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"No Action likely": An Exploration of Institutional Bias Against Citizen Complaints about Wind Turbine Noise and Adverse Health Effects as Demonstrated by the Government in Ontario, Canada

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Abstract

The Nation Rise wind power project was the last industrial-scale or grid-scale wind power project approved in Ontario, Canada despite controversy, opposition and legal action from the "host" community, and even an attempt by the environment minister himself to stop it. Problems surfaced early for the project, months before it was granted a formal commercial operation date, as residents complained of noise from the wind turbines. Documents including email correspondence referencing noise complaints made to the provincial government's environment ministry were obtained via Freedom of Information legislation. The Ontario Ministry of Environment, Conservation and Parks has a mandate to protect the environment and to enforce existing regulations. The documents appear to show that the environment ministry of the Government of Ontario had no intention of taking action on the citizen complaints. The only action evident was cursory responses to complaints, and simply logging events; no other action appears to have been taken by the staff in the environment ministry, which is the regulator for wind turbine power projects. Email correspondence between ministry staff and the wind power developer/operator demonstrates a casual, even cosy relationship, so much so that a senior environmental officer, representing the government as a regulator, actually asked the power plant operator what to do about the noise complaints. The correspondence may indicate institutional bias toward the operator, and against the public. Our findings: 1) Complaints about noise from wind turbines arose early on in this power generation project, before Commercial Operation date was determined as part of its contract. 2) Ministry staff seem

unprepared in terms of wind turbine noise, how to deal with the public, and on the ministry's own noise complaint process. 3) Ministry staff seem to lack support from upper levels in the ministry. 4) Correspondence indicates a preferential relationship between the ministry, which is the regulator, and the wind power operators.

Subject Areas

Renewable Energy, Government, Health, Social Justice, Institutional Bias, Noise

Keywords

Noise, Wind Turbines, Adverse Health Effects, Institutional Bias, Social Justice, Canada

1. Introduction

The Government of Ontario, Canada, passed the *Green Energy and Green Economy Act* in 2009, which was designed to encourage the growth of "green" or "renewable" power generation technology via a number of incentives, including subsidized rates for power developers. Described as "sweeping legislation", the act required amendments to numerous other pieces of legislation including the Planning Act and the Municipal Act [1].

A number of wind power projects were approved by the provincial government under a Renewable Energy Approval or REA process, before procurement was halted in 2016. The last project approved was called "Nation Rise".

The approval process for the Nation Rise wind power project is well known in Ontario, as the 100-megawatt power facility was controversially approved by the Ontario government in the last days of the regime under Premier Kathleen Wynne, prior to that government's fall in an election. The high profile is due to several legal actions taken by members of the community in North Stormont, and because, on appeal to the new Minister of the Environment filed by citizens, the Minister revoked the project approval due to concerns about the risk to wildlife [2]. His decision as a Minister of the Crown was overturned by the courts [3].

News media carried reports of numerous complaints during the development of this project, including complaints about disturbances to local water wells and then, when the turbines were erected and operating in test mode, there were complaints about noise, vibration and associated health impacts [4].

The Ontario government has a process in place to receive and act on complaints about activities that may be harmful to the environment [5]. The government's goal as a regulator as expressed in 2023: "The Ministry of the Environment, Conservation and Parks works to protect and sustain the quality of Ontario's air, land, and water."

To facilitate citizen concerns about possible pollution from a variety of sources,

including noise, the complaint process features an online reporting tool and a 24/7 telephone line.

2. Noise and Human Health

It is well known that environmental noise can have an impact on health. In the case of industrial-scale or grid-scale wind turbines, the noise emissions from the power generators are often associated with sleep disturbance (different from sleep deprivation) and can result in serious health impacts due to long-term exposure. In a literature review published in 2014, several Canadian authors (among them, two Medical Officers of Health in Ontario, Canada) concluded that the studies reviewed "found an association between wind turbines and one or more types of human distress". The studies reviewed "provide reasonable evidence that an association exists between wind turbines and distress in humans" [6].

Similarly, the Council of Canadian Academies (CCA) published a review titled in 2015, and stated "The available evidence suggests that a direct causal relationship or an indirect (via annoyance) relationship between exposure to wind turbine noise and sleep disturbance might exist" [7].

