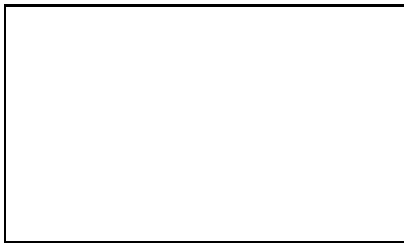


Please file this email and four attachments in case no. 18-0488-EL-BGN.

From: Ed Clark [<mailto:eclark@clouseelectric.com>]
Sent: Thursday, May 24, 2018 4:36 PM
To: Puco ContactOPSB <contactopsb@puco.ohio.gov>
Subject: Seneca County Wind Project

Some items to review. We the local residents are concerned with the government shorting the setbacks to property. and damage to our wells and personal properties along with overall health for the people surrounding these 600 foot windmills. .



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RESPONSE TO WIND TURBINE NOISE COMPLAINTS

by the Ontario Ministry of the Environment and Climate Change

A report on incident records released under Freedom of Information

May 2017

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EXECUTIVE SUMMARY

When the *Green Energy Act* was passed in 2009, then Premier Dalton McGuinty promised that the push toward renewable sources of power generation such as wind power would bring prosperity and health to the people of Ontario. Any concerns about the health impacts, or environmental effects, should be brought forward, the Premier said, to be dealt with.

The truth is, even before 2009, there were problems with land-based, industrial-scale wind turbines. People living near the turbines and associated equipment such as transformers, were experiencing effects from the noise emissions, including sleep disturbance, headaches, dizziness, and more.

After years of hearing complaints from rural Ontario residents, in 2015 Wind Concerns Ontario, a coalition of community groups and Ontarians, requested summaries of noise complaints received by the Ontario government, from 2006 to 2014.

After two years, the documentation provided revealed that there were thousands of formal complaints logged in the Ministry of the Environment and Climate Change's designated complaint tracking system. In the main, the complaints were not dealt with, and some were dismissed outright arbitrarily. In the beginning, at least, it can be seen that some of the public servants in the employ of the Ministry did try.

Responses were narrowly focused on audible noise even though people were reporting "sensation," "vibration" and "pressure." The wind power industry was virtually self-regulating with the Ministry (which referred to the power developers, not the people of Ontario, as its "clients") relying on predicted noise modelling instead of actual noise measurement. Ministry staff was not equipped with proper protocols or guidelines and later, they were not allowed to make "after hours" visits to people's homes, nor did they have proper equipment to conduct assessment to confirm compliance with regulations.

Throughout the incident reports, the District Offices report missing protocols for testing audible noise and confirming compliance with the Renewable Energy Approval (REA) standards. The compliance testing standards that were eventually issued proved unworkable and are currently under review.

Policy decisions were made arbitrarily and without foundation: it was decided that because the power developers' noise modelling showed no one could hear turbines beyond 1,500 metres, therefore there was no need to respond to a complaint if more than that distance was involved.

Instead of a "healthy future" for all, the result of the government's push for power generation from wind meant that rural Ontario residents were exposed, without consent, to the audible and inaudible noise emissions from industrial machinery, while their government was neither prepared nor willing to respond to their complaints.

In light of these findings, Wind Concerns Ontario recommends:

1. No further approvals or Notices to Proceed be issued for wind power projects
2. Testing and protocol gaps for wind turbine noise measurement must be addressed
3. The reporting process must be revised so that resolution of problems is the measure of success
4. Tougher noise standards for wind turbines, covering both audible and inaudible noise, must be developed and enforced

WIND CONCERNS ONTARIO

INTRODUCTION

When the Green Energy and Green Economy Act was passed in Ontario in 2009, the government announced the initiative with promises of jobs, prosperity and a clean, safe environment for all.

Minister of the Environment John Gerretsen specifically promised the changes made by the act would “protect our environment, combat climate change and *create a healthier future* for Ontarians.”¹

The government also promised that regulations for setbacks between the industrial-scale wind turbines and Ontario residents’ homes would be based on science, for health and safety. In answering concerns about the wind power installations, Premier Dalton McGuinty said “... it’s okay to object on the basis of safety issues and environmental standards; if you have real concerns there, put those forward and *we must find a way to address those*.”² More recently, in response to a question in the Legislature on April 12, 2017, Minister of Environment and Climate Change³ Glen Murray stated that standards are in place and when people called, people from his Ministry “respond quickly and they enforce the law”.⁴

The fact is, even before 2009, when these statements were made by the government, there had already been concerns and reported complaints about the noise emissions from wind turbines installed and operating prior to the *Green Energy Act* which accelerated the roll-out of this technology. Wind Concerns Ontario received many communications from community groups and members about these noise complaints.

After nine years of huge wind power projects operating in Ontario, and more being approved, this question was being asked in Ontario’s rural communities forced to “host” wind power projects: **what was being done** about the reports of excessive noise and other results from exposure to wind turbine noise? How was the Ontario government addressing concerns about safety and environmental issues, as Premier McGuinty had promised? Does the Ministry of the Environment and Climate Change (MOECC) respond quickly with enforcement actions, as claimed by the Minister?

To find the answer, in early 2015 Wind Concerns Ontario filed a Freedom of Information (FOI) request with the MOECC asking for:

- List of all complaints regarding operating wind turbines; and
- Copy of all master incident reports,

The FOI request was formulated carefully with the help of an environment-specialist lawyer and covered the period between January 1, 2006 and December 31, 2014.

¹ News Release September 24, 2009. Available at: <https://news.ontario.ca/opo/en/2009/09/green-energy-act-will-attract-investment-create-jobs.html>

² Toronto Star, February 11, 2009. “McGuinty vows to stop wind farm NIMBYs.” Available at: https://www.thestar.com/news/ontario/2009/02/11/mcguinty_vows_to_stop_windfarm_nimbys.html

³ In 2014, the Ministry of the Environment (MOE) added “and Climate Change” to its name. For consistency, this report uses the current term (MOECC) except in quotes from the Master Reports which refer to the “MOE” which was correct at the time of the report. Both terms refer to the same Ontario Environment Ministry.

⁴ Legislative Assembly of Ontario, Hansard Transcripts for April 12, 2017.

The request was finally fulfilled after almost two years. The fulfillment process required a formal appeal through the Office of the Privacy and Information Commissioner; the Commissioner had instructed the Ministry to comply with a deadline, failing which an Order to comply would be issued.

Wind Concerns Ontario received documentation indicating almost 3,200 reports of excessive noise and other problems, and copies of Master Incident Reports totalling 458 pages. In some of the Master Incident Reports, there are dozens of “subordinate” reports including one Master file with 90 incidents. Some of the Master files contain information that callers were told to maintain diaries of the noise, and so they only called in occasionally to report on incidents in total, not every day that there was an occurrence of excessive noise.

THE FINDINGS

The documentation released by the government for the years 2006 to 2014, document almost 3,200 complaints made by Ontario residents, during the time period for the reports requested.

	Incident Reports	Master Incident Records
Total	3,180	100

This figure represents *only* the number of complaints formally logged in the Ministry’s complaint tracking system coming either through the Ministry’s “Spills” Action Line, which has a mandate to receive complaints about pollutants into the environment or by staff in the District Offices, and *only* those incidents given a reference number, and provided to WCO. Reports filed with the wind companies are also logged but in most cases, do not appear to have been included in this record. Also, some complaints linked to Masters are not included in the summary. This includes some complaints for which WCO members provided incident numbers.

The reports released to Wind Concerns Ontario via Freedom of Information related to the noise emissions from wind turbines are classed as “Pollution Incident Reports.” There are more reports not yet released: 33 Incident Reports from the Ernestown wind power project were promised, but at the time of writing this report, have not yet been received.

Despite these apparent gaps, there appears to be sufficient numbers and diversity of complaints to provide a reasonable base to evaluate the response of the MOECC to complaints about wind turbines over the period. The response by the Ministry to these reports logged in the complaint tracking system is summarized in the table below.

Field Response	Number	Per Cent
None	1,730	54%
Planned	978	31%
Deferred	446	14%
Priority	24	1%
Other	2	0%
Total	3,180	100%

In over 50 percent of the incidents reported, the Ministry reported that it made “no field response” to the specific complaint. “Planned” or “Deferred” responses made up 22 and 13 percent, respectively, and only 1 percent of the incidents were “Priority” response status.

Residents living among wind turbines were advised to contact the MOECC if they had a problem with the wind turbines. When they called the “Spills Action Centre” at night to report that wind turbine noise was preventing them from sleeping, they expected a specific and timely response to their complaint. The data shows that the MOECC response fell far short of these expectations with most responses taking place sometime after the complaint was logged. In some cases, there was a specific response, but more often that was part of general monitoring of wind turbine noise in an area when staff resources were available.

