

Ontario's Green Energy Policy vs. Social Justice

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Abstract

Objectives: To explore the development and implementation of Ontario's Green Energy Act and the outcomes on social justice and risk of harm to Ontario residents. To provide examples of government actions taken to achieve its goals and the occurrence of consequences, whether intended or unintended.

Methods: In Ontario, many legal cases have been filed due to concern regarding the impact of industrial wind turbines on people and the environment. The contents of this article have primarily been taken from the documents filed during an Application for a Judicial Review that examined the process of approval of industrial wind turbines in Ontario. References to support the content of this article also include: evidence derived from other legal cases, government communications including records obtained by Freedom of Information requests, peer reviewed literature, and other sources.

Results: Evidence is presented that suggests the government erred by creating an inflexible policy/statute that ensured that industrial wind turbines would be approved, erected and become operational at any cost. It provides examples of government actions taken to achieve this position that are contrary to widely held fundamental principles of administrative law and governmental legitimacy. Recommendations are provided for mitigating some of the outcomes of a government policy and preventing impacts on social justice from happening again.

Keywords

Green Energy Act, Wind Turbines, Judicial Review, Natural Justice, Access to Justice

1. Introduction

By 2000, climate change was increasingly becoming a concern and energy policy became a focus, with increased consideration of renewable energy such as wind

turbines.

In 2009, the government of Ontario, Canada enacted the Green Energy Act (GEA) with the intention of making “Ontario a global leader in the development of renewable energy” through fostering the growth of renewable energy projects. The government sought to remove barriers and promote opportunities to stimulate renewable energy development and a green economy ([A Green Energy Act for Ontario 2008](#); [Green Energy and Green Economy Act, 2009](#)). This policy resulted in several statutes of general application being amended or interpreted to reduce impediments to the approval and construction of wind turbine facilities. The government thought that these actions would lower electricity costs, lower carbon emissions, establish a manufacturing industry capable of exporting technology, and create 50,000 jobs ([Runyon, 2009](#); [Environmental Defence, 2016](#)). These expectations have not been achieved ([Gallant, 2016](#); [Ontario Society of Professional Engineers Report, 2012](#)).

Residents living in the areas where industrial wind turbine (IWT) projects were planned expressed concerns regarding the impact of the turbines on people and the environment; where they were operational people voiced complaints.

This paper addresses the questions: How did such a noble policy of reducing a carbon footprint go so far amiss, and what have been the long-term impacts of these actions on citizens, businesses, and our legal framework? The approach taken was to explore why and how the Green Energy Act (GEA) came about, and what appropriate mitigation might be for those impacted by the more than 2600 IWTs ([CanWEA, 2020](#)) that are operational in Ontario. It includes a summary of governance issues and evidence of the extent of government efforts that were associated with the creation and enactment of the GEA and its guidelines. Examples of the harmful impacts of the impugned statutory test on human, plant and animal life, and on the social, economic and cultural conditions that affect the lives of residents in rural communities across Ontario are also discussed.

This is the second article in which we explore Ontario’s GEA. The previous one reproduced a letter from one of the authors, lawyer Alan Whiteley, to the government that was written to prevent future Acts and policy decisions from making similar mistakes. It provides recommendations of changes in order to modernize the justice system to avoid impacts on access to justice, citizen rights and animal protection. The GEA with associated changes to Acts and policies was used as an example ([Whiteley et al., 2021](#)). Similarly, [McRobert et al. \(2016\)](#) described unfairness in the approval system outlined in the GEA, and noted that such a process likely contributed to environmental, social and procedural injustices. The process has been characterised by other lawyers, social scientists and others as top-down, and centralized, causing complaint, conflict and problems ([Broekel & Alfken, 2015](#); [Colton et al., 2016](#); [Krogh, 2011](#)).

2. Methods

References to support the content of this paper include: documents derived from

an Application for a Judicial Review that include sworn Affidavits by Ontario residents, evidence and transcripts from Ontario Tribunals, other court cases, government records including documents obtained by Freedom of Information (FOI) requests, written communication with government officials, and peer-reviewed references. To increase clarity, the documents that are based on the Application for a Judicial Review are augmented by additional references.

The Supreme Court of Ontario—An Application for Judicial Review

The primary reference source for this exploration was documents supporting a Judicial Review (*Court File No. 15-2162*). The case was submitted by the County Coalition for Safe and Appropriate Green Energy (CCSAGE Naturally Green), a not-for profit group of concerned citizens who were represented by lawyer Alan Whiteley. CCSAGE submitted an Application for Judicial Review of the process by which a Renewable Energy Approval (REA) was issued in Prince Edward County, Ontario, in 2015. In 2019 the case was updated and submitted to the Ontario Superior Court to more specifically have the GEA declared discriminatory and thus unconstitutional (*CCSAGE vs Ontario (AG); Court File No. CV-19-0154-0000*). The purpose of the Application was to request that the Supreme Court of Ontario respond to the following questions:

- Is the REA that was issued to construct an IWT project the result of institutional bias in the GEA and/or operational bias by the various Ministries?
- Was the implementation of the GEA an infringement of natural justice and a denial of rights created under the Charter of Rights and Freedoms, in that residents of rural Ontario are discriminated against as turbines will never be located in urban communities?

The Judicial Review record includes over 50 sworn affidavits prepared by individuals from across the province. These addressed issues such as the GEA's removal of power from Municipalities and the lack of meaningful account of the impact on health, endangered species, and the local economy including tourism, property and business values. After 4 years the file was withdrawn as resources to conduct the case were depleted.

3. Ontario's Green Energy Act

The documents submitted during the Application for a Judicial Review give evidence that industry proposed, advised on, and recommended modifications of the policies that would govern it, i.e., those that would later be used in the GEA. It was only clear well after the fact that this direct collaboration between the government and industry went on for over many years.

For example, in 2001, a Wind Power Task Force that included representatives from seven Ontario Ministries and a consortium of wind energy developers, engineers, and investors was initiated and led by the industry's voice on wind energy. IWTs were touted as a reliable renewable energy source and as new tech-

nology to combat global warming. The stated purpose of the task force included proposing regulatory policies for wind power and examining opportunities for industry/government co-operation (Ontario Newsroom, 2012). A report with recommendations for the promotion of wind power was compiled by the Task Force (Ontario Wind Power Task Force Industry Report and Recommendations, 2001) and was part of the Ministry of Natural Resources (MNR) Environmental Bill of Rights (EBR) posting (Environmental Bill of Rights, 2003). The industry commented on topics such as the wind company's rental charges and length of the royalty holiday and lease period for turbines on Crown land. The ministry amended its report to reflect these comments (Environmental Commissioner of Ontario Annual Report, 2004-2005).

In 2003, in response to government's request for a new mechanism for developing renewable energy, an industry group—the Renewable Energy Task Team (RETT)—in collaboration with government officials, drafted a policy on Standard Offer Contracts. The subsequent report stated that an objective was to “make a proposal for regulating policies for wind power” and focused on the Power Purchase Agreements, i.e. the money paid out to proponents. The contracts were recommended to be long term, tax exempt, and have expanded incentives (Renewable Energy Task Team, 2002).

By 2009 the Premier was ready to act on his goal of making Ontario a world leader in “green” energy production, and to achieve this with minimal interference from the public and from municipal governments. Like other global political leaders of the time, the former Premier of Ontario considered that the wind industry could contribute to a green energy policy and the rules that would govern it (CBC News Report, 2009; National Wind Coordinating Committee in the US, 2007).

The centrepiece of the Premier's ambitious plan was the GEA. Passed in 2009, the GEA was comprised of 65 pages of clauses amending 20 statutes of general application including the Municipal Act, the Ontario Heritage Act, the Planning Act, the Public Lands Act, the Electricity Act and the Environmental Bill of Rights Act (Green Energy and Green Economy Act. Acts Affected, 2009b; McRobert et al., 2016; Ontario Hansard 25 Feb 2009). Other statutes such as the Endangered Species Act were subsequently amended, and extended the reach of the GEA even further. The resulting policy changes enabled wind turbine facilities to be installed across rural Ontario in contravention of municipal by-laws, official plans and property assessment rights and most fundamentally, in contravention of the duty of care the government owes to the public to address health and safety concerns.

The new legislation and the implementation guidelines it gave rise to were for the express purpose of streamlining the approval process for IWT facilities and to reduce, and wherever possible, eliminate impediments that would cause delays in the construction of these facilities. They reflect a number of the proposals made by organizations with wind energy interests such as the Green Energy Act Alliance, a coalition of wind power interests including the Ontario Sustainable

Energy Association, trade associations, developers, manufacturers and environmental groups (Canadian Institute for Environmental Law and Policy, 2009; Ontario Green Energy Act Alliance, 2009; The Ontario Sustainable Energy Association, 2003).

Soon after the passing of the GEA Ontario residents began expressing concerns (Legislative Assembly of Ontario, 2009d; Gallant, n.d.). Ontarians, particularly in rural areas where the wind turbines were to be erected, were vocal in their opposition to this policy. Many filed appeals of the government's Renewable Energy Approvals—the process that approved a wind turbine project. These appeals were held before an Environmental Review Tribunal (ERT), a restrictive requirement of the GEA (Green Energy and Green Economy Act, 2009a; Wilson et al., 2020; Krogh et al., 2019).