Wind turbines emit a distinct sound, the CCA said, describing the emissions as follows:

> "Wind turbines also emit sound with the following characteristics, which are less common than other sources of community noise:
> • Sounds from wind turbines may extend down to the infrasonic range and, in some cases, may include peaks or tonal components at low frequencies.
> • Sound emissions from a wind turbine increase with greater wind speed at the height of the blades, up to the turbine's rated wind speed (speed at which it generates maximum power), above which sound does not increase.
> • Sound from wind turbines can exhibit periodic amplitude modulation, often described as a "swishing" or "thumping" sound" [7].
> The mechanism of effect has been described as follows:

> "The aerodynamic noise generated by wind turbines has a large low frequency and infrasound component that is attenuated less with distance than higher frequency noise. Current noise measurement techniques and metrics tend to obscure the contribution of impulsive low frequency noise and infrasound. A laboratory study has shown that low frequency noise is considerably more annoying than higher frequency noise and is harmful to health—it can cause nausea, headaches, disturbed sleep, and cognitive and psychological impairment" [8].

Not all people exposed to wind turbine noise emissions experience adverse health effects, but it has been reported that some individuals experience "adverse health effects which include physiological and psychological symptoms as well as negative impacts on quality of life. In some cases, the adverse impacts have been so significant that some individuals felt forced to leave their homes" [9].

Acoustics specialists who have studied the nature of wind turbine noise emissions note that exposure to wind turbine noise may have different impacts than exposure to other forms of environmental noise.

> "One important aspect of wind turbine noise that is relevant to its physiological consequences is that the duration of exposure can be extremely long, 24 hours a day and lasting for days or longer, depending on prevailing wind conditions. It is considerably different from most industrial noise where 8-hour exposures are typically considered, interspersed by prolonged periods of quiet (i.e., quiet for 16 hours per day plus all weekends) [10]."

Although environmental noise is recognized as a potential health hazard, the Ontario government has not demonstrated a robust response to complaints. After tracking formal complaints records filed with the government by citizens, community group coalition Wind Concerns Ontario reported that for complaints filed in calendar year 2018, "there were only seven Incident Reports out of 595 that noted a field response by ministry staff. That represents 1.1 percent" [11].

3. Methodology

3.1. Accessing Documents

Under Freedom of Information legislation, all "Incident Reports, summaries, emails and other documentation" related to the project between January and July, 2021, were requested by community group coalition Wind Concerns Ontario; June was the expected date when Ontario's Independent Electricity System Operator or IESO could grant final approval for the project in the form of a Commercial Operation Date.

3.2. Document Review

The request was made in October of 2021, and file number A-2021-03739 was assigned by the Ministry of Environment; fulfillment of the document request was achieved in April of 2023 [12]. The delay in fulfillment was perhaps due to an appeal filed by an unknown third party to prevent the government from releasing the documents; the appeal failed, and the documents were released.

The 1300 pages of documents were reviewed to determine: whether there were any complaints about noise or other environmental concerns; what response the government staff made; whether health impacts or adverse health effects were noted; what discussion took place internally about response to complaints; and, whether there was resolution of the complaints, as required by the Renewable Energy Approval (REA).

4. Results

Key themes were identified from the review of the documents supplied:

- Noise
- Health impacts from noise

- Environment ministry (MECP) response to complaints
- Role of the contracting authority IESO and connection with the environment ministry

Although the request was for copies of formal Incident Reports, which is how the ministry records complaints made to offices and the government pollution reporting telephone line, there was not a single formal Incident Report document for the seven-month period. What was provided was chiefly emails from the public, and emails referring to complaints. Because of the absence of the formal Incident Report documents, it was not advisable to create a "count" of complaints.

Records received had been redacted, and from the context of the excerpts' redactions were apparently where health impacts are noted. It is our understanding that redactions may be made to protect the privacy of the person or persons' reporting, but it is difficult to understand how reports of descriptions of physical symptoms betray privacy.

Another deficiency in the records provided is that while emails indicate there were 149 noise complaints made during the prescribed time period, again, no records of formal Incident Reports were provided. The documents consisted chiefly of emails.

The most frequently cited reason for complaints received by the environment ministry staff was noise from the operation of the wind turbines, which in several instances was accompanied by descriptions of physical complaints. Other reasons for complaints were: construction noise, water well disturbance, lack of aviation safety lights, and concerns about wildlife deaths.

Excerpts of actual complaints are presented below, with a notation referring to page numbers within the tranche of documents.