No definitions of what these responses entail, or what triggers each type of response, was provided in the documentation, or is readily available from the Ministry. Response to a telephone query to the Ministry on February 23rd, 2017, to a Provincial Officer with a district office, indicated that the type of response to complaints was largely determined by District staff and that work is underway to define the type of response required for various situations or circumstances. Completion of that work is anticipated in 2017— eight years after the Green Energy Act, and eleven years after large industrial-scale wind power projects were developed in Ontario.

Based on the data provided to Wind Concerns, one must conclude that resolution of most wind turbine complaints registered with the MOECC was not a priority for the Ministry.

TRANSPARENCY: ZERO

Wind turbine noise complaints are classed as “Pollutants” and Ontario citizens living near wind turbine projects have been instructed to report any excessive noise or other effects to the Spills Line or Spills Action Centre, as they would for other forms of pollution in the environment. They could also report the situation to the local District MOECC during normal business hours. All complaints received through either channel, plus notes on actions taken were logged in a common complaint tracking system. (See sample incident report in Appendix.)

The MOECC issued an annual report on complaints up to 2009, but the public reporting excluded wind turbine noise incidents. An inquiry by Wind Concerns Ontario resulted in the information that the government intends to restart posting of Pollution Reports via an “Open Data Catalogue” sometime in 2017, but that reporting process will still *not* include complaints on wind turbine noise.⁵

⁵ Email from Shannon Seko, MOECC, February 22, 2017.

Wind Turbine Noise vs. Other Pollution Reports

Year	Land	Water	Air	Total ⁶	Wind Turbine	% Wind Turbine ⁷
2006	2,208	1,097	627	4,541	47	1%
2007	2,078	1,039	893	4,450	113	3%
2008	2,303	1,270	1,030	5,067	34	1%
2009	2,146	1,162	1,442	5,154	459	9%
2010	N/A	N/A	N/A	N/A	521	10%

It appears wind turbine noise reports were maintained at District level and no regional or province-wide summaries were prepared. According to the Incident Reports received by Wind Concerns Ontario, the number of wind turbine noise complaints grew rapidly, many of which were simply gathered in master reports (or perhaps not documented at all). By 2009–2010 they represented a significant number relative to other reported pollution complaints.

WIND TURBINE NOISE IN CONTEXT

While the terms popularly used for wind power projects are “windmills” and wind “farms,” the fact is that rather than silent machines existing peacefully in bucolic rural landscapes, industrial-scale wind turbines are power generators, and wind power projects are an industrial use of the land that emit a broad range of both audible and inaudible noise.

In a recent paper by Jerry Punch (audiologist professor emeritus at Michigan State University) and Richard James (acoustics consultant/adjunct professor at Central Michigan University), the authors state that wind turbine noise “has unique acoustic characteristics when compared to other environmental noises. ... There is voluminous evidence, ranging from anecdotal accounts from around the world to peer-reviewed scientific research, that audible and inaudible low-frequency noise and infrasound from IWTs [industrial wind turbines] leads to complaints ranging from annoyance to AHEs [adverse health effects] in a substantial percentage of the population. Although sleep disturbance is the most common problem cited, a variety of other health problems has been reported by numerous reputable sources.”⁸

The table that follows organizes the types of noise emissions from wind turbines and the health effects that may be experienced by some of the population exposed.

⁶ Total does not include wind turbine noise complaints.

⁷ Wind turbine complaints as percentage of total other complaints. As no other data are available for 2010, wind turbine complaints expressed as a percentage of 2009 other complaints.

⁸ Jerry Punch and Richard James, *Wind Turbine Noise and Human Health: a four-decade history of evidence that wind turbines pose risks*. Published in *Hearing and Health Technology Matters*, October 2016, page 53.

Types of Noise	Definition	How Perceived	Health Effects
Audible Noise	20 Hz to 20,000 Hz	Normal Hearing	Annoyance* Sleep disturbance
Low Frequency Noise	20 Hz to 160 Hz	Normal Hearing	Annoyance* Sleep disturbance
Infrasound	Below 20 Hz	Felt by whole body	Sleep disturbance Pressure in ears Tinnitus Headache Nausea Dizziness
Noise Characteristics	Cyclical Tonal	Pulsing sounds Whooshing sounds	Increases impact of noise Compensate with 5 dB(A) penalty

**Notes: Annoyance is used as the medical term meaning chronic stress. Chronic sleep disturbance is tied to a wide range of medical conditions.*

SCOPE OF NOISE CONSIDERED

Initial proposals for what became regulation 359/09 under the Green Energy Act had a requirement for infrasound and low frequency noise monitoring. However, the wind industry trade association, the Canadian Wind Energy Association or CanWEA took exception.

"Conditions of Approval" - CanWEA takes issue with the requirement for infrasound monitoring as the current scientific evidence clearly shows this is not an issue. Studies across the world have shown that turbines do not produce infrasound at levels anywhere near those that can have an impact on humans. No peer-reviewed study has ever established a link between infrasound from turbines and human health, therefore CanWEA submits that the proposed requirement for infrasound or low frequency noise monitoring as a condition of the REA be removed.⁹

These comments Ignored work on infrasound by NASA scientist Dr. Neil Kelley which was published in peer-reviewed journals between 1982 and 1988.

The MOECC accepted the CanWEA recommendation, and removed monitoring of low frequency noise and infrasound from the final version of the regulations.

WIND POWER DEVELOPER RESPONSIBILITIES

The Renewable Energy Approvals (REA) issued by the MOECC for wind power projects give primary responsibility for resolving wind turbine complaints to the operator of the project. In general, REAs require the power developer/approval holder to:

⁹ Robert Hornung, CanWEA's Supplemental Submission, EBR Posting 010-6516, July 24/09

Report, act on and track complaints – report any complaints received to the MOECC within two business days; address each incident and prevent a similar occurrence in the future; and maintain logs of wind turbine operation and complaints for five years

Confirm REA compliance – file report with MOECC confirming the project operates in compliance with the REA terms regarding noise emissions.¹⁰

The Master Incident Reports released to WCO show limited evidence that complaints directed to the wind power companies were incorporated into this tracking system. The Master Incident Records related to the Unifor (CAW) turbine in Port Elgin are an exception to this statement: Master Incident Records have been triggered by Unifor’s forwarding of batches of complaints to the MOECC with the Master Incident Record with the notation that this information was forwarded as a condition by “condition 4 of ECA #3991-7P8KPZ”.

The standard REA terms also require the wind companies to maintain records of all complaints received, and a description of measures taken to address the cause of each incident to which the complaint relates and to prevent a similar occurrence in the future. That requirement is absolute and does not allow “no field response” or “deferred field response” options like those reported by the MOECC.

The terms also required that these records be available for review by MOECC staff. Outside of the Unifor (CAW) turbine, there is no evidence of any MOECC follow-up on these records. In the case of repeated complaints, which did not have the resolution required by the REA terms, this raises the question of why the MOECC did not follow up on the resolution status of these complaints.

THE MOECC COMPLAINT PROCESS

The process for reporting excessive wind turbine noise to Ontario’s government has two entry points: the Spills Action Centre (also known as the “Spills Line”), and the Local District Office of the MOECC.

The Spills Action Centre is an Ontario-wide, toll-free telephone line, available 24 hours a day, every day. Handling a wide range of environmental concerns, the Centre is supposed to create an Incident Report for each call, and then hands it off to the District Office for follow-up. It can initiate a “Priority Field Response.” (There seem to be exceptions to this process; residents affected by the South Branch project in the Municipality of South Dundas who called to report excessive wind turbine noise were not provided with an incident report number. Although the MOECC did conduct noise testing in response to the complaints in 2014, the situation has not been included in the information released as part of this FOI request.)

The local District Office accepts calls during normal business hours, and creates Incident Reports. The office does an initial assessment of the issue at hand within its policy direction, and staff can conduct field visits during business hours or after hours. The reports are updated on information gathered and any actions taken. Staff can recommend enforcement actions, and liaise with other agencies, as needed.

Regional Offices support District Offices, and provide staff, equipment and technical expertise. They can issue directions, approvals or orders under the *Environmental Protection Act*.

¹⁰ Response of MOECC Owen Sound Director to the Clerk of the Township Ashfield-Colborne-Wawanosh in response to questions about process for wind turbine complaints.

Head Office groups are: the Investigations and Enforcement Branch (IEB); the Environmental Approval Branch (EAB); and the Environmental Approvals Access and Service Integration Branch (EAASIB). These groups provide engineering assessments, technical review and coordination of environmental approvals as well as providing training to field staff.

WIND COMPANY RESPONSE TO COMPLAINTS

The process created by the Ontario government designates the wind companies as the prime responders to wind turbine complaints. The approval authorities make them responsible to “address the causes” and to “prevent future occurrence”.

