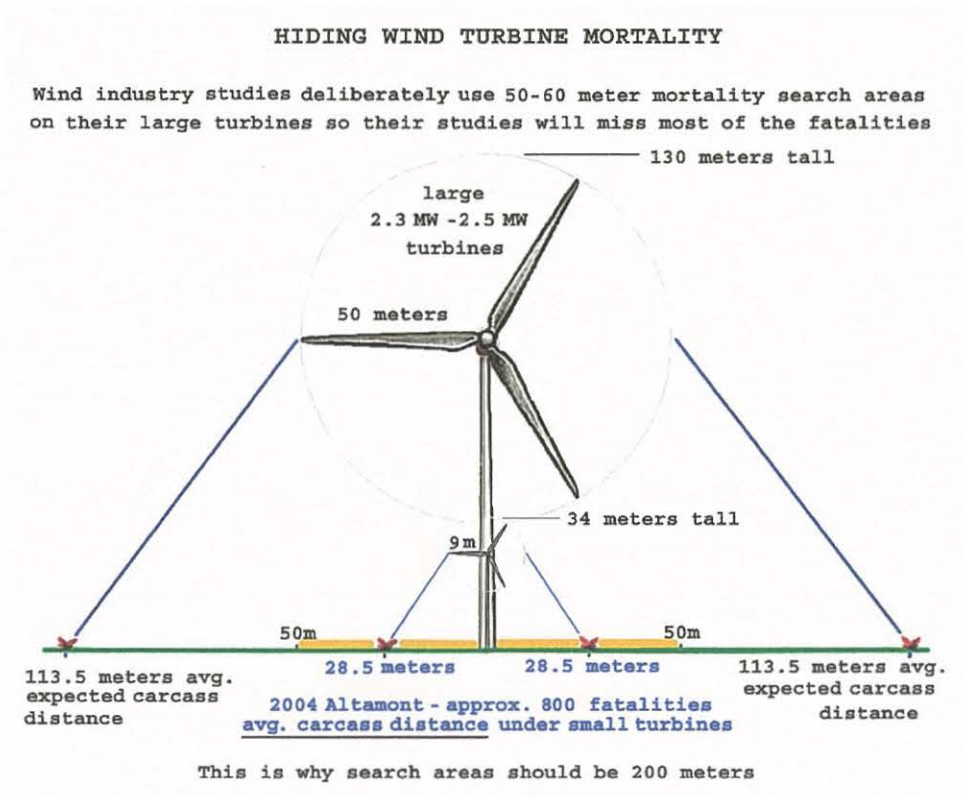
SOLUTIONS

Now that the pause button is on, we request **existing projects** to provide:

Accountability and restitution

- Require repair of aquifers damaged by pile driving and disruption of waters supplies; it will likely require shut downs of turbines
- Overall **independent testing** for acoustic measures and ILFN and sound pressure; creation of new standards based on current information; it will likely end in shut downs
- Independent testing of all transmission facilities and substations; electrical pollution abounds

- Immediate shut down until all compliances are met; can you drive your car without adhering to new pollution standards, for example? Or do you get pulled off the road?
- Creation of new compliance measures based on ***current information***
- Cancellation of the FIT program; or ideally cancellation of contracts as the power is clearly not required for decades to come
- **Independent** surveys of bird and bat kills as well as habitat displacement measures; we will never know completely how grievous the situation is for wildlife and habitat; it has been an ugly "incidental taking", with apparently zero remorse or behaviour change from developers who do their own counts, and marginalize those counts to within the rotor sweep: this is not reasonable and not accurate as animals are flung wide distances, or are scavenged, or frequently captured by wind workers, as the animals lie dying, and are then buried on site



- Restitution for impacted families

We deeply appreciate the opportunity to comment. Thank you for the new direction for the province of Ontario. Thank you for your leadership, for listening, and for the anticipated quick recovery for people, wildlife, and our battered economy. Repeal the GEA, and please include the EPA Section 142.1 (3).