4.1. Noise

The noise complaints provided by the environment ministry were chiefly records of emails sent to ministry district staff or the central Spills Line. Documents included actual emails from residents living nearby the wind turbines, as well as emails between and among staff discussing the content of the complaint emails. As time progressed over the seven-month period, the tone of the complaints evolved from a "what is going on" query to expressions of frustration and concern.

Pages numbers cited refer to the location of the complaints in the tranche of documents provided in response to the Freedom of Information request. Redactions (seen as blacked out type) are presumed to have been made by government staff.

In January 2021, one person expressed surprise at the level of noise and said:

"I cannot bear the thought of living through this in the summer." (P.000078)

Also in January,

"whooshing and hum…jet-like noise outside and feels like hum in house…"

The same person filed a complaint in March and said he/she felt "generally

unwell if in the house" and "had to leave the house due to nois [sic]" followed by another complaint in April "excessive noise" and again through April to June, "humm in house continually," and "at night brutal". (PP. 000555-000556)

In March:

"I am logging my third noise complaint and Nation Rise is not even operational yet." (P. 000334)

In April:

"…was quite concerned about the noise levels at 4:30 am yesterday as [redacted]…I find the sound absolutely annoying and unacceptable this morning." (PP. 000180-000181)

In May:
(Report prepared by staff at the pollution reporting line)

"May 21,11 pm—noise from [redacted] described by Caller as 'brutal'. Caller noted very high winds and had to shut the windows to block noise. Caller reports noise is there 24/7…"

And,

"May 23rd: Caller reports noise from [redacted] is loud and that it was causing physical pain. Caller stated 'noise is like a jet plane that don't go anywhere'." (P. 000320)

In June:

"…there is no escape from the constant noise. It sounds like a jet passing over ALL THE TIME….it has become a nightmare to live here." (P. 000529)

4.2. Health Impacts from Noise

Many of the complaints featured mentions of health impacts or used words like "feel", which could be taken to mean the presence of adverse health effects. As well, most of the complaints were made at night, or during the day referring to the experience at night, which suggests sleep disturbance [13], another cause of adverse health impacts if experienced over time.

"I am so tired I am [redacted] almost every day feeling the need to rest and worst of all when the turbine is running I am having [redacted]" (P. 000562)
"I have repeatedly reported sleep annoyance and heart issues when the turbines are running…" (P. 000644)
"At times the noise is unbearable. I have developed health issues to where I am now [redacted] and am seeing [redacted]. I don't even have to be outside to know when the turbines start [redacted];" (P. 000668)

As early as February, people were reporting adverse health effects and commenting on the lack of response by the government staff. An example is this complaint mentioning ear pain.

> "What is the root cause of this and how do I stop the hum which is causing pressure/pain in my inner ears when the turbines spin?" (P. 000108)

In response to this specific complaint about ear pain, clearly an adverse health effect, the Environmental Officer responded, "I understand that changes such as tree planting to provide addiotnal [sic] shielding etc. are the types of things that would be considered." (P.000131)

The response also stated that action was being taken as the project operator was conducting noise testing, (as a mandatory routine requirement of the Renewable Energy Approval) to which one person said,

> "Why is it that the wind turbine company gets a free pass until summer of [sic] later when noise monitoring will be completed? …I am requesting that turbines not spin until real live noise monitoring (as limited as it is) is conducted. That is only fair." (P.000145)

Some complaints reported experiences with "pressure" which suggests exposure to tonal sounds. Tonal sounds are commonly produced by machinery such as fans and compressors, and are also produced by electrical power equipment. Tonal sound may be easily perceived, result in more "annoyance" for people, and requires different methods of measurement [14]. If there is a suggestion that tonal sound may be present, ministry acoustic measurement protocol dictates that a 5 dB "penalty" should be applied to any noise monitoring. However, at this stage the company was simply carrying out its mandatory acoustic audit on "worst case" turbine locations, not responding to specific complaints, despite the requirements of the REA It is unclear whether the "penalty" would have been required but as a result, tonality was not demonstrated.