Example 1: Unifor (CAW) Turbine

The Port Elgin wind turbine originally erected by the CAW at their recreation complex in the community, now operated by Unifor is one example where the operator did try to address the issues:

- *Unifor has ordered shadow flicker software to be installed on turbine which will automatically shut down during times when shadow flicker may be present. Source IR # 5632, Aug. 13/2014*
- *When winds are from the SE, the company voluntarily schedules idle times due to past complaints. Source: IR #8034, May 5/2014*

While these solutions did not solve all the complaints created by this wind turbine because of the close proximity of turbine to Port Elgin, they do reflect a different response than described in the other Master Incident Reports.

Example 2: Wainfleet HAF Project

The company’s response in the Wainfleet HAF project represents the opposite extreme. Comments in the Master Incident Report indicate that the company had received this complaint and proceeded to confirm that their equipment was operating properly. There is no indication of any field response or assessment of actual noise.

- *Please find attached a complaint from XXXXXX. I have checked the wind orientation this morning and throughout the day and it is out of the North West which is a rare wind direction for this site. I confirmed remotely that the turbines are yawed correctly and functioning as expected. Source: #7775-9PJ5G8 – Oct 2/2014*

The Niagara Office of the MOECC logged this comment in the Master Incident Report with no evidence that they responded to the company’s response to the complaint.

Similarly, across all the Master Incident Records, there is no indication that the MOECC routinely reviewed the complaint logs maintained by the wind company to confirm that they following up on complaints and developing solutions as required by a condition of their REA.

IN THE BEGINNING: INITIAL ACTIONS BY ONTARIO GOVERNMENT

Premier **Dalton McGuinty** – “...we remain committed to *protecting the health of our people* and our precious environment.” Letter to Prince Edward County, Sept 9, 2011

Premier **Kathleen Wynne** – “Your new government sees a great province ... where *each and every one of us is safe, and healthy* and cared for.” Source: Throne Speech, Feb. 19, 2013

From the details of the Master Incident Reports, it can be seen that, in the beginning at least, initial reports on site visits following resident reports of excessive noise describe noises that largely validate resident complaints. It is also evident that Ontario citizens believed in the process, and made these reports with the expectation in good faith that action would be taken.

In the Brookfield Gosfield Comber project, field staff confirmed the resident’s noise complaint but deferred enforcement action on the assumption that the project operator would provide a resolution consistent with their responsibilities under the REA.

Site visit shows that complainants are exposed noise (blade whoosh, turbine growl and rock tumbler) and shadow flicker. No enforcement action pending completion of abatement plan by company. Source: Brookfield Gosfield Comber IR 8685 - Dec 7/2010

Comments from provincial enforcement officers confirm that MOECC staff were aware of turbine noise issues from the initial stages of the wind turbine program. At the same time, the MOECC was proposing regulations for implementation of the Green Energy Act that were promoted as being an “approach ... based on sound science and will improve the environmental approval process for renewable energy projects, which will be protective of human health and the environment”.¹¹

- *...noise emissions from the wind turbines **are causing an adverse effect**.* Source: IR 1884-835D5Z, Mar 1/10
- *Waiting for approval to proceed with Provincial Officer Order ... or for Regional Director to issue Director’s Order ... suggest no further action at this time. ... Order process is proceeding to whatever conclusion ultimately manifests itself.* Source: MIR 1717-83CB6P, Melancthon, August 2010
- *review of 11 acoustic audit reports prepared by company indicated that 9 of 11 reports concluded that sound levels discharged into the environment are exceeding or are likely to exceed approved sound level.* Source: IR 7465-8KCC68 Aug 2/11.

It also appears that, initially, Ministry staff was prepared to undertake enforcement activity, as occurred for reports of excessive noise in the Melancthon II wind power project. That project started operation in 2006; a total of 873 complaints were documented for all phases of the project, starting in May 3/06 (until end of 2014 in our request). The MOECC responded to complaints and addressed audible noise issues. Excerpts from staff notes confirm problems and show initial enforcement actions.

¹¹ Source: MOECC EBR Posting 010-6516, July 24/09.

- Mar/10 Draft order prepared and provided to company for review. Source: IR 7465-8KCC68 Aug 2/11.
- Company voluntarily implements plan to reduce noises from turbines where exceedances were modelled. Source: IR 7465-8KCC68 Aug 2/11.
- Nov/10 - MOE measured exceedances at one home. Company informed that noise reduction measures were needed. Source: IR 7465-8KCC68 Aug 2/11.
- Jan/11 - Company implemented reduced noise operating mode for the time period from 7:00 pm to 7:00 am. Source: IR 7024-8HFC5Y Jun2/11.
- Jun/11 - Ministry staff continue to monitor night-time noise at a number of complaints residences in and around facility. Source: IR 7024-8HFC5Y Jun2/11.

Despite the reports of noise complaints, and Officer confirmation of the presence of noise, there appears to be no change to regulations, or to the reliance on computer models to predict wind turbine noise in the wind power approval process.

In fact, while reports such as those excerpted were being made, the Ontario Ministry of the Environment was represented by legal staff at citizen appeals of newly approved wind power projects, who insisted that regulations were adequate, and there was *no evidence* of any health problems as a result of the wind turbine noise emissions. The MOECC relied simply on the power developers' noise assessment studies (i.e., predicted noise modelling) and were satisfied they complied with legislated requirements.¹²

THE MOECC STRATEGY SHIFTS

Following an initial phase where response seemed to be genuine and actual action was at least possible, the response by the MOECC appears to evolve, as is evident in subsequent comments on the Melancthon power project situation where the staff began relying on computer modelling of noise and the wind company's compliance audits to respond to complaints about noise.

- Modelling provided to MOECC during approvals process indicates that noise emissions from the WTG's will be less than the 40dBA at wind speeds less than 6 m/s. Nighttime WTG monitoring completed for this facility up to February of 2015 did not indicate any observed exceedance of the facility REA limits\NPC232 guidelines. Audits required by the facility REA indicate compliance with applicable limits in the facility REA. Source: IR 0630, Jul 15/14

Later complaints were responded to with notes referencing resource issues that restricted after-hours follow-up — the exact time period when wind turbine noise most affected the residents.

- Subsequent to Feb/15, **no additional resources have been made available** for additional after hour WTG compliance monitoring/observation/measurements. Source: Melancthon, IR 0630, Jul 15/14

¹² Testimony of Denton Miller, MOECC in *Drennan vs Director*, 13-097/13-098 at [128] "The Director states that Mr. Miller's evidence outlined the approach used by the MOECC and, in particular, the principle of 'predictable worst case,' which results in a conservative prediction of noise levels..."

- ***“no resources have been made available for any after-hours WTG compliance monitoring/observation/ measurements ... no resources to confirm or deny noise exceedance... suggest close this IR.”*** Source: Conestogo, IR 6238, Nov 20/15

More recent incident reports, revealed in documents received by individual residents through FOI requests, indicate a focus on educating residents living near wind turbines. Responses to early complaints relative to noise coming from K2 turbines even in the testing phase before actual commercial operation were documented as follows.

Discussed the MOECC response to complaints as outlined in Compliance Protocol for Wind Turbine Noise. A copy of the document was provided.

Asked them to document ambient conditions when noise is a problem (i.e. wind strength and direction, temperature, precipitation). Need to establish a pattern for MOE to undertake measurements under worst case scenario.

Report issues and concerns to K2. Company required to record all complaints alleging adverse effect ... and a description of the measures taken to address complaint and to prevent a similar occurrence in the future.¹³

Variations on this wording were common across all Master Incident Reports related to turbine noise from the K2 project.

Overall, the comments in the Incident Reports show that MOECC staff initially focused on trying to understand the issues and working toward resolution, the approach shifted to a sole focus on confirming compliance with Renewable Energy Approval (REA). The approach seems to have continued to evolve becoming a response based on issues management, rather than acknowledgement of a problem and resolution.

Few definitive actions were undertaken to address concerns. Over time, people stopped making complaints with the result that the MOECC closes their files without resolution. For example, one resident near the Clear Creek/Cultus/Frogmore wind power complex reported excessive noise and other problems 73 times between August 2009 and September 2013. The incident report, however, indicates no follow-up and the file was closed in March 2014. The reason given:

Due to drastic reduction in the number of reports. Source: Clear Creek IR 2018, initiated September 10, 2009

COMMON APPROACHES TO CITIZEN COMPLAINTS

The changing responses shown in the documentation suggest that there was a policy shift with several new patterns evident in staff responses.

Limited follow-up

Between June 2009 and September 2014 at Wolfe Island, there were 21 complaints reported. All were classed as Pollutant Reports where “No Field Response” was reported. Similarly, for the HAF/Vineland

¹³ K2 Project, IR 4458, Mar 30/15, from Patti Kellar FOI Request.

project, there were 61 complaints, all of which merited a “Planned Field Response” but only one actual field measurement reported and then, staff reported “10 of 16 measurements were not environmentally viable due to high humidity.” (Source: HAF IR 1458, Jan. 15, 2015)

Blame other noise sources

Another response was to counter residents’ reports with the claim that the excessive noise and other effects were from other sources such as traffic noise (in rural areas). In one extreme example, the MOECC staff person blamed a gas generator at the base of the wind turbine and instead recorded “Background traffic noise observed.”