While there were over 50 appeals launched, very few were successful (Wilson et al., 2020). This was due to the high evidentiary threshold and the onerous legal test put in place by the government that required proving causality before the project was erected and became operational: appellants were required to prove in an ERT that in the future the project “will cause” serious harm to human health or serious and irreversible harm to plant life, animal life or the natural environment (Green Energy and Green Economy Act, 2009a). There were many obstacles in even filing an appeal, one of those being that appeals of Renewable Energy Approvals were cost-prohibitive, with legal fees ranging from several thousand to millions of dollars (Wilson et al., 2020). In fact, it has been suggested that participant and intervenor funding be available for participation in approvals, and policy and planning processes related to Ontario laws such as the Green Energy and Green Economy Act (McRobert, 2011). This would improve public access to justice.

Outside of the Tribunal hearings, Ontario residents expressed their concerns regarding other impacts including the infringement on the rights of rural property owner such as enjoyment of their property, and ability to develop their own land (Morrison, 2012; Spencer, 2015; and see Section 6.2).

It was not long before opposition to the GEA spread throughout the Province. Not only Ontario residents were voicing concerns; analysts tracking energy production and hydro rates were also starting to take note of the increasing electricity costs (Gallant, 2016; Gallant, n.d., and Section 6.5). And there was evidence of increased carbon emissions resulting from the requirement for back-up generation due to the low capacity and operational intermittence of wind turbines (Ontario Society of Professional Engineers Report, 2012; Rosenbloom, 2004).

Any opposition or criticism was seen as an impediment to the development of energy projects, with some people characterizing these concerns as anti-environment, NIMBYism (Not in My Backyard) and bananas (Build Absolutely Nothing Anywhere Near Anything) (Clarke, 2012; Smith & Klick, 2007; Casey, 2019; Ontario Environmental Review Tribunal, Case Nos.: 10-121 and 10-122).

The Premier was complicit in the use of such derogatory terms, stating that while it is okay to object on the basis of “safety issues and environmental standards” that “NIMBYism will no longer prevail” (Ferguson & Ferenc, 2009).

While achieving a position of “green energy at any cost” (Wente, 2016) is considered contrary to widely held fundamental principles of administrative law and governmental legitimacy (Shain, 2011, Whiteley et al., 2021), the government remained adamant throughout its time in power that these actions were urgently needed to reduce carbon emissions and would have demonstrable additional benefits including lowering electricity costs, establishing a manufacturing industry capable of exporting technology, and creating 50,000 jobs (A Green Energy Act for Ontario: Executive Summary, 2008; Runyon, 2009; Wikipedia, 2009; Environmental Defence, 2016).

The government’s insistence on “green energy at any cost” is believed to have eventually led to the decisive and humiliating defeat of the Liberal party in the 2018 provincial election (McGrath, 2018; Toronto Star, 2018).

4. Implementation of the Green Energy Act

Evidence indicates that the GEA was implemented by a top-down approach, with the government dictating the direction and strategy in partnership with industry. Upper levels of government provided targets and priorities to senior managers who made clear to staff that implementation of the GEA was of the highest priority. A letter from the Minister of Natural Resources to an industry association obtained through a freedom of information request stated:

The Ministry is also aligning its resources to provide support for renewable energy projects. MNR is focusing staff resources on reviewing and approving Feed-in-Tariff projects, resulting in the approval of over 75 per cent of natural heritage assessments submitted to the Ministry... I am pleased that MNR staff have been meeting regularly with representatives of CanSIA and CanWEA and their member companies to work with the industry to satisfy the REA submission requirements. (Freedom of Information Request, 2010a)

The review process became a box-ticking exercise for projects to which these ministries had inadvertently become promoters and partners. During a Remedy Hearing, evidence was presented that government staff commented to a pre-GEA proponent that having to complete an Environmental Assessment (EA) was a “regulatory glitch” that should not delay the proponent’s schedule, and that the mandatory EA was an “administrative exercise”, “just a formality” and “no big deal” (Freedom of Information Request 2010b).

Additional evidence of reviewing partiality was revealed when, although a staff expert herpetologist was hired to assist the government in the implementation of the Endangered Species Act and in the development of provincial policy and regulations for species at risk herpetofauna, including the Blanding’s Turtle, neither the hiring of a government staff expert nor his advice was disclosed at any

time during a Tribunal that was held in 2013. This information only came to light during the Remedy Hearing (August 2015), when a Tribunal Order revealed the extent to which the advice of this government expert was not considered during the review and approval of a proposed wind turbine project at Ostrander Point. During testimony under oath, when this government expert was asked what advice he gave to the ministry he stated:

As such, it is reasonable to conclude that road mortality at the site could result in the eventual loss of the population (Crowley, 2015).

Appendices 1 and 2, derived from affidavits provided to the Supreme Court of Ontario during that Application for a Judicial Review, provide additional specific examples of where removal of quality controls on technical reports and greatly reduced impediments to construction and operation of IWTs have negatively affected the health of the environment and put public at risk.

These examples reveal the top down approach and reduction of impediments to constructing and operating the IWTs. By 2018, of the 80 applications for REAs to construct IWTs including those approved prior to enactment of the GEA, only two had not been approved and two were revoked by ERTs.

The government was acting as a protector of the environment while promoting and approving energy projects, a situation that lends itself to a conflict of interest.

5. Evidence of Governmental Preferential Treatment

There is evidence that the GEA and its associated regulations affected established policies, practices and procedural processes that were in place to protect the health of people and the environment. This created legal inconsistencies.

5.1. Improper Purpose

The creation of the GEA and the related changes subsequently made to established regulations demonstrated improper purpose, a legal term for an action whereby government alters results or prevents normal procedures from occurring (Law Insider).

For example, in 2009, the Premier of Ontario stated that the purpose of the proposed Act was to stop special interest groups and municipal governments from trying to block green energy projects for anything other than safety or environmental concerns (CBC News Report, 2009). Key components of the Act involved removing municipal governments from the decision making process, streamlining approvals and guaranteeing and prioritizing connection of wind energy facilities to the electricity grid, and allowing only restricted appeals of a wind energy project (Green Energy and Green Economy Act, 2009a). With the passing of the GEA, the Environmental Protection Act was modified to make exemptions for “green energy” projects. These established legal inconsistencies such as those related to a ministry’s Statement of Environmental Values. (See 5.2

*Regulatory Capture and Institutional Bias***5.2. Regulatory Capture and Institutional Bias**

Regulatory capture occurs when a public authority charged with regulating an industry in the public interest comes to identify the public interest with the interests of the industry, rather than the interests of the general public (Kenton, 2018). The GEA-related policies, practices, and procedures giving advantage to or favoring industry over the public demonstrated apparent institutional bias.

An early occurrence of regulatory capture was when Ontario moved towards a law promoting green energy, and the wind industry and its members took part in the formulation of the law by providing the government with their recommendations to shape the policy that would govern it.

By the end of 2008, some residents described harmful effects from operating wind turbines (Ontario Municipal Board, 2007). Community groups began forming to express the concerns that more health effects would appear if proper standards were not in place (Wilson et al., 2010). As noted by a renewable energy industry group, an Act was needed so that “the forces of status quo not be allowed to block wind projects.” (Legislative Assembly of Ontario, 2009c). The proposed GEA and the use of wind power was being promoted by various groups (Canadian Institute for Environmental Law and Policy, 2009; Green Energy Act Alliance, 2009; The Ontario Sustainable Energy Association, 2003).

As well as giving input into the GEA, industry and associated member groups had provided recommendations that were incorporated into the technical guidelines that governed implementation of the GEA. For example, in October 2008, Ontario published its “Noise Guidelines for Wind Farms”, that defined how far from a household or other structure a wind turbine could be sited. As described below, the draft guidelines were modified after the recommendations were received (A Green Energy Act for Ontario, 2008; Tomlinson, 2009). McRobert et al. (2016) commented that the implementation of the GEA is “...an Act that creates an unfair and incoherent process for renewable energy approvals”.

Based on court documents, recommendations beneficial to industry but detrimental to rural residents were consistently applied by the authors of the Act. On numerous occasions, Appellants perceived that health-related expert witnesses testifying on their behalf before the Environmental Review Tribunal were ignored or derided by government lawyers (Environmental Review Tribunal, 2011). Members of professional associations contributed to the forward movement of the industry by dismissing or discounting the complaints of serious harm to health from residents.

Documents show that the government referred to proponents rather than the public as their “clients”. (Incident Reports obtained by WCO. Under CLIENT on the forms, the MOE/MOECC/MECP lists the power operator). There were also concerns regarding support of the wind power industry by insiders of the Liberal Party of Ontario (the elected provincial government) (Wind Concerns

Ontario, 2020).

These actions indicate that the government considered “public interest” to be that of the wind turbine industry and perhaps voters in urban areas rather than those most affected.