Nevertheless, complaints made to the ministry did suggest the presence of tonal sound, as in this example:

The Environmental Officer emailed a complaint to the power project operator and says:

> "The Caller reported to me on April 26th that [redacted] has been feeling a lot of pressure in [redacted] ears the past week. *Not noise so much as vibration or pressure*." [P. 000242] [Emphasis theirs]

In June, an email was sent to the local office which was also copied to the local health unit, the Independent Electricity System Operator (the contracting authority), and the local provincial parliamentarian, clearing state health impacts:

> "…feeling very dizzy pressure in my chest is bad feels like ready to explode I can now feel the presure rushing to my head giving me a headacke my heart is racing even after I [redacted] I may have to leave my home today I cant take this I feel like im going to have a heart attack." [P. 000618]

No response to this was supplied, nor any evidence of referral to supervisory staff, the local health unit, or any other agency. No response from the contracting authority was supplied.

4.3. Environment Ministry Response to Complaints

It is part of the Renewable Energy Approval (REA) for the Nation Rise power project that the operator must create a record of each complaint made about the operation including information on the date and time of the event. The REA states that "a description of the *measures taken to address the cause of each incident to which the complaint relates and to prevent a similar occurrence in the future*" [15]. [Emphasis ours]

The intent of the REA is well understood: in the event the operator receives complaints, it is to investigate and take action so that complaints do not re-occur. The Ministry's role is to oversee this process and ensure compliance with regulations.

The records provided via the Freedom of Information request did not include information on how the operator documented and managed complaints. In many of the emails between the MECP and Nation Rise staff are references to telephone meetings to discuss issues and responses, for which records were not provided.

Comments included in documents early on in the progression of emails and other documents suggest that the staff associated with the local ministry District Office who were responsible to respond to complaints about the Nation Rise power project were not prepared. In January of 2021, the officer assigned wrote to staff at the wind power operator, thanking them for their help, and made this admission:

> "While I have a significant amount of experience with a wide range of industrial facilities, as you can imagine, the opportunity to be involved in the industry of 'wind farming' was not one. The discussions and correspondence help me address the complaints/concerns brought forward by the public." [P. 000016]

In other words, the staff of the *regulator* appears to be asking for help from the power developer to do her job.

About a week after that email, the same senior environmental officer again contacts the power developer to ask whether the on-site workers think the noise being produced by the Nation Rise wind turbines is unusual. She also appears to have little understanding of the ministry's process.

> "Can you please ask those experienced on site workers their perception of the noise levels? I am especially interested in off-site levels and observations. It is my experience that a sound that is not observed at the source is often observed remotely. I presume that when there is a complaint that the person tasked with assessing the validity of the complaint travel down wind and listen as well? Please confirm that going forward noise assessment will includes [sic] some level of a 'stop and listen' 500 metres down wind, if possible, and especially if the complainant identifies a new or odd noise in characteristic or intensity."
>
> "Please ask a few of the most experienced staff as to their general sense of

> whether noise/sound generated is similar or significantly different from other sites." [P. 000063]

Only if the staff think the noise is louder, she says, will "other work" be done "before all 28 [turbines] are constructed". [P. 000063]

The essence of this exchange is that apparently, the Environmental Officer, a staff person whose role is to enforce regulations on behalf of the ministry and the government, is actually asking the business itself, the subject of citizen complaints, whether it thinks regulations might be being violated.

The officer describes her understanding of sound or noise and says this:

> "Obviously, the perception of noise levels is subjective." [P. 000063]

Again, in this particular interchange, the officer thanks the power developer for "continued assistance" and apologizes for her inquiries adding that she hopes there will be "less onerous drawing on your time in the near future".

The nature of these remarks points to an unusual relationship between the regulator and the business, and hints at bias.

Response to complaints gradually became so erratic that one person resorted to creating a multi-page table documenting the complaints complete with Incident Report numbers and details, requesting that he/she get some help [P. 000377-000379]. One line item described response from the operator as "basically a brush-off".

The essence of these responses was that the complaints about noise, which more than one resident described as "unbearable" or "brutal", and which were frequently associated with reports of health impacts, were never going to be acted on. The rationale, as explained, was to say it was the ministry's "position".

For example, the Senior Environmental Officer assigned to the Nation Rise power project out of the local office responded to a person who filed complaints by email in June with this comment:

> "With respect to general health impacts being reported from noise or infrasound, the ministry will continue to log those calls. However, the expectation is that no other action is likely to be taken, given the ministry positions". [P. 000605] [Emphasis ours.]

And,

> "…the MECP is not qualified to assess or diagnose an individuals [sic] health concerns. Anyone experiencing feelings of unwellness, are strongly encouraged to see a Health Care professional."