After the gas generator was removed, the resident continued to complain of excessive noise like a “jet engine”. This prompted a site visit when the resident reported that the wind turbine noise was not bad. Nevertheless, the staff person confirmed hearing low levels of noise that he attributed to unidentified traffic while the resident stated that it was the same “jet airplane” noise that he hears except at a lower level.

An intermittent swooshing sound coming from the turbines at an intensity rate on a scale of 2 out of 10. There was a background sound that sounded like traffic in the distance at a intensity rated on a scale of 3 out of 10. It was difficult to determine where the traffic sound was coming from although the resident indicated that it was the ‘jet airplane’ sound that he hears from the turbines Only one turbine out of the two were in operation at the time.” Source: Talbot Wind IR 7407, January 19, 2011

Use computer noise modelling over actual noise measurement

The accuracy of noise models for wind turbines has been questioned, particularly as many factors can affect the noise produced such as weather conditions and topography, to name just two. Nevertheless, the MOECC relies on the noise models presented by the wind power developers from the wind turbine manufacturers as a basis for their response to citizen noise complaints. The Ministry does not automatically perform actual noise measurement. A staff note on the Enbridge project that “the noise modelling indicates no exceedances,” (Source: Enbridge IR 2172, April 12, 2011) was typical of the response to complaints in many incident reports across multiple projects.

Use unproven assumptions to reject complaints

Follow-up on noise complaints from residents was limited to those complaints from people living less than 1,500 metres from a wind turbine or group of turbines, as explained in these excerpts from staff reports.

- *The MOE EAASB is currently working on “Guidelines for Wind Farm Noise Compliance Evaluation, Protocol for Complaint Assessment and Acoustic Measures”. It outlines a decision matrix for screening and assessing noise complaints from wind turbines and concluded that ‘Residents living greater than 1500 metres from a turbine would not be impacted by noise, therefore, the MOE will not get involved with noise complaints from residents living more than 1500 meters from a wind turbine. Source: Erie Shore, IR 7841, July 11/11*
- *Will not take further actions as the residence is outside the turbine’s buffer area. Source: Enbridge IR 8881, Feb 13/11*

The basis for this policy decision is unclear, and not supported by the current literature.

Testing focused on audible noise

The MOECC relied solely on audible noise testing, as per a staff note from the Ripley project: *“Explained that the MOE is responsible for audible noise through NPC regulations.”* (Source: Ripley IR 7016, Oct 3/09)

This was true even when the complaint suggested that other types of noise such as sound pressure waves were the issue for the person or persons reporting. People reported sensation rather than noise, and used words such as “vibrating” and “pulsing.”

- *ringing in ears, muscle pains and feelings as though his skin was crawling. No audible noise.* Source: Ripley IR 7016, Oct 3/09
- *described a whooshing. Bed is vibrating.* Source: Melancthon, IR Apr 24/10
- *a pulsing roaring train.* Source: Melancthon, IR 0435, Sep 4/11
- *sounds like a jet engine roaring.* Source: Melancthon, IR 5250-95YCJG, Mar 20/13
- *described as a beating pulsing sound.* Source: Melancthon, IR 6371-8VS8F8, Jul 1/12.
- *house vibrating...* Source: Enbridge IR 8881, Feb 13/11
- *banging noise from turbine vibrations could also be felt.* Source: Unifor (CAW), IR 8047, May 1/14
- *loud rhythmic whoomp noise.* Source: HAF, IR 5244, Jun 14/14

While these continued complaints indicate that the issues were not related to issues with audible noise, the MOECC maintained a narrow focus on assessment of audible noise, despite their responsibilities under Section 14.1 of the Environmental Protection Act to manage all discharges that are not covered by an approval.

... despite any other provision of this Act or the regulations, ... a person shall not discharge a contaminant or cause or permit the discharge of a contaminant into the natural environment, if the discharge causes or may cause an adverse effect.¹⁴

Ignored Cyclic or Tonal Characteristics

The MOECC has very detailed technical guidelines to direct field staff on how to conduct noise measurements in the field. These apply to all types of noise testing that they do, including noise from factories. Over time, specific rules evolved for wind turbines.

The generic guide for noise testing directs staff to add a 5 dB(A) penalty when noise has specific qualities. The following section is from a short technical specification called NPC-104 which outlines when the actual sound levels measured should be adjusted. Only one adjustment can apply to any specific measurement.

4. Adjustment for Special Quality of Sound (1) Tonality

¹⁴ Revised Statutes of Ontario, Environmental Protection Act, 1990, c. E.19, s. 14.1.

If a sound has a pronounced audible tonal quality such as a whine, screech, buzz, or hum then the observed value shall be increased by 5.

(2) Cyclic Variations

If a sound has an audible cyclic variation in sound level such as beating or other amplitude modulation then the observed value shall be increased by 5.

Many complaints received by the MOECC include descriptions of one or both sound qualities. Incident Report #4668-86S7VX on Melancthon is an example of a complaint about “a loud rumbling and whooshing noise”. “Whooshing” is a term frequently used to describe noise emissions with a tonal quality.

The staff comment in the Incident Record acknowledges this is a non-standard noise.

Observations and measurements by GDO Staff during 2010 indicate that noise emissions from the wind turbines are at or below 40 dBA, (utilizing current “interim” monitoring procedure and not accounting for the cyclic and/or tonal nature of noise emissions from the turbines). Source: Melancthon IR 4668-86S7VX, Jun 26/10.

Essentially this indicates that if the staff member had completed testing, and NPC-104 would normally suggest that the addition of a 5 dB(A) penalty for the type of noise being assessed, i.e., if he had a measurement of 38 dB(A), he would increase this to 43 dB(A) which would exceed the allowable limit of 40 dB(A).

The next statement in the Incident Record indicates that this was not an option because of the management of the West Central Region and the Environmental Approvals and Access Branch, which provided technical direction with regard to tonal or cyclic noise.

*Based on Direction from the Director WCR and direction given by EAAB (that WTG noise emissions are **not to be considered tonal or cyclic**), there appears to be no noise emissions above the NPC-232 C of A limits. Source: Melancthon IR 4668-86S7VX, Jun 26/10*

Without the tonal or cyclic adjustments, the turbines were therefore determined to be in technical compliance despite the complaints from the residents.

Focus on External Noise

The citizen reports show that many complaints were related to noise levels experienced *inside* their homes. Noise standards assume that noise is absorbed by the walls of houses; however, lower frequency noise is not absorbed by house construction materials. Clearly, testing was needed to address complaints about the specific noise and other sensations being experienced in the interior of homes.

NO PROCEDURE FOR ASSESSING COMPLIANCE

The fact is, industrial-scale wind power projects are approved in Ontario with no procedures in place to assess compliance with the regulations. This clearly caused problems for MOECC staff who were trying to respond to complaints, as indicated in these excerpts from staff reports. (Emphasis is ours.)

- EAAB [now the Environmental Approvals Access and Service Integration Branch] *concurs with consultant conclusions that **it is difficult to accurately assess compliance with noises limits in***

the COA. **There is no existing procedure** to conduct an adequate noise audit for the purposes of assessing compliance. Source: Ripley IR 7016 Aug 25/09

- Site visit shows that complainants are exposed noise (blade whoosh, turbine growl and rock tumbler) and shadow flicker. **MOE currently has no standards** for monitoring noise. Await EAAB determination of noise monitoring methodology and adverse effects. Source: Brookfield Gosfield IR 8685 - Dec 7/10
- ...audits indicating compliance with REA found to be incomplete... EAB/EASIB have not rejected the reports... **Staff have no options** to address complaint. Source: Conestogo Wind IR 6238, Nov 2/15

The lack of preparation for the implementation of the wind turbine program is also illustrated by the response to a complaint made against the Kruger Port Alma in Chatham-Kent. Master Incident Record 7605-7UNGJF documents the challenges experienced by staff in the Windsor office in understanding how the staff were to respond.

- 2009 August 6 - ack [acknowledge] email sent to Kruger Energy
- 2009 August 17 - email sent to Vic Low [Supervisor, Air/Noise, EAAB] asking for his help in review.
- 2009 August 24 - IEB [Investigations and Enforcement Branch] referral by Dave R. returned until MOE has a compliance strategy
- 2009 August 25 - Netmeeting with SCB re Wind Farms: Speak with Gary Tomlinson in Guelph
- 2009 August 27 - Wind Farm training at SCB [Sector Compliance Branch]. DR and I speak with Vic Low at Wind Farm training. Will look at the email and get back to me. EAAB has other priorities so response may be delayed.
- 2009 September 10 - email to Vic Low
- 2009 October 15 - email to Vic Low
- 2009 November 5 - email to Vic Low
- 2009 November 16 – emails with AH, SCB to be in the area Tuesday 17th-Thurs 19th
- 2009 December 21 – update IDS with EAAB [Environment Approvals and Access Branch] response to noise report received

Using the response matrix provided by the EAAB, the Master Incident Record indicates that staff determined that no further action was required (probably because the resident lived beyond 1,500 metres from the turbine. Accordingly, the record was closed on January 7, 2010 with no field response indicated.