The policies, practices and procedures related to and leading up to the GEA, that gave advantage to or favored industry over the public also demonstrated apparent institutional bias. Concerns about regulatory bias in the renewable energy sector by government agencies can be found as early as 2004-2005 in supplemental report by Ontario's Environmental Commissioner that commented that:

...members of the public could question the independence of MNR in setting the policy in the first place and also question whether MNR is able to act as a legitimate rule enforcer and applicant elevator when it comes to reviewing applications for the use of Crown land for wind power purposes because it is also actively promoting this industry. (Environmental Commissioner of Ontario. Annual Report Supplemental 2004-2005)

In 2009, the Ontario government issued Regulation 359/09, linked to EBR 01-6516, that set out the process for the Renewable Energy Approval (REA) under the [Environmental Protection Act of Ontario](#). In the initial draft released for comment on June 10, setbacks of 550 metres from all receptors were proposed along with property line setbacks of turbine hub height plus blade length. The applicable setbacks would increase with the number of turbines and the sound level rating of selected turbines ([Ontario Newsroom, 2009a, 2009b](#)). The wind industry immediately objected to these guidelines, arguing that they would “jeopardize over three-quarters of all ‘construction ready’ wind projects in Ontario”. In a letter sent to Ministers Smitherman and Gerretsen, the Canadian Wind Energy Association warned that “Of the 103 ‘shovel ready’ wind projects in the province, 96—and fully 48 per cent of all proposed turbines—will be affected by the new rules”. And 79 of the projects, representing 2591 MW, will be “rendered immediately non-viable” or require a “back to the drawing board redesign” ([Hornung, 2009](#)). As an alternative, they recommended a property line setback of the IWT blade length plus 10 metres, with the set-back only applying to “non-participating receptors” (the terms of reference adopted by the wind industry and government to designate those not financially benefitting financially from hosting wind turbines on their property) ([Environmental Commissioner of Ontario Annual Report, 2004-2005](#)). The adjusted guidelines met these recommendations.

The wind industry also lobbied against proponents having to address low-frequency noise and infrasound. A Minister of Environment proposed that as a condition of approval for wind turbine projects, proponents would be required to monitor and address any perceptible infrasound (vibration) or low frequency noise as a condition of the Renewable Energy Approval ([Perry, 2009](#)). The Canadian Wind Energy Association took exception to the proposed requirement

(CanWEA Supplemental Submission, 2009). Despite the government's prior commitment to include requirements for low frequency noise (Hornung, 2009) and the evidence indicating that IWTs generate a broad spectrum of noise including low frequency noise (LFN) and infrasound that may be inaudible (Engel, 2011; Krogh et al., 2019; Wilson et al., 2020), the government removed the requirement to monitor and address LFN/infrasound. Ontario's noise guidelines are limited to monitoring of dBA audible noise. At the same time, communication from the Ministry of Environment in 2009 advised that regarding the ability to monitor compliance, there was:

No scientifically accepted field methodology to measure wind turbine noise to determine noncompliance with a Certificate of Approval limits. (Bardswick, 2009)

Both noise measurement companies and those living near IWTs raised concerns regarding emissions of LFN/infrasound (Ontario Municipal Board, 2007; Walker et al., 2012; Wilson et al., 2010).

By 2010, the government was aware that the setbacks were inadequate to avoid adverse health effects. Government records obtained through a Freedom of Information request stated that:

It appears compliance with the minimum setbacks and the noise study approach currently being used to approve the siting of WTGs (wind turbine generators) will result or likely result in adverse effects contrary to subsection 14(1) of the EPA. (Hall, 2010)

and that instead of the noise limit established by the noise guidelines:

...the setback distances should be calculated using a sound level limit of 30 to 32 dBA at the receptor, instead of the 40 dBA sound level limit. (Jeffery et al., 2014)

The content of the GEA and the associated regulations contains apparent inconsistencies with the Statement of Environmental Values (SEV) of various ministries. In Ontario, each ministry is mandated through the Environmental Bill of Rights (EBR), section 7, to prepare and adhere to their SEV. These represent promises made to the public that all actions and policies by each ministry will consider and integrate social, economic and scientific aspects in their decision-making processes. For example, the SEV of the Ministry of the Environment included directions to:

- use a precautionary, science-based approach in its decision-making to protect human health and the environment (consistent with s. 11 of the Environmental Bill of Rights);
- evaluate cumulative effects in decision making;
- assess social and economic impacts to a community;
- be transparent about decision making;
- base decisions on best available science, in all decision making. (Statement of

Environmental Values, 1993)

While these values are consistent with the Environmental Protection Act, the GEA overrode many of the important protections. In order to enable IWT approvals and implementation when contrary to these principles, the government effectively gave IWTs an exemption by reducing the scope to which Environmental Review Tribunals (ERTs) could base decisions.

The GEA imposed a single legal pathway to appeal an REA: through an ERT that had limited jurisdiction that was inconsistent with the applicable SEVs. The legal test for health as defined in the GEA was that the wind turbines “will cause” serious harm to human health or serious and irreversible harm to plant life, animal life or the natural environment. The Tribunals were not permitted to consider health related or environmental cumulative effects, economic viability, social or economic impacts, the Precautionary Principle or the “more likely than not” provision. In effect the benchmark for a successful challenge was set so high as to make challenges almost impossible. Contrary to the provisions of the ERT, the following has been stated regarding “proof of causality” for human health and the environment:

... prudent public health actions do not and should not require 100% proof of harm. In fact, precautionary and preventative actions are specifically justified at a point in time before scientific proof is established. If the growing weight of evidence is positive (although all studies need not report positive effects) then it may be essential to take preventative actions and implement policies that are protective of public health, safety and welfare rather than wait for absolute certainty.

... environmental quality acts... require that assessments use a standard of “potential for a significant impact on the environment which is a relatively low level of certainty (10% to 30%)” (Sage & Carpenter, 2012)

The GEA required that an application to appeal a wind turbine project had to be filed within 15 days after the issuance of the Renewal Energy Approval, a very tight timeline for the public to organize a community appeal and to raise funding, hire legal representation and acquire expert witnesses—all the more so when the public had no way of knowing when the Renewable Energy Approval was about to be issued and for which project. Further, since government was a proponent of the process, challenges of an REA were considered a challenge to the government. As such, community groups were generally forced to legally challenge both their government and the industry provider as “partners”. Government lawyers demonstrated having a collegial and close working relationship, with the lawyers representing their wind developer clients. These conditions for securing a hearing under the GEA scheme appear prejudicial to those who appealed the siting of the turbines and highly favourable to the proponents and their expert witnesses.

By 2009, the process was in place: the required burden of proof (causality) was

established and the appeal timeline minimized. The government began rapidly approving IWT projects. Once started, the process continued unabated until just before the 2018 election: between 2010 and 2018, more than 50 appeals were held (Wilson et al., 2020). By then, government records obtained by Freedom of Information records documented the problems experienced by those living near IWTs (Wilson et al., 2020; Krogh et al., 2019). Many municipalities passed resolutions of being “unwilling hosts” to an IWT project after the Premier vowed to not impose such projects on places unwilling to take them (Martin, 2013) (The Premier pulled back on this vow). To ensure continuation of the “green” energy production, Bill 135 was proposed in 2015. It was intended to amend the GEA to prevent an incoming government from being able to cancel projects on a discretionary basis at a relatively low cost; the Bill did not pass.

To sum up, in the creation of the GEA, its regulations and guidelines, and modifications to related Acts, the government worked closely with the wind power industry. Policy makers failed to establish and apply rules and standards that were protective of residents and of the natural environment.

5.3. Evidence of Differential and Discriminatory Treatment

In addition to the indication of differential treatment provided above, there are perceptions of differential treatment related to the processing and awarding of IWT contracts. For example, the requirement to adhere to the commercial operation date was altered on separate occasions by the Ontario Independent Energy System Operator (IESO). (The IESO is considered independent: it is governed by a board whose directors are appointed by the government of Ontario.) In February 2011, the Ontario Power Authority (OPA) (originally licensed by the Ontario Energy Board but later merged with IESO) offered that all Feed-in-Tariff (FIT) contracts that had not yet reached their Commercial Operation date may have an extension of up to one year. Regarding project delays, in June 2013 the OPA advised contract holders that it would not act upon its right to terminate a contract should they need more time to meet the requirement in their Notice-To-Proceed.

Discriminatory treatment is also built into the process. Due to large land use requirements for IWT projects (SaskWind, 2020), IWT projects in Ontario are located in rural Ontario, often against local by-laws and the will of the municipality and community (Martin, 2013). The statutory provisions and regulations effectively restrict IWTs to rural areas, and potentially create a divide between the residents of rural and urban/suburban Ontario. With the lower population density in rural compared to urban voting areas, this can hamper the rights of residents of rural Ontario to advocate for, enact, rely on and claim the benefit of sound land use planning principles or environmental protection legislation: these factors amount to a form of discrimination.