Buckley's it is, and let's take it quickly.

ADDITIONAL NOTES

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https://www.pressreader.com/canada/ottawa-sun/20180921/281608126350311

Lorrie Goldstein: Bad Plan Blown Away

GOLDSTEIN: Good riddance to toxic Green Energy Act

GOLDSTEIN: Good riddance to toxic Green Energy Act

By scrapping the Green Energy Act, passed by former Liberal premier Dalton McGuinty in 2009, Premier Doug Ford i...

By scrapping the Green Energy Act, passed by former Liberal premier Dalton McGuinty in 2009, Premier Doug Ford is ending one of the worst legislative disasters ever inflicted on the people of Ontario.

Ford ran on repealing the GEA and the end of this appalling legislation cannot come soon enough.

The GEA is largely responsible for Ontario's skyrocketing electricity prices.

It's the reason we're paying outrageously high prices for green energy the Liberals didn't need in order to eliminate coal power, which was actually done using nuclear power and natural gas.

The jobs the Liberals promised under the GEA never materialized, according to former Ontario auditor general Jim McCarter in his 2011 annual report.

The GEA made Ontario's energy grid less efficient because it required the province to buy expensive and unreliable wind and solar power from green energy developers under 20-year contracts, before purchasing other forms of energy.

Auditor General Bonnie Lysyk reported in 2016 that Ontario electricity consumers had overpaid $9.2 billion for green energy, because the Liberals ignored the advice of their own experts on how to price it.

The GEA led to the gas plants scandal, because the Liberals had to frantically build new natural gas plants to back up the unreliable power they were getting from wind and solar energy, then scrapped the gas plants planned for Oakville and Mississauga to save Liberal seats in the 2011 election.

As PC Infrastructure Minister Monte McNaughton said Thursday, the GEA took away the planning rights of municipalities, which will now be restored, leaving them without any say in the location of green energy infrastructure.

That deprived Ontarians of natural justice, turning neighbour against neighbour as developers quietly signed deals to lease privately-owned lands in rural communities for massive wind turbines and solar farms, with the

projects then sprung on those communities as a fait accompli, in which they had no meaningful say.

NDP Leader Andrea Horwath, still ranting about Ford cutting the size of Toronto council in half, voted with the Liberals to pass the GEA, a far more sweeping attack on municipal governments.

Under the GEA, the Liberals abdicated from the proper role of government, which is to balance public and private interests.

Instead, they became cheerleaders for the wealthy green energy lobby.

Citizens opposed to green energy projects imposed on their communities faced the impossible task of fighting the industry and the Liberal government.

Documents released under the Freedom of Information Act, reported by the CBC, revealed the Liberals ignored warnings from their own environment ministry that the province needed stricter noise limits on turbines, had no reliable way to monitor or enforce them, and that computer models for determining residential setbacks were flawed.

In 2011, when McCarter investigated the Liberals' renewable energy strategy built around the GEA, he reported his auditors had to start from scratch, because the Liberals, incredibly, "had not recently conducted any audit work on renewable energy initiatives."

McCarter warned the GEA had, "created a new process to expedite the development of renewable energy by providing the Minister (of Energy) with the authority to supersede many of the government's usual planning and regulatory processes ... As a result no comprehensive business-case evaluation was done to objectively evaluate" its financial impacts.

Ford is right to scrap the GEA.

The tragedy is that the economic damage it caused under the McGuinty/Wynne Liberals will be felt for decades to come.

Snapshot to present: TWO LEGAL SURVEYS

https://www.airdberlis.com/insights/blogs/energyinsider/post/ei-item/ontario-repeals-green-energy-act-2009

The Ontario Minister of Energy, Northern Development and Mines recently introduced legislation to repeal the *Green Energy Act, 2009* and its regulations. The *Green Energy Act, 2009* was enacted ten years ago to expand renewable energy production, encourage energy conservation and create jobs in the renewable energy sector. In addition to repealing the *Green Energy Act, 2009*, Bill 34, *Green Energy Repeal Act, 2018*, also includes changes to the *Planning Act* and *Environmental Protection Act* that increase the power of the province and municipalities to reject renewable energy projects.