INTERNAL DISCUSSION ON STANDARDS

As seen above, the Guelph District Office was initially aggressive in following up on residents' complaints, confirming in many cases that their field observations validated the complaints. These field observations formed the basis of 2010 memorandums sent by these Environmental Officers to the Guelph District Manager. They were recommending critical changes in the Regulations and Ministry practice to address the problems that they were observing:

- Field observations confirm tonal quality and the setback calculations should be adjusted to include the standard 5 dB(A) penalty for tonal noise.
- The setbacks should also be increased to reflect the +/- 3 dB error rate present in noise models in addition to the +/- 2 dB error rate in turbine noise emission estimates. This would mean that setbacks should be based on 35 to 37 dB(A)

- *The current model only considers noise from one turbine and the MOECC needs process to calculate noise impact from multiple turbines on a single standard.¹⁵*

Their conclusion was that “Compliance with minimum setbacks ...will result in adverse effects contrary to Subsection 14.1 of the EPA.”

Despite these clear recommendations for changing regulations to protect Ontario residents based on the MOECC’s own field observations, no changes in the regulations were made and the MOECC continues up to the present to approve projects that the Ministry knows will place turbines too close to rural residents.

QUALITY OF RESPONSE TO NOISE COMPLAINTS

While Ontario citizens were calling to complain about excessive noise expecting the environment ministry to respond, the fact is, according to the information released under Freedom of Information, the response times could be long. Moreover, site visits were scheduled based on staff availability and frequently visits to homes took place when conditions were different to the circumstances in which the complaints were made.

For example, for this complaint made from a resident in the Ripley power project, the original report was made in January with the first site visit occurring two weeks later, and under very different meteorological conditions.

Initial Complaint		Site Noise Assessment		
Timing	Wind	Timing	Wind	Noise
Jan 20/09	N 5.6 m/s	Feb 3/09	ESE 2.8 m/s	35 dB
		Mar 11/09	WSW 15.2 m/s	55 dB

Source: Ripley IR 7016

In other cases, noise levels exceeding the 40 dBA limit for wind speeds up to 6 m/s were observed, but no action was taken.

There seemed to be a narrow focus on compliance with the regulations, even though staff confirmed the validity of the resident complaints. In other words, staff could see that there were problems, even referring to what they were seeing as “adverse effects” but they were hamstrung by a rigid insistence on limiting response to compliance.

This is illustrated by these staff reports for a single location.

- *Unable to measure exceedances of COA/NOC232 noise limits. Staff however noted that noise emissions from the transformer(s) appear to be causing adverse effects inside the homes. It appears that low frequency noise emissions are sympathetically vibrating the homes or that homes are not effective in the blocking low frequency noises emissions.*

MOE Policy is that no contravention is considered to occur if the applicable standard has not been exceeded. In this case, the applicable standard does not appear to have been

¹⁵ Hall/Glassco Memorandum, Apr 9/10. Obtained by Carmen Krogh, via FOI request.

exceeded...however an adverse effect still appears to be occurring due to the operation of the transformer(s).

Complaints continued to be received on a regular basis and the GDO staff have recommended the issuance of a Provincial Officer Order or a Director's order to require the company to take further action to abate the low frequency noise emissions from the transformers such that the adverse effects complained of are no longer occurring.

The West Central Region Director has indicated that at present, as there is no demonstrated/ measured exceedance of NPC-232, that there will be no further action on this file. Source: Amaranth Transformer Station, IR 4722 – 83ZE6G, Mar. 29/10

- *District staff have recommended issuance of an order complying the company to take further abatement actions. Staff is awaiting further direction on whether to proceed with this order. Source: Amaranth Transformer Station, IR 3143 – 87E4V, Mar. 3/10*

The Incident Report was closed with no further actions indicated, on Mar 30, 2010.

In another instance, the citizens were clearly distressed and frustrated by Ministry inaction.

Caller sent in email stating: "We have not been able to sleep the past three nights. We have head aches, ears ringing, woke up during the night twitching and shaking, etc. We are exhausted. When is something going to be done to remedy this situation? How can the Ministry keep our file closed?" Source: Transalta Amaranth Transformer, IR 1613, Nov 22/13

The MOECC was steadfast, however, and noted in the official record,

This file has been closed. All matters under MOE jurisdiction have been found to be in compliance with applicable limits. Complainants have been informed of MOE findings and that no further action will be taken on the complaints whatsoever. If anything is going on at their location appears to be beyond MOE jurisdiction. Source: TransAlta Amaranth Transformer, IR 1613, Nov 22/13

RESPONSE TO HEALTH COMPLAINTS

Health complaints were documented by MOECC staff across all projects in Ontario.

- *Low frequency vibration making it difficult for him to sleep. Source: Clear Creek, IR 2018, Aug 14/10*
- *Became increasingly nauseous throughout the day. Source: Melancthon IR 5233-8NHJRP, Nov 11/11*
- *Buzzing and vibration throughout house. Caller experiencing reported that his ears have been ringing ears, headaches and 4-5 weeks with no sleep. Source: Plateau, IR 4342, Apr 21/12*
- *Keeps daily log. Approximately 50% of days she has experienced headaches. Source: Unifor (CAW), IR 1441, Sep 12/13*

- *Wakes up every morning between 3 and 4 with headache and earache.* Source: Conestogo 6238-A3W75J, Nov 2/2015

Despite the assurances from Premier Dalton McGuinty,¹⁶ it appears the MOECC did not accept responsibility for following up on these reports of health issues or to refer them to a more appropriate agency, like the local health unit. One staff comment was explicit:

MOE mandate does not address health issues/complaints Source: Unifor – IR 1742, Sept 23/2013

In some cases, the callers were advised to contact their doctors and/or the local public health unit. In one instance, the MOECC staff expressly directed the citizen reporting to get a medical doctor to confirm that “infrasound is the cause before we can attribute adverse [health] effect.” (Source: Clear Creek – IR 4881 – Jun 2/09)

These responses ignore the MOECC’s responsibility to issue stop orders under Section 12 of the Environmental Protection Act:

*Despite the issue of a program approval or order, when the Director is of the opinion, based upon reasonable and probable grounds, that it is necessary or advisable for the protection or conservation of the natural environment, the prevention or control of an immediate danger to human life, **the health of any persons** or to property, the Director may issue a stop order or a control order directed to the person responsible.¹⁷*

ASSESSMENT OF PROCESS

Based on the detailed incident descriptions provided in the Master Incident Reports the following conclusions can be drawn about the MOECC’s response to complaints about wind turbines.

Residents Making Complaints Expected Results – The people generally reported issues when the noise became intolerable, for example, it had been preventing them from sleeping for a number of nights. They contacted the Spills Action Centre or the District Office in the expectation that the MOECC would take their complaints seriously and provide an immediate solution such as turning off the turbines while the issue was resolved.

Initial MOE Response – At the start of the process, the MOECC staff did follow up on the complaints and in many situations validated the conditions reported in the complaint. They sought solutions, such as the changes reported for the turbines in the Melancthon project, but later complaints showed that the solutions did not eliminate the problems. Similarly, Unifor implemented changes that stopped the turbine from operating when winds were from a specific direction but again, this did not solve the wider problem. This type of response is not reflected in other projects. Rather the incident records show that responses varied widely from District to District suggesting no coordinated approach. Specific comments also show that the central management’s slowness in providing protocols to respond to wind turbine complaints slowed the response.

Enforcement Should Have Provided Learning – The incident reports demonstrate over and over that complaints continued even though testing showed that the turbines were meeting audible noise

¹⁶ Toronto Star, February 11, 2009. See reference 2

¹⁷ Revised Statutes of Ontario, Environmental Protection Act, 1990, c. E.19, s. 12.

standards. There was no learning from these observations and at the direction of central management, the testing continued to be focused on audible standards even when complaints were about vibrations, which are linked to low frequency noise or infrasound.

Techniques Used to Manage Issues – The central management streamlined the process developing a screening matrix that excluded many complaints and directed field staff to use a narrow definition of turbine noise that excluded cyclic and tonal qualities that would have been considered in other MOECC noise assessments. Structured monitoring of turbine noise replaced individual complaint responses and boiler-plate comments replaced individual complaint responses in the incident descriptions.

Few Resolved Complaints Reported – In the 100 master incident records provided there is limited evidence of complaints actually being resolved to the satisfaction of the residents. There was a settlement reported for a file related to the Ripley project (probably a buyout of the home; there were sales reported in the media¹⁸). One shadow flicker complaint was resolved by planting trees with the wind company reporting that the resident was satisfied with the solution. (Source: Raleigh Wind IR# 0408-8DX066). In two projects, Melancthon, Unifor (CAW), adjustments were made to turbine operations to reduce noise at specific times, but there is no information that this resulted in full resolution of the issues.