Urban communities have been able to resist electrical generating stations on political grounds. For example, when the government had two firm contracts to

build gas-fired generating stations in the urban areas of Mississauga and Oakville, the urban residents objected loudly and the government relocated those gas-fired stations to rural Ontario, at a change cost of an additional \$1.1 billion (Morrow, 2015). When the government contracted to purchase power from a proposed IWT array to be erected in Lake Ontario off the Scarborough Bluffs (east of Toronto), they declared a moratorium when urban residents objected, exposing taxpayers to a damage award of \$28 million (Jones, 2017; Talaga, 2011).

Despite the thousands of noise and other complaints and requests for government action (Krogh et al., 2019; Wilson et al., 2020) rural residents living near IWTs have not benefitted from a responsive government in the same way residents living in urban areas have benefitted.

6. Outcomes of the Green Energy Act

The implementation of the GEA in Ontario has resulted in reported negative outcomes related to a range of issues such as: effects on health, safety, social well-being and the economy, right to a fair tribunal, and loss of property rights. At the same time, there has been no evidence that the assumed benefit in reduction of greenhouse gases has occurred.

6.1. Effect on Health Protection

6.1.1. Incident Reports/Complaints and Gaps in Research and Knowledge

Government records document that neighbors living near IWT facilities filed over 4500 noise complaints/incident reports between 2006 and 2016. In the majority of cases, there have been limited field responses to the complaints (Sage & Carpenter, 2012). Compliance audits are a requirement of the REA, yet the government has a backlog of these audits. As responses by the government to complaints do not occur until the results of noise audits are known, resolution of the complaints can be delayed for many years.

Although Health Canada logs, analyses, interprets and acts on adverse reaction reports associated with medications and medical devices (Government of Canada), neither Health Canada nor the provincial health ministry have provided a similar vigilance monitoring program for IWTs. The regulatory authority for IWT complaints in Ontario is the Minister of the Environment (Stachura, 2018). There is no indication that these complaints are analysed or shared with the Ontario health ministry.

There were gaps in health protection. Prior to launching the GEA in 2009, the Ontario government did not conduct health studies to determine whether the 550 m minimum setback from residences would protect the health of people living near the IWTs. Setbacks were established using computer models based on dBA sound; excluded were other types of noise such as the tonal quality and cyclic variation of the IWTs (Hall, 2010) and low frequency noise/infrasound. Limiting consideration of a single turbine rather than including all those that surround a home limits the ability to consider cumulative effects. These limita-

tions were generally not supported by the government's field observations (Hall, 2010) or its Acoustic Consulting Report (Ramakrishnan, 2007). Unconsidered was the evidence that in addition to audible noise, operating IWTs emit tonal and cyclic (amplitude modulation) noise, and infrasound/low frequency noise (ILFN). ILFN can disrupt the normal functioning of the middle and inner ear and that of other sensory organs, and can lead to nausea, impaired equilibrium, disorientation and elevated blood pressure and is easily transmitted into buildings, causing psycho-acoustical annoyance and sleep disturbance for some residents (Acoustic Group, 2014; Alves-Pereira et al., 2019; James, 2012; Punch & James, 2016). Despite the limitations on the setback requirements that were defined as mandatory to protect the health of adjacent residents, exceptions have been made to allow reduced setback requirements through issuing an Amended REA in breach of the approved conditions and contravening the Environmental Protection Act (Vineland Power Inc., 2014; EBR Nos. 012-4601, 012-4493).

In 2010, the Chief Medical Officer of Health (CMOH) identified that there was a research gap associated with low frequency noise. At the same time, the CMOH issued an opinion denying a direct causal link between IWT noise and adverse health effects but did not address the role of an indirect pathway to adverse effects (Chief Medical Officer of Health Report, 2010). An Ontario Tribunal Decision stated that:

The Tribunal has found above that "serious harm to human health" includes both direct impacts (e.g., a passer-by being injured by a falling turbine blade or a person losing hearing) and indirect impacts (e.g., a person being exposed to noise and then exhibiting stress and developing other related symptoms). This approach is consistent with both the WHO definition of health and Canadian jurisprudence on the topic. (Environmental Review Tribunal Case Nos. 10-121, 10-122, 2011)

Despite the CMOH report having been produced 10 years ago, the Ontario government continues to rely on it. Yet the World Health Organization (1999), in a review funded by the Ontario government (Howe, 2010), an Australian Tribunal Decision (Krogh et al., 2011), and other literature (Abbasi et al., 2016; Jeffery et al., 2014) comment on IWT-related adverse effects on residents living near IWTs.

The CMOH report has been referenced during the issuance of REAs (Renewal Energy Approval, 2012, 2014, 2018), and during judicial proceedings. (e.g., Ontario Superior Court of Justice, 2014, Court File No: 2055/14; ERT Case No.: 13-084-13-087 and Court File No: 2056/14 ERT Case No.: 13-097/13-098; and Environmental Review Tribunal Case Nos. 10-121 and 10-122, 2011) In response to an internal initiative to update the 2009 report in 2013, the CMOH stated that based on reviewing an updated literature review and comments from staff and local medical officers of health:

I am of the opinion that my position as stated in my CMOH report remains

the same. (Freedom of Information Request, 2013)

To date, there is no evidence an update to the CMOH report has been publicly released.

In addition to complaints related to the components of noise/vibrations from IWTs, some individuals have reported being susceptible to electrical sensitivities due to high frequency ground current and transient and harmonic signals and electromagnetic/radio frequency energy related to IWT infrastructure and operational requirements (Havas & Colling, 2011; Krogh & Harrington, 2019).

The government has been aware that many adverse health complaints had been received from those living near IWTs (Krogh et al., 2019; Wilson et al., 2020), and that district officers were unable to demonstrate compliance with applicable standards (Hall, 2010; Krogh et al., 2019; Pearce, 2010; Wilson et al., 2020). The setbacks have not worked as expected and have not been altered to adjust for the increased size and capacity of newer IWTs. After years of complaints and submitted incident reports the government has failed to take any step to remedy the unauthorized pollution emitted by IWTs.

6.1.2. Abandoned homes

Some people living near wind energy facilities have reported adverse health effects and have left their homes (Krogh, 2011; Krogh et al., 2020; Le Coz & Sherman, 2017; Nicol & Seglins, 2011; Pearce, 2010); others contemplate doing so (Krogh et al., 2020). Some families have been billeted by, or have negotiated financial agreements with wind energy developers (Jeffery et al., 2014).

Although the government is aware that adverse effects resulted in people leaving their homes, no acknowledgement has been made or remediation given.

6.1.3. Contamination of Drinking Water

In some areas, well water supply at properties adjacent to IWTs has become depleted and/or unsafe as a result of their construction and vibration. Some wells are reported to have run dry or are producing turbid water (Di Maria, 2017; Wind Concerns Ontario, 2017). In one area, wells have become contaminated with black shale particles known to carry heavy metals such as uranium, lead, mercury and arsenic (RTI Laboratories, 1993a). The particles are smaller than one micron, such that they cannot be removed even by the finest filters and are easily absorbed through the skin. When the government required an IWT developer to perform an analysis on water contaminants, only those suspended particles large enough to be filtered were measured. An analysis commissioned by the well owners that included particles below 1 micron in size gave results many-fold higher than that of the company. It indicated that suspended solids increased 82 times, and that the number of black shale particles increased 14,500 times (from 47 particles/mL in the pre-construction sample to 681,939 particles/mL in the post-construction sample), while that of the company showed that suspended solids increased only 5 times and turbidity increased 13 times compared to pre-construction samples (RTI Laboratories, 1993b). Despite acknowledging the corre-

lation between the pile driving and the spike in well water turbidity (Jacobs, 2017), the government continues to rely on the flawed methodology of the proponent to assert that there was no causation.

Although the government has since made a requirement of an REA that the project “not utilize pile foundations for project infrastructure” (EBR number 013-1675), the vibrations from operating IWTs continue to pollute the ground water.

6.1.4. Risk of Collapses and Fire

In recent years IWTs have snapped in half or thrown blades and other components over 500 m, incidents that threaten both landowners and farm animals. Incidents in Canada that have occurred in Ontario include: Chatham-Kent, Kawartha Lakes, Newcastle, Sault Ste. Marie, Orangeville, and in Nova Scotia: Grand Étang, and Point Tupper (Caithness Windfarm Information Forum, 2020).

The wind industry’s publication “WindPower Monthly” published that there were about 3800 blade failures annually (June 2015). Worldwide, there had been over 2000 accidents total and hundreds of IWT fires. Uadiale et al. (2014) commented that due to highly flammable materials within the nacelle and other factors, fire accounts for a “substantial fraction of accidents” in any year—about 10 to 30%. The authors also note that fire intervention cannot occur due to the height of the IWTs. Since fire crews cannot extinguish such fires, in certain conditions the fire can spread to abutting properties. Fire issues have been acknowledged by the Ontario Fire Marshal: training courses for 2013-2014 included training associated with wind turbines and firefighter safety (Sylvester, 2013-2014).

The *Fire Protection and Prevention Act* (s. 76) prevents the abutting landowner from recovering any damages for loss caused by turbines in Ontario.