The staff officer referred to several studies,[1] published in 2010 and 2014 to support the claim that the environment ministry has based its position not to act on clear authority.

[1]Given the dates, these documents are likely the statement by the Ontario Chief Medical Officer of Health, which was a policy statement, not a "study", published in 2010, and the wind turbine and community noise study published by Health Canada in 2014.

There is also evidence that the ministry did not adequately prepare the "Senior" Environmental Officer assigned to deal with the public on Nation Rise; neither did the ministry provide preparation or clarification on the complaint handling process.

The process appears not to have been clear to staff, and there was discussion about how to proceed. In one email interchange in May between the local Environmental Officer and a Divisional Program Specialist, the latter schools the Officer on how she is responding to, and logging, complaints.

> "Unfortunately, the way you are currently capturing complaints does not allow us to roll up the complaint data as accurately as possible as we only see a single complaint. Actually, I have been capturing complaints properly. I have been capturing them with an event for every call." [P. 000293]

And,

> "I don't know why you would be calling in complaints received by the ministry to the company only to have them report them back to us…this seems redundant."

Nevertheless, a few weeks later in June, the Officer tells a resident following a complaint:

> "I encourage Callers being impacted by noise or other Turbine concerns to (also) contact the company directly when possible. …By contacting the company directly they can at that time (or call you back) to collect additional details if needed; it increases the likelihood of a site visit by the technicians/company to the turbine when the noise or impact is ongoing; *you are not relying on a third party* to forward the email/call…" [P. 000408] [Emphasis ours]

The use of the phrase "Third party" in interesting in that the Environmental Officer is acting as the *regulator*.

The district office response to citizen complaints varied over time. In January, the Officer advised people they could call the wind power operator directly, and/or the government Spills Action line, but only for "unusual noise rather than normal operating noise". [P. 000031] There does not appear to be evidence of an understanding that "normal operating noise" could in fact be exceeding noise standards.

Inconsistencies in the process were apparently noticed by people making repeat complaints. In June, one resident sent these comments to the Environmental Officer by email:

> "You had told me not to call the Spills Line but yet on the Report pollution online page they do have an option to report by calling 1-800-MOE-TIPS. Could you explain why it says on the website we can call to make a complaint and you say not to?" [P. 000407]

The resident added:

> "You make a naïve, incompetent or neglectful assumption that people who suffer with noise or shadow flicker from the industrial wind turbines…should first reach out to their abusers, and wait their feedback? This is like asking people who have been robbed to call the robbers and complain to them and ask for justice." [P. 000407]

The company's response to noise complaints is not included in this tranche of documents but in one case, in response to complaints made in January, the company spokesperson claimed to have done "a visual inspection of turbine [redacted] …indicate the turbine was operating normally." [P.00039]

The company then said no action would be taken and

> "Furthermore, we do not intend to stop or limit the turbine's operation in any wind direction." [P.000039]

There was no record of response from the ministry. Residents were clearly disappointed by the lack of response. In May:

> "…no one has ever come out waiting instead for the proponents own measurements sometime in the next years or so." [P.000334]

From other emails from residents, it appears there were attempts to discourage further complaints. At least one person may have been told "You are the only one complaining" because he/she wrote back:

> "I cannot be the only one complaining about the turbine noise. I personally know of others that are experiencing same and if I am the only person reporting…this means the residents of North Stormont have lost complete faith in the MECP's ability or willingness to do anything about it." [P.000321]

In another email exchange between a resident and staff in both the local and regional offices, a report apparently from the project operator is referred to which said a site visit had been done in response to the complaint:

> "…observed that it was still windy. That is our sole observation. *We did not consider the excessive noise unusual* or even mention anything about noise in our report so no corrective action will be taken. We claim not to know the complainant's contact info in this report and did not go to his location even though we documented his address…"

And, incredibly,

> "Please disregard this complaint and close this file as *we are ignoring it* and hope you will too." [000270] [Emphasis ours]

Choosing to "ignore" a complaint would be in violation of the Renewable Energy Approval for the power project. There was no response from the regulator provided in the documents.

With regard to health effects the Senior Environmental Officer at Cornwall opined in an email:

> "I report what people advise is the 'impact'. It is not my role to discriminate and remove information." [P. 000445)

She then went on to do exactly that, however, and expressed an opinion on the cause of health effects.