Residents Learn that Complaints do not Produce Resolution – Over time the residents learned that the MOECC complaint process was not going to provide resolution and largely they stopped making complaints. This gave the MOECC an excuse to close what had become an inactive complaint record. It does not mean that the issue was resolved. In some cases, Master Incident Reports are marked open or “In progress” but no notes have been made for years.

SUMMARY

The Ministry of the Environment and Climate Change assured the people of Ontario that its green energy program and approval of industrial-scale wind turbine projects to generate power would be delivered with appropriate regulation and follow-up processes to ensure safety and to protect health.

However, tracking of complaints reveals that there is no indication of resolution of cases, for the most part.

There is absolutely no indication that the Ministry took the complaints seriously, and took any steps to review and revise existing regulations and processes based on the real-life experiences of the people of Ontario.

People continued to register reports of excessive noise and sensation, but in many cases, they gave up — “When is something going to be done?” — and stopped calling. The Ministry response in those cases was simply to close the files. That was no indication that there had been any sort of resolution for the individuals and families who reported problems.

The multiple reports released by the Ministry indicate that the complaint reporting process is deeply flawed and that the Ministry and government have not lived up to their promises to protect health.

¹⁸ Wind developers snap up Huron Township homes, April 5, 2011. Available at: <http://www.independent.on.ca/site/?q=node/1786>

CURRENT SITUATION

The people of Ontario persist in wanting a resolution. As the Medical Officer of Health for Grey-Bruce stated in a meeting that “To dismiss all these people as eccentric, unusual, or as hyper-sensitive social outliers, does a disservice to constructive public discourse,” she told her Health Board. Dr. Hazel Lynn concluded “we cannot pretend that an affected minority does not exist”.¹⁹ Dr. Lynn and associate Dr. Ian Arra conducted a literature review that concluded it was impossible not to find an association between wind turbine noise and adverse health effects.²⁰

The complaints of excessive noise and vibration in Huron County, Ontario, were so numerous that the Health Unit there has undertaken a public health investigation under the jurisdiction of the Health Protection and Promotion Act in Ontario, which is being launched in the spring of 2017.²¹

Community groups and municipalities are now filling the gap left by the provincial government by undertaking their own noise testing; some are considering tracking the full range of noise emissions and are using private contractors to employ technology more sophisticated and with greater capacity than that provided to MOECC staff.

On November 28, 2016, Energy Minister Glenn Thibeault announced to a luncheon audience in downtown Toronto, hours away from the nearest wind turbine project, that his government had made mistakes with its push toward renewables, including wind power. The decisions made were often “arbitrary,” he said, leading to “sub-optimal siting” and heightened community concerns.²²

That “sub-optimal siting” has resulted in real hardship for some of Ontario’s rural residents who had huge power projects forced upon them and their quiet communities. It is time for the government to address the shortcomings of its green energy program, specifically the highly invasive wind power developments.

Despite the problems acknowledged by the Minister and the many complaints that the MOECC has received, the Ministry confirmed through an EBR posting on March 2, 2017 that the Technical Guide for Renewable Energy Approvals did not need significant changes. This was despite lengthy comments in the fall of 2016 from Wind Concerns Ontario and others that extensive changes were required due to the level of complaints being received by the MOECC. The final document posted contains no new direction on the setback requirements for residents from wind turbines, nor any adjustment to the 40 dB(A) noise levels that complaints indicate are not sufficient to protect residents living among wind turbines from adverse conditions.

EVOLVING COMPLIANCE AUDIT PROTOCOL

During the approval process, wind companies commission engineers to prepare estimates of the audible noise levels that will be experienced at homes located within 1,500 metres of wind turbines. For the project to be approved, these must demonstrate that the noise levels will be below the regulated limit

¹⁹ Owen Sound Sun Times, Jan 22/2011

²⁰ Arra I, Lynn H, Barker K, et al. (May 23, 2014) Systematic Review 2013: Association Between Wind Turbines and Human Distress. *Cureus* 6(5): e183. doi:10.7759/cureus.183

²¹ <https://www.huronhealthunit.ca/reports-and-statistics/investigations/wind-turbine-investigation/>

²² Glenn Thibeault address to the Empire Club, https://www.youtube.com/watch?v=XaY_R2Zw48g

of 40 dB(A). As a condition of the approval issued by the MOECC, the wind company has to prepare a noise audit that confirms that audible noise levels have are meet the projected levels.

While the wind company hires an engineering firm to undertake the required measurements and to complete the analysis required to prove compliance, the MOECC has set out a protocol for this work. These instructions have been a problem since the initial projects. Difficulties were encountered completing the audit for the Suncor-Acciona Ripley project which began operation in December 2007, the Master Incident Reports show problems with the audit process.

08/14/09 - PO Pfeiffer received draft "Wind Farm Compliance Study - Acciona-Suncor Wind Farm in Ripley, ON". Acciona/Suncor complied with POO.

08/14/09 - email from Rick Chappell, District Manager, to Victor Low, Supervisor, Air/Noise, EAAB, requesting review of the draft noise report.

08/25/09 - received comments from EAAB on draft noise report. EAAB concurs with consultant's conclusions that it is difficult to accurately assess compliance with the noise level limits in the CofA. There is no existing procedure to conduct an adequate noise audit for the purposes of assessing compliance. (Source: Ripley IR: 7016-7P6G7R)

The same problems were encountered in the Enbridge Tiverton wind project which began operations a year later in December 2008. Here compliance testing began in January 2011 and continued in April 2012. Then a new compliance protocol was issued in August 2012 which required a restart of testing which took place between October 2012 and July 2013. In October 2014, the MOECC reports receiving the audit compliance documentation and is setting up a meeting to communicate results.

In February, 2015 Enbridge notified MOECC that they were unsuccessful in obtaining the full range of samples needed to comply with the protocol. In April 2015, the MOECC instructed Enbridge to obtain consultant to verify test results. At that point the results expected in late July or early August. On September 28, Enbridge provides results to MOECC for review.

In January, 2016, the MOECC advises that review of the audit is continuing along with audits from other projects. On February 28, 2017, the Owen Sound District Manager responded to a request from the community group for an update advising that:

The Ministry is in final stages of updating the Compliance Protocol for Wind Turbine Noise (Compliance Protocol) in which there is a section related to a revised assessment methodology for Immision Audits (noise audits at receptor locations).

Noise audits submitted to date will be assessed against this revised methodology and proponents may be required to undertake additional analysis to determine compliance, it is not expected that the revised methodology will require additional measurements to be taken by the proponent.²³

A new simplified compliance protocol released on April 21, 2017 limits the time required for on-site noise testing to six weeks and eliminates the need for testing at wind speeds above 7 m/s. The protocol still contains many flaws that were identified to the MOECC during the consultations. These include the

²³ Emails between Owen Sound District Office and Enbridge Community group from September 17, 2014 to February 28, 2017.

omission of noise testing at wind speeds below 4 m/s even though the FOI shows that the MOECC has documented noise complaints at wind speeds below 3 m/s. The process proposed to separate general background noise from turbine noise is also highly questionable and subject to abuse by the wind industry. While background noise has wide seasonal variation, the protocol allows the wind company to base their compliance test on one time in the year and recommends no testing be done in December through February, times when ambient noise is the lowest.

As of December 2016, the Enbridge Tiverton Project had been operating for eight years. In that time, the project has been the subject of many complaints of a range of noise emissions but the MOECC still not able to confirm compliance with approval conditions due to ongoing problems with the MOECC protocol for confirming project compliance.

RECOMMENDATIONS

Based on our analysis of the information released to Wind Concerns Ontario, we present the following recommendations for action.