Although there is an association between fire and industrial-sized turbines, and control of such fires is problematic, this safety issue has not been addressed.

This section describes issues that indicate a failure to regulate to the benefit of the wind industry. There is clear evidence that health protection from IWTs should be reassessed.

6.2. Depreciation, Limited Use, and Loss of Enjoyment of Property

As discussed, the GEA requires a minimum setback of 550m from the nearest “receptor” (i.e. centre of an occupied building) and 100m from the nearest non-participating property line. Even before construction of IWTs is commenced, this setback requirement can prevent owners of abutting lands from being permitted to construct homes on their own lands within 450 m of their property line. IWT manufacturers have advised that workers and children not be allowed within 400 m of an IWT, especially in icy or stormy conditions (Ragheb, 2011). This can leave the abutting lands unfit for purpose and potentially unsaleable.

The government has consistently denied that construction of IWTs has any impact on sale prices of abutting properties. This appears to be based on a report prepared in 2008 by four employees of the Municipal Property Assessment

Corporation (MPAC) (Guerin et al., 2014) who were uncertified as appraisers of land sale prices. The MPAC study used only 5 variables to determine assessed values, none of which included proximity to IWTs. Despite their own study, MPAC is following a policy of reducing assessments of properties adjacent to IWTs while publicly declaring that IWTs have no impact on property values (Gulden, 2014a, 2014b).

Many professional real estate property appraisers have stated that IWTs cause substantial value diminution to nearby properties, and have conducted studies of actual values of specific properties within clearly identified distances from installed IWTs (Appraisal Group One, 2009; Lansink, 2012; McCann Appraisal, 2010). In Ontario, sellers of property have been required to provide full disclosure and must declare the potentiality for the presence of IWTs to the buyer. (Real Estate Clauses Ontario).

The approval of IWTs within proximity to occupied homes can essentially “sterilize” abutting lands, leaving them unfit for purpose and have reduced value, or be unsaleable. The approval of IWTs within proximity to occupied homes is tantamount to a regulatory taking of private property rights.

6.3. Social, Cultural and Economic Effects on Rural Communities

In areas where the economy is dependent on cash flow from outside sources such as migration of retirees and tourists, industrialization by imposing IWTs on a municipality can put at risk the social, economic and cultural conditions of the community (Broekel & Alfken, 2015; Whitmill, 2006).

The requirement to consider “the social, economic and cultural conditions that influence the life of humans or a community”, as is stated in the Environmental Protection Act (Part V.0.1), was not a requirement in the REA guidelines. As such, it could not be considered in a statutory appeal to an ERT. Consequently, the impact of the IWTs on the local economy was not considered during the IWT approval process.

The government’s renewable energy policies have prejudiced the economies of rural municipalities. The assessed values of IWTs are limited under the Assessment Act (O. Reg. 292/98; Ministry of Finance, 2012): a turbine that costs in excess of \$2 million is assessed at \$90,000 per MW. This reduces municipal revenue to 9% of the industrial mill rate, and in an assessed value of 3% of assessed value otherwise determined. This is a loss to rural municipalities of millions of dollars in foregone assessment tax.

The government failing to investigate the social and economic conditions in approving turbine projects, failing to require the IWT developer to do so, and prohibiting its consideration in the statutory appeal to the ERT demonstrates that the impact of the REA and the IWTs on the local economy was ignored.

6.4. Protection of Heritage Conservation

In an application for Judicial Review, the Divisional Court held that the govern-

ment acting under the GEA when issuing an Approval has discretion to exclude and override the policy and purpose of cultural heritage conservation, even when the expressed purpose of the override is to promote the economic viability of the project (Driver et al., 2017). Nowhere is this factor permitted under any applicable legislation. Neither the GEA nor the Environmental Protection Act displaces or takes priority over the Ontario Heritage Act.

The government did not apply the provisions of the Ontario Heritage Act when it conflicted with the GEA in approving the turbine generators.

6.5. Effects on the Costs of Electricity

In 2009, when a former Minister of Energy introduced the GEA in the Ontario Legislature, he told the Standing Committee on General Government “We anticipate about 1% per year of additional rate increase associated with the bill’s implementation over the next 15 years.” While the basis for this statement is not known, opposition parties criticized the estimates (CBC News, 2009; Legislative Assembly of Ontario. Hansard, 2019a, 2019b). Employees at the Ontario Power Authority (the agency responsible for determining how much the plan would cost) and other organizations were also concerned that these rates were unrealistic (Hill, 2018; City News, 2010). A 2015 estimate claimed that the globally adjusted Ontario energy prices increased about 40% (Gallant, 2016), and the Ontario Auditor General’s 2015 Report estimated the cost to Ontario would total \$ 170 billion over 30 years (Office of the Auditor General of Ontario. Annual Report, 2015). From 2010 to 2017 the Auditor-Generals of Ontario have issued reports that include critiques of the GEA and the policy of subsidizing proponents of IWT projects (Office of the Auditor General of Ontario. Annual Reports, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017).

IWTs are inefficient producers of electricity and provide intermittent supply that requires back-up power by carbon source factories. Electricity from carbon-free sources that can provide reliable base load is available at half the cost of that payable to developers of IWTs. Strong winds during periods of low demand create severe surplus base load in the grid. As generation and load must match up at all times to protect the grid, and as that electricity is not stored, the surplus is sold off or generation curtailed in order to avoid a blackout. Generators are paid to curtail production; surplus load is sold at a fraction of its costs (Ontario Society of Professional Engineers Report, 2012).

Nineteen gas-fired plants have been commissioned in Ontario since 2003. According to the Independent Electricity System Operator (2020) website, they operate at less than 5% of their potential. This activity appears to be largely when they are backing-up IWTs during windless periods. Similarly, in Germany eleven gas turbines are being installed even though they are generating record amounts of renewable energy in the north, as its grid is challenged to transport all the power down to load centres in the south and the grid requires stabilization (Hede, 2020).

It became clear soon after the GEA was implemented that instead of the pre-

dicted reduction of electricity rates resulting from operation of industrial-sized turbines, costs were sky-rocketing and the requirement for gas was increasing. Yet the policy of approval continued. Ultimately, the government suspended expansion of its IWT program stating that there was no demand for the electricity and it would save \$3.8 billion in electricity system costs (Ontario Newsroom, 2016).

6.6. Summary of Outcomes of the GEA

The government policy failed to apply rules and standards set up to protect rural citizens. The policy of promoting IWTs at all costs is marked by an absence of meaningful public hearings, token public consultation, an extreme dependence on information provided by IWT developers, a failure to consider cumulative effects of multiple projects, and a failure to consider the impact of IWTs on land values, health of residents or social and economic health of communities.

Under the GEA statutory scheme the relevant ministries in Ontario violated the rights of rural residents, ignoring their interests and their environment by following an inflexible policy of approving renewable energy projects without regard for rural economies or the health and property rights of rural residents. The government's support of the IWT industry affected all stages of the regulatory process:

- 1) At the rule-making stage, when industry groups advanced their positions;
- 2) At the technical decision stage, the government adopted technical assumptions that favoured the industry groups;
- 3) At the enforcement stage, the government has failed to conduct inspections, monitor compliance and prosecute violators.

The damage inflicted includes affecting abutting properties by making them health hazards or blocking them from permissible development, ruining water tables, violating economic interests, and disrupting fragile rural economies. In particular, the impugned statutory provisions have imposed on rural Ontario thousands of IWTs that have:

- been erected in breach of mandatory geographic setbacks and noise limits
- emitted infrasound and electromagnetic pollution that are reported to cause illness in residents
- rendered homes unfit for habitation
- polluted waterways and ground water with soil, shale and toxic minerals
- prevented building in adjacent lands within their setback shadow
- vandalized habitat and species on abutting lands
- opened gravel pits and erected cement batching plants without any environmental studies
- incurred fires, tower collapses and other dangers to residents
- depreciated market value of abutting lands or rendered them unsalable
- prohibited municipalities from raising assessment revenue on the same basis as urban municipalities

- disrupted rural economies and development plans.

The noble policy of reducing a carbon footprint clearly went far amiss. The Ontario IWT experiment has not been realised as expected. For all the costs of going “green”, none of the alleged economic and social benefits, including the thousands of presumed permanent jobs, have materialized. There is clear evidence from the rural residents living within 10 km of IWTs reporting adverse health and other negative effects that allowable noise levels are too high and setback distances too close.

7. Repeal of the Green Energy Act: Is There Remediation?

On September 20, 2018 a newly elected government gave notice of the introduction of [Bill 34 \(2018\)](#) to repeal the GEA, stating that it was necessary because the GEA led to “the disastrous feed-in-tariff program and skyrocketing electricity rates...and ...took away powers from municipalities to stop expensive and unneeded energy projects in their communities”. The government admitted: “the GEA allowed the previous government to trample over the rights of families, businesses and municipalities across rural Ontario” ([NetNewsLedger, 2018](#)). The Bill cancelled most projects that were currently under review as well as one that had begun construction ([Bill 2, 2018](#)). Some sections of the GEA that gave privileged status to renewable energy projects were not rescinded, but were transferred to the Electricity Act.