> "The issues could be due to many factors—and most ar [sic] already pre-existing (tinnitus and anxiety as example). Complaints of health primarily at one residence where both adults report issues. Other complaints tend to be 'noise and being awakened at night' The MECP has responded many times indicating nuisance could occur *but no health impacts*." [P. 000445] [Emphasis ours]

In this response, the Officer seems to be stating she has made her own determination as to the validity and seriousness of health impacts, and ultimately dismissed them.

As late as June 10, some six months into the testing phase but still prior to Commercial Operation Date, is an email from an MECP manager setting up a meeting to review the protocol for logging complaints, and what the response should be. [P. 000446] Clearly, awareness of the complaint process is not consistent among all staff, or there would be no need for such a meeting. There was a concern on how to respond to individual complaints, and how to deal with "disrespectful, harassing and/or abusive communication".

4.4. Role of the Contracting Authority and Other Government Departments

As the date for the final stage in the contracting process approached for Nation Rise, where the Independent Electricity System Operator or IESO granted Commercial Operation Date, some residents questioned the MECP on whether this should happen, given the number of noise complaints. On June 16 a resident sent an email to the IESO and copied the local Member of Provincial Parliament.

On June 17, the local Environmental Officer emailed the Regional Office management staff with this comment:

> "IESO has never reached out to us and I suspect are well acquainted with the concerns of other wind farms—which went ahead to CO status. Not familiar with IESO…I did tell [name withheld] that it was likely that yourself … or a team may reach out to see how these emails might be best addressed. [redacted] we may need a longer meeting to update…as hope to have a complete, legible, summary of issues and proposed actions/responses". [P. 000533]

So, although the staff acknowledge the noise complaints and the citizen concerns, they did not take it upon themselves to go further or to contact the contracting authority which, they presume, is "well acquainted" with noise problems all over Ontario.

Questions also arose in the documents about the role of the local health unit. In one email the staff officer referred to the authority of Medical Officers of Health, but the reality is that they have no authority as regards wind turbines, as was revealed in a report from a health unit responding to local noise complaints. The epidemiologist leading the study said this:

> "It is likely that Ontario public health units will continue to be asked to examine potential health hazards which the *Ontario Ministry of Health does not have the legislative authority to regulate*. Also, there will likely be more instances where a consistent data collection system is needed to better understand the experiences of those experiencing the potential health hazard. Further work is needed to examine how these issues can be addressed [16]." [Emphasis ours]

Although the Green Energy Act was repealed in 2018 [17], the government has not returned authority for reports of adverse health effects to the health ministry but instead, has continued to allow it to rest with the environment ministry, and the corporate wind power operators.

5. Discussion: A Question of Bias

Complaint resolution and communication with customers are regarded by the corporate world as important functions, and key to success. In a publication aimed at the banking industry, for example, international management consulting firm KPMG says that organizations should "Consider a customer complaint as a gift. It highlights a problem, provides an opportunity to investigate and put it right, not just for one customer but for all customers" [18].

KPMG goes on to advise organizations to "make your customers' issue your priority". Failure to achieve resolution of problems, KPMG says, may result in negative comments in social media and "brand damage."

While it may be a stretch to equate taxpayers and citizens with "customers," governments nevertheless are concerned about their image and whether they are seen to be fulfilling their mandates. Failure to resolve complaints is important to a regulatory body, as complaints suggest regulations are not being enforced, and that one group is being favoured over another.

There is another important aspect to the complaints being filed with government: they are an indication of problems, perhaps serious ones, with a government program, that may even have relevance to public health. Health authorities all conduct surveillance programs to monitor health and safety; complaints, even anecdotal reports, serve as a key indicator [19].

Problems with industrial-scale or grid-scale wind turbines in Ontario, Canada, have been well documented. Countless media articles and academic papers refer to the experiences in Ontario and one government minister ceded that there had been problems, particularly with siting of the power projects.

Glen Thibeault, energy minister in 2017, said in a speech that "allocating the

precise mix of technology types has largely been arbitrary and led to sub-optimal siting, uncompetitive prices, and heightened community concern" [20].