1. Stop issuing approvals and Notices to Proceed for wind turbine projects.
 - More power is not required, and surplus electricity is contributing to high electricity costs. Contracts for projects not yet in operation should be cancelled.
2. Address testing and protocol gaps.
 - Create standards for infrasound and low frequency noise, create usable test procedures to confirm compliance, and equip MOECC staff with proper testing equipment
3. Revise incident process to recognize the complainant as MOECC's client and the project operator as the regulated entity.
 - Measure success in terms of complaints resolved, not simply REA compliance; make enforcement process transparent to affected residents and the wider community; and publish annual reports on wind turbine noise complaints with documentation of responses
4. Enforce tougher noise standards using EPA Section 14.
 - Use the Melancthon strategy shutting down turbines causing noise issues, move beyond verifying compliance to finding causes of complaints, and address infrasound and low frequency noise complaints

Wind Concerns Ontario is a coalition of individuals, families, and community groups concerned about the negative impact of industrial-scale wind power developments on Ontario's natural environment, economy, and human health. The organization depends on membership fees and donations, and operates with an entirely volunteer Board of Directors. For more information visit www.windconcernsontario.ca

APPENDIX

Sample Master Incident Report

A complaint was received on December 26, 2010 by the Spills Action Centre which opened this incident report related to Brookfield's Gosfield Wind Project in Essex County. Page 1:



Ministry of the Environment
Ministère de l'Environnement

INCIDENT REPORT

Reference Number:	4526-8CHURB	File Storage Number:	SIESKI
Module:	Incident Reporting	Module Type:	Pollution Incident Report (PIR)
Cross Reference:	(doc link)	Task Link:	0351-8CHS88
Originating Document:		Created by:	Justin Chin
Incident Report Reference Number:	4526-8CHURB		
Date Created:	2010/12/26	Date Completed:	2011/02/07
Bring Forward Date:		Bring Forward Reason:	
Status:	Closed		
Program	Air	Activity:	Pollution Incident Reports

Is this an air emission (measured or modelled) or wastewater (sewage) discharge exceedance that will become part of the Environmental Compliance Report?
(legislation, certificate of approval, order, or guideline)

☐ Yes ☒ No ☐ To be determined [Click here for Guidance](#)

Caller or PO Information

s.21

Reported By:

MOE Information

Date & Time Reported to MOE:	2010/12/26 15:18
Office Receiving Incident Report:	Spills Action Centre
Incident Info Received By:	Justin Chin
MOE Response:	No Field Response
Date & Time of MOE Arrival at Scene:	
Master Incident Report Number:	4526-8CHURB
Subordinate Documents(s):	1365-8CJHD7 3268-8CK82U

Page 2: Notes

- There were 19 incident reports associated with this Incident Report indicating that the report dealt with a continuing problem.
- Brookfield Power Wind Corporation is shown as the MOECC's client.
- The Incident Report closed with no field response on February 7, 2011.

			5727-8CL7CH 8812-8CSH3K 7760-8CUGX7 2547-8CUJYB 2485-8CY5X9 8711-8CZHEB 3504-8D2H35 5270-8D46P6 1677-8D7GZP 5270-8D46P6 1827-8CPSK3 3755-8D8GY8 6355-8D9H09 2032-8DBGZN 6630-8DDRNV 7365-8DEH6X 6630-8DDRNV
SAC Action Class:	Pollution Incident Reports (PIRs) and "Other" calls		
Non-Standard Procedure:	No		
ERP Call-out Initiated:	No		

Client(s)

Client Details
Brookfield Power Wind Corporation Mailing Address: Suite 21 - 903 Barton St, Hamilton, Ontario, Canada, L8E 5P5 Physical Address: Suite 21 - 903 Barton St, Hamilton, City, Ontario, Canada, L8E 5P5 Telephone: (905)643-7878, FAX: (905)643-2499 Client #: 7738-6AZKFR, Client Type: Corporation, NAICS: 221119

Site(s)

Site Details
Geosfield Wind Farm Address: Lot: 15, Concession: 8, Part 2, R.R. #2, Ruthven, Kingsville, Town, County of Essex, N0P 2G0 District Office: Windsor Site #: 6304-83URFR

Incident Information

Incident Summary:	Brookfield Wind Farm; Noise complaint - Jan 11 <i>cannot be longer than 60 characters</i>
Incident Description:	Caller reports a loud whooshing jet sound coming from the Brookfield Wind Farm. She rates the noise as a 10 out of 10. The noise is still ongoing and was heard this morning starting from 05:00. She mentions that she has called many times before, and would like to know the results of a previous inspection by MOE DO staff last September. S.21 to "get away from the noise". Caller advised to call the MOE DO during business hours to follow up. NFAR by Abatement at this time.

Links & Comments:	
Attachments Names:	

Appendix:

Complaints Released by MOECC

Project	#	Project	#
Melancthon - All Phases	873	HAF, Wainfleet	71
Enbridge, Kincardine	442	Conestogo, Drayton	69
Talbot, Chatham Kent	388	Kent Breeze, Chatham Kent	55
Unifor (CAW) Pt Elgin	236	South Side, Essex	54
Marsh Line, Chatham Kent	179	South Kent, Chatham Kent	35
Frogmore-Clear Creek	131	McLean's Mtn, Manitoulin	27
Gosfield, Essex	127	Grand Valley, Dufferin	24
Plateau, Grey Highlands	119	Wolfe Island, Kingston	22
Harrow, Essex	117	Proof Line, Lambton Shores	20
Ripley, Bruce	99	Summerhaven, Haldimand	19

Source: Counts of complaints from 2006 to 2014 released by MOECC.

Projects with less than 10 complaints: Port Alma, Varna, Eribeau-Blenheim, Raleigh, Kruger, East Lake, Erie Shores, Zephyr, Dufferin, Jericho, Pt. Dover, South Branch, Gesner, Oxley, Prince I & II, Bisnett, Bornish, Ernestown, K2, and St Columban.

2017-04-2

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House in Huron-Kinloss Township in Bruce County, with a turbine that is part of the Ripley Suncor-Acciona Project visible on neighbouring property visible. [Photo: S. MacLeod]

WIND FARM PUBLIC INFORMATION MEETING

WHEN

**May 31, 2018
7pm**

WHERE

Attica Fairgrounds

Fairground Rd, Attica, OH 44807

The Seneca Anti-Wind Union invites the public to an information session to provide an update involving project developments, facts about wind energy, and the growing list of impacts industrial wind farms may have on our communities.

PRESENTATION:

**Invasion of the Industrial Wind Turbines:
Why here, Why now, and What's next**

SPONSOR:

Seneca Anti-Wind Union

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<https://www.facebook.com/senecaantiwind/>

**ARE YOU A RESIDENT
OF SENECA,
SANDUSKY, OR
HURON COUNTY?**

**DO YOU HAVE
QUESTIONS ABOUT
THE PLANNED WIND
FARM PROJECTS?**

**WANT TO KNOW THE
IMPACTS OF
INDUSTRIAL WIND?**

**CONCERNED ABOUT
UNSAFE SETBACKS
FROM PROPERTY
LINES?**

**UNSURE WHERE TO
FIND INFORMATION?**

**WANT TO KNOW HOW
YOU CAN HELP?**



Mission Statement: The Seneca Anti-Wind Union is a group of concerned citizens dedicated to preserving our rural settings, wildlife, property values, and overall quality of life in the beautiful scenic settings in which we live and work.

Wind farms and groundwater impacts

A guide to EIA and Planning considerations

Version 1.1 / April 2015

PRACTICE GUIDE



'This good practice guide aims to assist applicants and planning authorities achieve a consistent approach when considering wind farm development management on ground water. Its correct application should help applicants and planning authorities identify and satisfy legislative requirements with regard to groundwater in wind farm development projects.'

This guide does not attempt to provide a detailed (account of the legislation and policy that underpin groundwater elements of wind farm developments in Northern Ireland and is not intended to be a source of legal advice. This guide is not intended to replace the need for judgement by planning officers and those making planning applications. Reference should always be made to the relevant legislation and if any discrepancy or conflict exists between the contents of this guide and the relevant legislation, the provisions of the legislation will prevail.

Further information can be obtained from the NIEA website www.doeni.gov.uk/niea. Links to external sources of information have also been provided in the text, where appropriate'.

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Introduction

This guidance document aims to help developers identify and mitigate against potential impacts on groundwater associated with wind turbine applications. It helps to inform those producing Environmental Impact Assessments in support of planning applications for proposed on-shore wind farm developments in Northern Ireland. This advice note is also intended to offer guidance to local planning authorities considering the associated potential environmental impacts of onshore wind farm applications.

The guidance covers the main areas and issues to be considered when assessing the potential impact on groundwater. It should not be used to replace existing detailed guidance that may exist. Guidance is given on the collection of baseline information, use of mitigation buffer zones, and reference of Pollution Prevention Guidance Notes.

1 Why is it important to protect groundwater?

Groundwater has three major uses in Northern Ireland:

- Abstractions for agricultural and industrial purposes, food and beverage production (including bottled water);
- Public and private drinking water supply; and
- Maintenance of flow and water levels in rivers, lakes and wetlands, particularly during times of low rainfall.

The protection of groundwater from the risk of possible contamination is important because pollutants could cause health problems in human beings, reduce the quality of agricultural products, make water unsuitable for certain industrial processes, and pose a threat to our countryside and environment including their suitability for recreational purposes. In summary, the contamination of groundwater can not only have health and environmental impacts, but also serious economic consequences.

2 What impact can a wind farm have on groundwater?

The development of a wind farm has the potential to impact on groundwater quality, groundwater quantity and/or the established groundwater flow regime. Figure 1 overleaf shows the scale and extent of the foundation of a single wind turbine which could potentially impact on the aquatic environment. Changes to the local water environment can affect receptors such as wells/boreholes, springs, wetlands and waterways, and can also have implications for groundwater dependent ecology and/or land stability.

The key impacts to groundwater that can result from the construction, operational and decommissioning stages of wind farms are summarised in Table 1 below.