Since introducing Bill 34, the government has taken no steps to put restrictions on the many turbines that are out of compliance (e.g. exceeding noise limits) or for which the noise audits are overdue. In some cases, companies have been out of compliance for several years—a situation unknown in other industries with reported health effects. Further, there is increased evidence that establishes that wind energy facilities emit acoustic infrasound and electromagnetic pollution that in animal subjects induce disturbances in the visual field, vascular changes in liver structure, hemorrhagic events in lungs and hippocampus morphology, and in humans cause pericardial and cardiac valve thickening and increased arterial stiffness, producing symptoms that include depression, cognitive dysfunction, sleep disorder, chest pain, nausea, vertigo, stress and heart palpitations ([Alvez-Pereira et al., 2019](#); [Bray, 2018](#); [Havas & Colling, 2011](#); [Krogh et al., 2011](#)).

Although the GEA was repealed and the impacts acknowledged by the Ontario government, nothing has been done to alleviate the conditions imposed on those living adjacent to or within operational IWT installations. To date, there remains inadequate mitigation to address the concerns and complaints of the affected public who have lost faith in the government they believed would protect them. The government owes the public a duty of care to protect them from a health risk.

8. Conclusion

This paper presents evidence that the government erred in creating an inflexible

policy that ensured that IWTs would be approved and erected at all costs. It is demonstrated how working with industry created bias that favoured industry over the safety and well-being of the public and the environment. The government demonstrated a failure to regulate, to the benefit of the wind industry and associated members, to the prejudice of residents.

With respect to the over 2500 IWTs already in operation across Ontario, the following legal implications must be considered:

- Was the statutory scheme in violation of constitutional rights and international treaties?
- Were the administrative procedures biased and in breach of natural law?
- Were administrative decisions illegally institutionally and operationally biased in favour of IWT proponents?

If the GEA was unconstitutional and/or the statutory scheme was institutionally biased, we question the legality of all IWT projects now established in Ontario.

The IWTs continue to damage communities' economics, human health, land values and environments across Ontario. Taking action to help the citizens impacted by the GEA would begin to repair the damage resulting from this failed policy. A reasonable course of action could include:

- Rigorous on-site testing at the expense of operators and enforcement of mandatory Renewable Energy Approval requirements;
- Renegotiation of Renewable Energy Approvals and FIT (Feed in Tariff Program) contracts to ensure human health and environmental protection; and
- Mandatory remediation for landowners suffering the impact of IWT operations, financed by a compulsory payment from revenues of IWT operators.

Considerations when choosing a renewable energy should include objectives such as: minimal harm to people, animals and their habitat and if this occurs, immediate action by government; reasonable cost, reliability and effectiveness; and possible storage for use when needed. These criteria can be met today by small scale solutions such as residential scale wind turbines and roof storage of solar energy for personal or local community use. With advancements in battery storage, minimal back-up energy would be required. Of note, in Ontario, there is presently an over-abundance of energy, and the electricity supply mix is now approximately 92% non-emitting ([Power Advisory, 2020](#)).

Other jurisdictions can learn from these experiences to develop more balanced and effective approaches to addressing climate change and other challenges as we move forward.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- A Green Energy Act for Ontario: Executive Summary, Dec 2008.
https://cvc.ca/wp-content/uploads/2011/03/1409_GEAA_Flyer_v3press.pdf
- Abbasi, M., Monazzam, M. R., Ebrahim, M. H., Zakerian, S. A., Dehghan, S. F., & Akbarzadeh, A. (2016). Assessment of Noise Effects of Wind Turbine on the General Health of Staff at Wind Farm of Manjil, Iran. *Journal of Low Frequency Noise, Vibration and Active Control*, 35, 91-98. <https://doi.org/10.1177/0263092316628714>
- Acoustic Group (2014). *The Cape Bridgewater Wind Farm Noise Study—Sensitisation, and Cause and Effect*. Prepared for: Energy Pacific (Vic) Pty Ltd.
<https://www.wind-watch.org/documents/results-of-an-acoustic-testing-program-cape-bridgewater-wind-farm/>
- Alves-Pereira, M., Krogh, C., Bakker, H. C. H., Summers, S. R., & Rapley, B. I. (2019). Infra-sound and Low Frequency Noise Guidelines: Antiquated and Irrelevant for Protecting Populations. *26th International Congress on Sound and Vibration*, Montreal, Quebec, Canada, 7-11 July 2019, 1-8.
- Alves-Pereira, M., Rapley, B., Bakker, H., & Summers, R. (2019). Acoustics and Biological Structures. In Z. El Abiddine Fellah, & E. Ogam (Eds.), *Acoustics of Materials*. London: IntechOpen. <https://doi.org/10.5772/intechopen.82761>
- Appraisal Group One (2009). *Wind Turbine Impact Study. Dodge and Fond Du Lac Counties—Wisconsin*. Preliminary Draft.
<https://docs.wind-watch.org/AGO-WIND-TURBINE-IMPACT-STUDY.pdf>
- Bardswick, B. (2009). Ministry of Environment. Director, West Central Region, Ministry of Environment. Correspondence received by C. McLean.
- Bill 135, *An Act to Amend Several Statutes and Revoke Several Regulations in Relation to Energy Conservation and Long-Term Energy Planning*. The Hon. B. Chiarelli, Minister of Energy. 1st Reading October 28, 2015.
- Bill 2, *White Pines Wind Project Termination Act*, 2018, S.O. 2018, c. 10, Sched. 2.
<https://www.ontario.ca/laws/statute/18w10>
- Bill 34, *Green Energy Repeal Act*, 2018. Rickford, Hon. Greg Minister of Energy, Northern Development and Mines. Royal Assent received. Statutes of Ontario 2018, Chapter 16.

- <https://www.ola.org/en/legislative-business/bills/parliament-42/session-1/bill-34>
- Bray, R. I. (2018). *Just In: Dr. Riina Bray of Women's College Hospital Warns of Proximity to Wind Turbines. The Great Lakes Wind Truth*.
<http://greatlakeswindtruth.org/featured/just-in-dr-riina-bray-of-womens-college-hospital-warns-of-proximity-to-wind-turbines/>
- Broekel, T., & Alfken, C. (2015). *Gone with the Wind? The Impact of Wind Turbines on Tourism*. Munich Personal RePEc Archive.
https://mpira.ub.uni-muenchen.de/65946/1/MPRA_paper_65946.pdf
- Caithness Windfarm Information Forum (2020). *Summary of Wind Turbine Accident Data to 30 September 2020*. Detailed Accident List.
<http://www.caithnesswindfarms.co.uk/fullaccidents.pdf>
- Canadian Institute for Environmental Law and Policy (2009). *CIELAP Brief on Ontario's Green Energy and Green Economy Act*.
http://www.cielap.org/pdf/Brief_GreenEnergyAct.pdf
- CanWEA (Canadian Wind Energy Association). July 24, 2020.
<https://canwea.ca/wind-energy/ontario-market-profile/>
- CanWEA Supplemental Submission (2009). Correspondence to M Wallace, Ministry of Environment, Environmental Programs Division. The Canadian Wind Energy Association. Re: EBR Posting 010-6516. Proposed Ministry of the Environment Regulations to Implement the Green Energy and Green Economy Act, 2009.
- Casey, M. (2019). *US Wind Developers Are Losing the Online Battle against NIMBY Groups*. Recharge. US Wind Developers Are Losing the Online Battle against Nimby Groups|Recharge (rechargenews.com).
- CBC News (2009). *Opposition Calls for Smitherman's Head*. The Canadian Press.
<https://www.cbc.ca/news/canada/toronto/opposition-calls-for-smitherman-s-head-1.834387>
- CBC News Report (2009). *New Law Will Keep NIMBY-IsM from Stopping Green Projects: Ont. Premier*. The Canadian Press.
<http://www.cbc.ca/m/touch/news/story/1.805978>
- CCSAGE vs. Ontario (AG). Ontario Superior Court of Justice: Picton Court File CV-19-00000154-0000.
- Chief Medical Officer of Health Report (2010). *The Potential Impact of Wind Turbines*.
http://www.health.gov.on.ca/en/common/ministry/publications/reports/wind_turbine/wind_turbine.pdf
- City News (Toronto) (2010). *Korean Deal Approved: Wind, Solar Farms Coming to Ontario*.
<https://toronto.citynews.ca/2010/01/21/korean-deal-approved-wind-solar-farms-coming-to-ontario/>
- Clarke, D. K. (2012). *Wind Energy Opposition*. The Home Page of the Wind Power Ethics Group. <https://ramblingsdc.net/windenergyopposition.html>
- Colton, C., Corscadden, K., Fast, S., Gattinger, M., Gehman, J., Hall Findlay, M. et al. (2016). Energy Projects, Social Licence, Public Acceptance and Regulatory Systems in Canada: A White Paper. *SPP Research Paper No. Vol. 9, Paper No. 2788022*.
<https://doi.org/10.2139/ssrn.2788022>
- Crowley, J. (2015). Witness Statement. Environmental Review Tribunal. Case Nos. 13-002/13-003. Obtained by Tribunal Order of September 4, 2015. Ostrander Remedy Hearing Production Request, Prince Edward County Field Naturalists and Director, MOECC ERT File Nos.: 13-002 & 13-003.