A paper by Fast et al. in 2016 acknowledged the problems with developing wind power in Ontario and said that "public policy takes an 'innocent until proven guilty' view of this evidence [complaints, studies documenting noise impacts] rather than a more precautionary approach" [21]. The authors said the "top-down" approach to approving and siting wind turbines was a problem for people in the communities that were then forced to "host" the power projects. They recommended that, "rather than dismissing health claims as groundless or inconsequential, policy-makers should take a precautionary approach so as to more thoroughly address the factors that contribute to frustration". The authors pointed to regulation as a factor: "This must be coupled with diligent enforcement of the responsibility of wind companies to respond to noise complaints throughout the life of the project" [21].

That is not what happened with the government and the Nation Rise power project, despite the government's 15 years of experience with projects and citizen complaints. Internal emails clearly show that staff had no intention of taking any action on residents' complaints, even where there was mention of health impacts.

Why?

According to the Oxford Dictionary, "institutional bias" may be defined as:

> "A tendency for the procedures and practices of particular institutions to operate in ways which result in certain social groups being advantaged or favoured and others being disadvantaged or devalued. This need not be the result of any conscious prejudice or discrimination but rather of the majority simply following existing rules or norms. Institutional racism and institutional sexism are the most common examples" [22].

Authors Whiteley *et al.* looked at the situation of complaints and government response in Ontario and determined that it was a situation demonstrating "administrative bias." The government, Whiteley et al. said, has not proven the efficacy of prescribed safety levels or setback distances to protect health. Worse, there were actual examples of the government ignoring its own rules, as was the case where non-compliance in siting of turbines was identified and the government took no action; and another where a property was incorrectly identified as "vacant" but in reality did have a home on it, and although the occupant detailed numerous complaints about noise and attendant adverse health effects, there was no resolution to the complaints [23].

The authors further proposed a set of questions with regard to the Ontario complaints management process:

Are letters [complaints] from citizens received by senior officials?

Are employees and senior officials in particular discouraged from responding on controversial topics?

Is there proof of the safety of current regulations, and is there verification that these regulations are being followed [23]?

The role of government as regulator

From the review of the documents provided on the Nation Rise wind power project, more questions can be asked. There are serious issues raised by the content of the correspondence such as, for example, when the wind power operator told the environment ministry as regulator that it was choosing to "ignore" a complaint, and advised the regulator that it should ignore the complaint, too.

What is the relationship between the regulator and the corporate wind power operator that such a statement could be made? Who is in control?

A general question:

What is the basis for the government policy (or "position" as stated by employees) that there are no harmful effects from wind turbine noise emissions, therefore complaints have no merit and do not warrant response?

And for the Nation Rise wind power site in particular:

Why were staff apparently not adequately prepared in the basics of environmental noise, and on the government's own response or complaint management process, such that they turned to the corporation they were regulating for help and advice? Why were there no formal Incident Reports, which is the ministry's process for noise complaint management?

And, why did the local environment ministry staff not discuss the fact that noise complaints had been made with the contracting authority, rather than assuming the agency would be "aware"?

6. Conclusions

The review of the set of documents that consisted of communications inside government, with and from citizens, and with and from the corporation that was subject to government regulation, revealed problems not only with environmental noise produced by a wind power project, but also the possibility that the government as regulator was, frankly, not doing its job. Correspondence contained statements about government "policy" or "position", that were used to justify a lack of action. This occurred despite clear requirements for action in the regulator's own agreement with the corporate wind power operator.

At this stage, the Government of Ontario had more than 15 years' experience with wind power projects and a history of receiving thousands of complaints about wind turbine noise and health effects, yet in this collection of documents there is no apparent commitment to seeing the matter as important enough to respond, or to ensure that staff charged with this responsibility were adequately prepared.

There appears to have been no genuine effort to determine the cause of citizen complaints, nor to evaluate the information, or to follow the process required by formal agreement with the power operator.

In fact, the balance of power in this regulator-operator relationship could be said to lie with the power operators, not with the government. That is substantiated by requests by government employees as to what their course of action should

be, and by their apparent reliance on the operator for information and knowledge. Ensuring that employees were fully prepared appears not to have been a priority for the government, as regulator, with regard to wind turbine noise complaints.

The obvious steps forward would be to: conduct a review in the environment ministry of wind turbine noise complaints and the complaint management process; and to institute a consistent and comprehensive training program for employees carrying out regulatory roles.

The question of institutional bias should also be examined and resolved.

The documents reviewed reveal a lack of commitment to scientific rigor in understanding environmental noise which would be critical to a regulator charged with ensuring health and the environment are protected, and to take effective action where needed.

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Conflicts of Interest

The authors declare no conflicts of interest.

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