Table 1: Potential impacts on groundwater from wind farms

	Construction Phase	Operational Phase	Decommissioning Phase
Groundwater Flow Regime	Earthworks and site drainage: <ul style="list-style-type: none"> Reduction in water table if dewatering is required for turbine foundation construction or borrow pits; Changes to groundwater distribution and flow. 	Physical presence of turbines and tracks: <ul style="list-style-type: none"> Possible changes to groundwater distribution; Reduction in groundwater storage. Reduction of forestry in site area: <ul style="list-style-type: none"> Changes to infiltration and surface runoff patterns, thereby influencing groundwater flow and distribution. 	Physical presence of former turbines and tracks: <ul style="list-style-type: none"> Possible changes to groundwater distribution; Reduction in groundwater storage.
Groundwater Quality	Earthworks: <ul style="list-style-type: none"> Disturbance of contaminated soil and subsequent groundwater pollution. Materials Management: <ul style="list-style-type: none"> Pollution from spills or leaks of fuel, oil and building materials. 	Materials Management: <ul style="list-style-type: none"> Pollution from spills or leaks of fuel or oil. 	Use of vehicles and machinery to remove infrastructure: <ul style="list-style-type: none"> Pollution from spills or leaks of fuel or oil.

Figure 1: Construction of the foundation of a single wind turbine.



3 What does NIEA expect within an Environmental Impact Assessment in relation to groundwater for a wind farm application?

Within a wind farm Environmental Impact Assessment (EIA) NIEA will expect the following to be provided:

- Detail of the baseline conditions of the site, obtained from desk study and a field survey;
- Identification of potentially sensitive receptors (for example private drinking water supplies – see also ‘Undertaking a water features survey – guidance note’);
- Identification of potential impacts to groundwater from the development, and assessment of impact significance;
- Evidence of appropriate incorporation of mitigation buffer zones in the layout design; and
- Proposed mitigation measures in line with Pollution Prevention Guidance (PPG) Notes.

4 What data is collected for baseline conditions?

The degree of risk from the development is, in part, dependent on the sensitivity of local receptors. At a particular site, the local hydrogeological setting will influence the vulnerability of groundwater and associated receiving surface waters. For this reason it is important to establish local conditions prior to development, termed the baseline conditions.

The geology at the site will inform the hydrogeological setting, as well as other potential impacts; such as slope stability and peat slide issues. Information to be provided in the baseline should include:

- Quaternary (surface) geology and Bedrock geology mapping (provided by the Geological Survey of Northern Ireland (GSNI));
- Borehole log data if available (can be obtained from GSNI);
- The presence of peat to include data from a site walkover;
- Aquifer classification and vulnerability (can be obtained from GSNI GeoIndex); and
- The location of any proposed borrow pits and detail of their proposed restoration (as these may require dewatering) in addition to the proposed turbine and track layout.

A water features survey (to include a field survey) is required as it enables identification of the receptors that might be affected by the development both during and post-development. Guidance on undertaking water features surveys is provided in a separate NIEA Guidance Note. Early identification of sensitive receptors can be used beneficially to influence the design and construction of the wind farm to reduce potential risks.

The baseline conditions should also identify the potential for any existing contaminated or low quality groundwater at the site. The presence of these conditions at the site could affect the construction methods required (for example piling method or use of sulphate resistant concrete) or waste disposal required (for excavated soils or dewatered water disposal). An understanding of the historical setting of the site will determine if there is the potential for contaminated land or saline waters to be present.

The search radius for the baseline conditions will depend on the groundwater and surface water catchments likely to be affected.

5 Mitigation buffer zones

To reduce the risk of the wind farm development having an impact on the water environment the use of mitigation buffer zones should be considered in the layout design. Should elements of the development (tracks, foundations, borrow pits) be located within the buffer zones then further assessment (such as establishing the potential zone of contribution to the water feature) would be expected within the EIA to justify the expected impact significance.

Table 2 overleaf describes the mitigation buffer zone distances to be considered for potentially sensitive water features.

Table 2: Buffer zones for water features

Water Feature	Buffer Zone
Surface Watercourse	10 m (minimum detailed in PPG 5)
Water Feature ¹ used for Drinking Water (public or private)	250 m
Water Feature ¹ not used for water supply (but could provide a preferential flow pathway)	50 m
Designated Wetland	250 m

6 Mitigation measures

The presentation of mitigation measures for any wind farm development should make reference to the following Pollution Prevention Guidance Notes:

- PPG 1 – Understanding your environmental responsibilities;
- PPG 2 – Choosing and using oil storage tanks;
- PPG 5 – Works in, near or over watercourses;
- PPG 6 – Construction and demolition sites;
- PPG 13 – Vehicle washing and cleaning;
- PPG 21 – Pollution incident response planning;
- PPG 22 – Incident response – dealing with spills; and
- PPG 26 – Storing and handling drums and intermediate bulk containers.

The current PPG versions are found at:

http://www.netregs.org.uk/library_of_topics/pollution_prevention_guides.aspx

Water quality and flow monitoring prior to development to provide a qualitative and quantitative baseline might be required. In addition should an impact on a water supply feature be identified as significant then appropriate remediation measure(s) must be identified by the applicant. For example, in the case of a private water supply mitigation against deterioration in either the quality and/or the sufficiency of the supply should be considered.

¹ surface watercourse, spring, well, borehole

7 Information sources and further guidance

Geological Survey of Northern Ireland

Tel: 028 90388462

Website: www.bgs.ac.uk/gsni/

Email: gsni@detini.gov.uk

GeoIndex, geological maps, reports and memoirs, borehole and site investigation reports

SpatialNI

Website: www.spatialni.gov.uk/geoportal/catalog/main/home.page

Environment Agency, May 2002. 17 Scoping the environmental impacts of windfarms (on-shore and off-shore).

Drinking Water Inspectorate

Tel: 028 90569282

Website: www.doeni.gov.uk/niea/water-home/drinking_water.htm

Email: dwi@doeni.gov.uk

For further information in relation to private water supplies



Department of
the Environment
www.doeni.gov.uk

NIEA Waste Management Unit

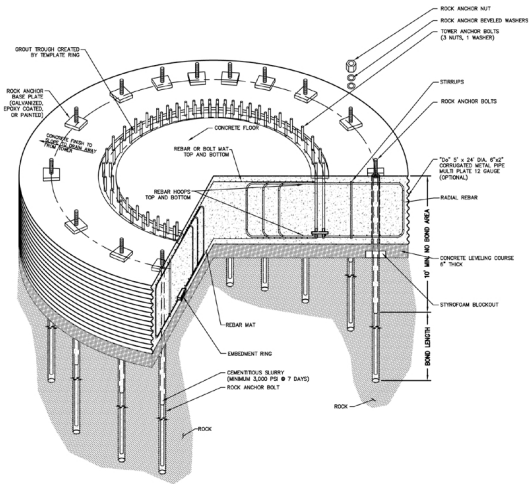
Klondyke Building
Gasworks Business Park
Cromac Avenue
Ormeau Road
Malone Lower
Belfast
BT7 2JA

T: 028 9056 9267

E: LGWinfo@doeni.gov.uk



**INVESTORS
IN PEOPLE**



Please file in case no. 18-0488-EL-BGN

Subject

Wind Project Seneca County

Additional Information

PUCO ID

Priority

Docketing Case Number

Enter number for the Docketing case associated with this case.

Formal Complaint-Supervisor Approved

Check this box if a Supervisor approves this case as a formal complaint.

Legacy Case ID

Legacy CMS Case Number

Formal Complaint-Specialist Approved

Check this box if a Specialist approves this case as a formal complaint.

Case Origin

Web

Transportation Information

Crossing ID

Railroad

Rail Street Name

Description Information

Description

Houses specific details about this Case. Auto-updates from web form or email body.

How can we remove the set back for safety distances and no concerns with drill next to privet drink well to install bases for 600 foot tall windmills?

Close Reason

Select reason for case closure.

Resolution Comments

Enter details regarding how this Case was resolved.

Web Information

Web Home Phone

Auto-populates from website "Contact Us" form's "Home Phone Number" field.

(419) 618-0031

Web Name

Ed Clark

Web Zip Code

Web Email

eclark@clouseelectric.com

Public comment 18-0488-EL-BGN

From: Ed Clark [<mailto:eclark@clouseelectric.com>]
Sent: Friday, May 25, 2018 12:35 PM
To: Puco ContactOPSB <contactopsb@puco.ohio.gov>
Subject: 18-0488-EL-BGN

Please find the <https://www.senecarpc.org/housing-and-zoning/zoning/eden-township> This website address the windmills for Eden Township Ohio in section 1300.02 of 100 feet Height and Acreage needed to install them here. Section 1300.03 address the set backs being 1.5 times the height of the structure. I am not sure as to how we can deviate from this for a industry that this area is not zoned for, but the residents have to be up held to this standard. Industrial wind farms will bring havoc to our wildlife and ecosystem as to the health and well being of the people that are surrounded by them.



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Case No(s). 18-0488-EL-BGN

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