- Di Maria, A. (2017). *Chatham Kent Windfarm Admits Pile Driving Caused Water Wells to Go Murky. Wind Company Admits Negative Impact on Ontario Ground Water*. Telephone Conversation.
<http://www.waterwellsfirst.org/chatham-kent-windfarm-admits-pile-driving-caused-water-wells-to-go-murky/>
- Driver L. et al. v. wpd Canada Corporation et al. (2017). ONSC 3824, Divisional Court of Ontario.
- Engel, D. (June, 2011). Vestas Wind Systems A/S, June. Correspondence to the Honourable Karen Ellermann, Minister of Environment, Australia.
- Environmental Bill of Rights (2003). Ministry of Natural Resources (MNR). PB03E6004.
<https://www.ontario.ca/page/environmental-bill-rights>
- Environmental Commissioner of Ontario Annual Report 2004-2005. Supplement p. 188.
<http://docs.assets.eco.on.ca/reports/environmental-protection/2004-2005/2004-05-AR-Supp.pdf>
- Environmental Defence (May, 2016). *Getting Fit: How Ontario Became a Green Energy Leader and Why It Needs to Stay the Course*.
https://www.cansia.ca/uploads/7/2/5/1/72513707/geaprimer_final-may19-finalweb_2_.pdf
- Environmental Protection Act of Ontario.
<https://duckduckgo.com/?t=ffab&q=Environmental+Protection+Act+of+Ontario&atb=v209-1&ia=web>
- Environmental Review Tribunal Case Nos. 10-121 and 10-122., February 1, 2011, Volume 1. In the Matter of appeals by Katie Brenda Erickson and Chatham-Kent Wind Action Inc. vs the Director, Ministry of the Environment and Kent Breeze Wind Farms c/o Suncor Energy Services Inc. Opening Statement by F. Rotter, for the Director, Ministry of the Environment: Transcript p 41: l.8 and l.22.
- Ferguson, R., & Ferenc, L. (2009). *McGuinty Vows to Stop Wind-Farm NIMBYs. Premier Dalton McGuinty Is Signaling He Won't Hesitate to Foist Energy Projects on Communities across Ontario Even If There Is Local Opposition*. The Star.
https://www.thestar.com/news/ontario/2009/02/11/mcguinty_vows_to_stop_windfarm_nimbys.html
- Freedom of Information Request (2010a). Acknowledgement Letter, File Number A 2010-0016. Government of Ontario.
- Freedom of Information Request (2010b). Class EA File Number 01872-A0142592. Government of Ontario.
- Freedom of Information Request (2013). Communique to V. Goel, President and CEO, Public Health Ontario. PDF copy available on request.
- Gallant, P. (2016). *George Smitherman and the 1 Percent*.
<http://www.windconcernsontario.ca/george-smitherman-and-the-1-percent/>
- Gallant, P. (n.d.). *Parker Gallant Energy Perspectives. Category: Electricity Bills*.
<https://parkergallantenergyperspectivesblog.wordpress.com/>
- Government of Canada. *Record a Side Effect*.
<https://www.canada.ca/en/health-canada/services/drugs-health-products/medeffect-canada/adverse-reaction-reporting.html>
- Green Energy Act Alliance. *Creating Ontario's Renewable Energy Industry*.
https://www.cbj.ca/green_energy_act_alliance_creating_ontario_s_renewable_energy_in/
- Green Energy and Green Economy Act (2009a). S.O. 2009, Bill 105. CHAPTER 12, Ontario. An Act to Enact the Green Energy Act, 2009 and to Build a Green Economy, to

- Repeal the Energy Conservations Leadership Act, 2006 and the Energy Efficiency Act and to Amend Other Statutes. Assented in May 14, 2009.
- Green Energy and Green Economy Act, Bill 150 (2009b). Acts Affected. Bill 150, Green Energy and Green Economy Act, 2009—Legislative Assembly of Ontario (ola.org). <https://www.ola.org/en/legislative-business/bills/parliament-39/session-1/bill-150/acts-affected>
- Guerin, B., Moore, J., Stata, J., & Bradfield, S. (2014). *Impact of Industrial Wind Turbines on Residential Property Assessment in Ontario*. (livingstoncounty-il.org).
- Gulden, W. (2014a). *Critique of MPAC Study: Municipal Property Assessment Corporation 2012 Study of Wind Turbine Impacts on Residential Property Assessments*.
- Gulden, W. (2014b). *Municipal Property Assessment Corporation 2012 Study of Wind Turbine Impacts on Residential Property Assessments*. <https://www.wind-watch.org/documents/municipal-property-assessment-corporation-2012-study-of-wind-turbine-impacts-on-residential-property-assessments/>
- Hall, C. (March 1, 2010). *Ontario Senior Environmental Officer. Comments—March 1, 2010 Draft Document, “Renewable Energy Approvals Technical Bulletin Six Required Setbacks for Wind Turbines. Freedom of Information Request*. Government of Ontario, Ministry of Environment. PDF copy available on request.
- Havas, M., & Colling, D. (2011). Wind Turbines Make Waves: Why Some Residents Near Wind Turbines Become Ill. *Bulletin of Science, Technology and Society*, 31, 414-426. <https://doi.org/10.1177/0270467611417852>
- Hede, N. N. (2020). GE to Supply RWE with 11 Gas Turbines for Grid Reliability in Germany. Power Engineering International. GE to Supply RWE Generation with 11 Gas Turbines for Grid Reliability (powerengineeringint.com).
- Hill, B. (2018). *Exclusive: Liberals Ignored Green Energy Advice That Could’ve Saved Ontarians Billions, Lead Engineer Says*. Global News. <http://globalnews.ca/news/4237041/ontario-liberals-ignored-advice-could-save-billions-green-energy/>
- Hornung, R. (2009). CanWEA Objection to 2009 Draft Guidelines, Letter to Ministers Gerretsen and Smitherman, July 7, 2009, Comment ID 122973 to EBR Registry Number 010-6516.
- Howe, B. (2010). *Low Frequency Noise and Infrasound Associated with Wind Turbine Generator Systems. A Literature Review*. Ontario Ministry of the Environment RFP No. OS-0786. Gastmeier Chapnick Ltd. (HGC) Report. <https://docs.wind-watch.org/HGC-LFI-wind-turbine-lit-rev.pdf>
- Independent Electricity System Operator (September, 2020). Ontario’s Supply Mix. Ontario’s Energy Capacity (ieso.ca).
- Jacobs, D. (2017). *Email from to Samsung and Pattern Energy*.
- James, R. R. (2012). Wind Turbine Infra and Low-Frequency Sound: Warning Signs That Were Not Heard. *Bulletin of Science, Technology and Society*, 32, 108-127. <https://doi.org/10.1177/0270467611421845>
- Jeffery, R. D., Krogh, C. M. E., & Horner, B. (2014). Industrial Wind Turbines and Adverse Health Effects. *Canadian Journal of Rural Medicine*, 19, 21-26. <http://www.ncbi.nlm.nih.gov/pubmed/24398354>
- Jones, A. (2017). *Ontario Pays \$28-Million Awarded to Wind Company over Offshore Wind Moratorium*. The Canadian Press, Global News. <https://globalnews.ca/news/3378321/ontario-pays-28-million-awarded-to-wind-company-over-offshore-wind-moratorium/>