The repeal of the *Green Energy Act, 2009* will eliminate the Renewable Energy Facilitation Office located within the Ministry of Energy to help proponents navigate renewable energy project approvals. Also repealed will be the requirement that government facilities be constructed, acquired, operated and managed in an environmentally-responsible way, including the use of renewable energy sources, energy and water efficient planning and design, and the transparent reporting of energy and water use and GHG emissions.

Bill 34 re-enacts a limited number of provisions of the *Green Energy Act, 2009* in the *Electricity Act, 1998* that permit the government to create regulations in a number of areas. Until such regulations are enacted under the *Electricity Act, 1998*, however, these re-enacted provisions will have little effect. These sections provide for the creation of regulations:

- To allow for the designation of renewable energy projects, sources and testing projects for the purposes of removing barriers to, and to promote opportunities for, the use of renewable energy sources, and to promote access to transmission systems and distribution systems for proponents of renewable energy projects;
- To require an electricity, natural gas or water distributor to make data available with respect to the consumption or use of electricity, gas or water to persons required to report on energy consumption and water use;
- To allow for the use of designated goods, services and technologies in such circumstances, despite any restriction imposed at law (i.e., the "clothesline law"); and

- To require a public agency to prepare and submit an energy conservation and demand management plan and to achieve targets and meet energy and environmental standards, including standards for energy conservation and demand management.

Bill 34 amends several provisions of the *Planning Act* that will empower the province and municipalities to reject renewable energy projects by:

- Adding a new clause that provides that there is no appeal to the Local Planning Appeal Tribunal (LPAT) in respect of a refusal or failure by a municipality or planning board to adopt or approve requested amendments to an official plan that proposes to authorize a renewable energy generation facility, project, testing facility or testing project;
- Adding a new clause that provides that there is no appeal to the LPAT in respect of an application for an amendment to a zoning by-law if the amendment proposes to permit a renewable energy undertaking;
- Ending exemptions from subdivision control and part-lot control for certain transactions entered into for the purposes of renewable energy generation facilities or renewable energy projects; and
- Ending exemptions for renewable energy undertakings from a number of other requirements, including the application of policy statements, provincial plans, official plans, demolition control by-laws and others.

In addition, Bill 34 amends the *Environmental Protection Act* to enable the government to refuse to approve renewable energy projects where demand for the electricity that would be generated by the project has not been demonstrated to the satisfaction of the government.

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https://www.lexology.com/library/detail.aspx?g=e2f1fdd4-0c55-4d58-91a1-e081ec220193

Blake Cassels and Graydon LLP

Removal of Guiding Principles for Government Facilities

The Act currently provides that in constructing and operating government facilities, the provincial government must be guided by certain principles such as using renewable energy sources, ensuring energy and water efficient planning and design, making environmentally responsible investments, and transparent reporting of the facilities' energy and water use and greenhouse gas emissions. These guiding principles will be repealed and of no further effect

Municipal

Through amendments to the *Planning Act*, Bill 34 will also empower municipalities to prevent unwanted renewable energy project development in their jurisdiction. Currently, renewable energy projects are exempt from many aspects of the *Planning Act*, such as the application of policy statements, provincial plans, official plans, and zoning bylaws. Bill 34 removes these exemptions and further provides that there is no appeal to the Local Planning Act Tribunal (formerly, the Ontario Municipal Board) in respect of a refusal of an

application to amend an official plan to authorize a renewable energy project or to amend a zoning bylaw to permit a renewable energy project.

However, Bill 34 will also revoke all the current regulations under the Act. Without these regulations, many of the above re-enacted provisions are without substance. The province has not indicated whether the regulations will also be reinstated under the *Electricity Act, 1998*, but this remains a possibility.