- Kenton, W. (2018). *What Is Regulatory Capture?*
<https://www.investopedia.com/terms/r/regulatory-capture.asp>
- Krogh, C. M. E. (2011). Industrial Wind Turbine Development and Loss of Social Justice? *Bulletin of Science Technology and Society*, 31, 321-333.
<https://doi.org/10.1177/0270467611412550>
- Krogh, C. M. E., Gillis, L., Kouwen, N., & Aramini, J. (2011). WindVOiCe, a Self-Reporting Survey: Adverse Health Effects, Industrial Wind Turbines, and the Need for Vigilance Monitoring. *Bulletin of Science Technology and Society*, 31, 334-335.
<http://bst.sagepub.com/content/31/4/334>
<https://doi.org/10.1177/0270467611412551>
- Krogh, C. M., & Harrington, M. E. B. (2019). Wind Turbine Electromagnetic Energy: Exploring Risk of Harm to Human Health. *Alternative Therapies in Health and Medicine*, 25, 32-38. <https://www.ncbi.nlm.nih.gov/pubmed/31160544>
- Krogh, C. M., McMurtry, R. Y., Johnson, B. W., Dumbrille, A., Alves-Pereira, M. L., Punch, J. I., Hughes, D., Rogers, L., Rand, R. W., James, R., Ambrose, S. E., & Gillis, L. (2020). Wind Turbines: Why Some Families Living in Proximity to Wind Energy Facilities Contemplate Vacating Their Homes: An Overview of Findings. *Open Access Library Journal*, 7, e6443.
- Krogh, C. M., Wilson, E. J., & Harrington, M. E. (2019). Wind Turbine Incident/Complaint Reports in Ontario, Canada: A Review—Why Are They Important? *Open Access Library Journal*, 6, e5200.
- Lansink, B. (2012). *Case Study: Diminution in Value. Wind Turbine Analysis.*
<http://www.ontario-wind-resistance.org/wp-content/uploads/2012/10/case-study-wind-turbines-diminution-injurious-affection-oct-12.pdf>
- Law Insider. *Definition of Improper Purpose.*
<https://www.lawinsider.com/dictionary/improper-purpose#:~:text=Related%20Definitions&text=Improper%20purpose%20means%20participation%20in,the%20approval%20of%20an%20activity>
- Le Coz, E., & Sherman, L. (2017). *In the Shadow of Wind Farms.* Gatehouse Media.
<https://stories.usatodaynetwork.com/windfarms/home/>
- Legislative Assembly of Ontario. Hansard (2009a). Hansard Transcripts 2009-Feb-23|Legislative Assembly of Ontario.
- Legislative Assembly of Ontario. Hansard (2009b). Hansard Issue: L114.
- Legislative Assembly of Ontario. Hansard (2009c). Green Energy and Green Economy Act, 2009. Estill, G. p. G486. G023-Wed 15 Apr 2009/Mer 15 avr 2009.
- Legislative Assembly of Ontario. Hansard (2009d). Green Energy and Green Economy Act, 2009. Ashbee B (p G 516) and Ripley Group (p. G 547). G023-Wed 15 Apr 2009/Mer 15 avr 2009.
- Martin, C. (2013). *This Blows: Growing List of Ontario Municipalities Declare 'Unwilling Hosts' to Wind Turbines.* Toronto Sun.
<https://torontosun.com/2013/08/16/this-blows-growing-list-of-ontario-municipalities-declare-unwilling-hosts-to-wind-turbines>
- McCann Appraisal, LLC (2010). *Wind Turbine Setbacks.* Testimony. Adams County Board, Adams County Courthouse.
<https://docs.wind-watch.org/McCann-Setbacks-property-values.pdf>
- McGrath, J. M. (2018). *One Overlooked Issue That Cost the Liberals the Election.* TVO.
<https://www.tvo.org/article/one-overlooked-issue-that-cost-the-liberals-the-election>
- McRobert, D. (2011). *Intervenor Funding and Access to Environmental Justice: Time for*

- the Ontario Political Parties to Revisit This Issue?* Iler Campbell.
https://www.academia.edu/15578303/Intervenor_Funding_and_Access_to_Environmental_Justice_Time_for_the_Ontario_Political_Parties_to_revisit_this_issue_August_2011_email_work_card=title
- McRobert, D., Tennent-Riddell, J., & Walker, C. (2016). Ontario's Green Energy and Green Economy Act: Why a Well-Intentioned Law is Mired in Controversy and Opposed by Rural Communities. *Renewable Energy Law and Policy Review (RELP)*, 7, 91-112. <https://www.jstor.org/stable/26256490?seq=1>
- Ministry of Finance (2012). *Fact Sheet: Property Tax Treatment of Renewable Energy Installations*. <https://news.ontario.ca/en/backgrounder/19898/fact-sheet>
- Morrison, L. (2012). *Five Questions to Ask Before Signing a Wind-Energy Lease*. *Corn and Soybean Digest*. Wind Watch.
<https://www.wind-watch.org/documents/five-questions-to-ask-before-signing-a-wind-energy-lease/>
- Morrow, A. (2015). *Ontario Liberals' Gas-Plants Scandal: Everything You Need to Know*. Globe and Mail, Toronto.
<https://www.theglobeandmail.com/news/politics/ontario-liberals-gas-plants-scandal-everything-you-need-to-know/article23668386/>
- National Wind Coordinating Committee in the US (2007). Chapter: 5. Planning for and Regulating Wind-Energy Development. In *Environmental Impacts of Wind-Energy Projects* (pp. 180-218). National Research Council, Washington DC: The National Academies Press. <https://www.nap.edu/read/11935/chapter/7#183>
- NetNewsLedger (2018). *Minister Rickford—Green Energy Act Led to the Disastrous Feed-in-Tariff Program*.
<http://www.netnewsledger.com/2018/09/20/minister-rickford-green-energy-act-led-to-the-disastrous-feed-in-tariff-program/>
- Nicol, J., & Seglins, D. (2011). *Ontario Wind Power Bringing Down Property Values*. CBC News (Canada).
<http://www.cbc.ca/news/canada/ontario-wind-power-bringing-down-property-values-1.1003889>
- Office of the Auditor General of Ontario. Annual Report 2010.
https://auditor.on.ca/en/content/annualreports/arreports/en10/2010ar_en.pdf
- Office of the Auditor General of Ontario. Annual Report 2011.
<https://auditor.on.ca/en/content/annualreports/arbyyear/ar2011.html>
- Office of the Auditor General of Ontario. Annual Report 2012.
https://auditor.on.ca/en/content/annualreports/arreports/en12/2012ar_en.pdf
- Office of the Auditor General of Ontario. Annual Report 2013.
https://auditor.on.ca/en/content/annualreports/arreports/en13/2013ar_en_web.pdf
- Office of the Auditor General of Ontario. Annual Report 2014.
https://auditor.on.ca/en/content/annualreports/arreports/en14/2014AR_en_web.pdf
- Office of the Auditor General of Ontario. Annual Report 2015.
https://auditor.on.ca/en/content/annualreports/arreports/en15/2015AR_en_final.pdf
- Office of the Auditor General of Ontario. Annual Report 2016.
<https://auditor.on.ca/en/content/annualreports/arbyyear/ar2016.html#volume1>
- Office of the Auditor General of Ontario. Annual Report 2017.
https://auditor.on.ca/en/content/annualreports/arreports/en17/2017AR_v1_en_web.pdf
- Ontario Environmental Review Tribunal, Case Nos.: 10-121 and 10-122. In the Matter of

- Appeals by Katie Brenda Erickson and Chatham-Kent Wind Action Inc. Testimony under oath by Colby W. MD.
- Ontario Green Energy Act Alliance (2009). *Proposal for a Green Energy Act for Ontario. Proposal for an Act Granting Priority to Renewable Energy Sources to Manage Global Climate Change, Protect the Environment and Streamline Project Approvals*. http://www.greenenergyact.ca/storage/24/1605_1477_GEA-Proposal_with_hyperlinks.pdf (Accessed Nov. 2020)
- Ontario Municipal Board (2007). *Decision/Order No: 1989. PL060986*.
- Ontario Newsroom (2009a). *Backgrounder: Wind Turbines—Proposed Requirements and Setbacks*. June 9, 2009. <https://news.ontario.ca/en/backgrounder/7089/backgrounder-wind-turbines—proposed-requirements-and-setbacks>
- Ontario Newsroom (2009b). *Ontario Proposes New Rules for Green Energy Projects. McGuinty Government Invites Public Input*. June 9, 2009.
- Ontario Newsroom (2012). *Learn More about the Members of the Ontario Clean Energy Task Force, Energy, Northern Development and Mines*. <https://news.ontario.ca/en/backgrounder/20674/members-of-the-ontario-clean-energy-task-force>
- Ontario Newsroom (2016). *Ontario Suspends Large Renewable Energy Procurement. Decision Will Reduce Electricity Costs for Consumers*. September 27, 2016. <https://news.ontario.ca/en/release/41930/ontario-suspends-large-renewable-energy-procurement>
- Ontario Society of Professional Engineers Report (2012). *Wind and the Electrical Grid: Mitigating the Rise in Electricity Rates and Greenhouse Gas Emissions* (p. 5, 13, 30-32). <https://www.ospe.on.ca/public/documents/advocacy/2012-wind-electrical-grid.pdf>
- Ontario Wind Power Task Force Industry Report and Recommendations (2001). <https://collections.ola.org/mon/5000/10307969.pdf>
- Pearce, D. (2010). *Noise Complaints to be Investigated*. Simcoe Reformer, Partially Posted by Wind Action. <http://www.windaction.org/posts/27269-noise-complaints-to-be-investigated>
- Perry, K. (2009). Correspondence to Horner, B., from Perry, K. Director, Program Planning and Implementation, Ministry of Environment of Ontario. PDF copy available on request.
- Power Advisory (2020). *Whitepaper on Wind Energy and the Ontario Market*. Prepared for: Canadian Wind Energy Association. <https://canwea.ca/wp-content/uploads/2020/01/Whitepaper-on-Wind-Energy-and-the-Ontario-Market-January-2020.pdf>
- Punch, J. L., & James, R. R. (2016). *Wind Turbine Noise and Human Health: A Four-Decade History of Evidence That Wind Turbines Pose Risks*. <https://hearinghealthmatters.org/wp-content/uploads/sites/19/files/2016/09/16-10-21-Wind-Turbine-Noise-Post-Publication-Manuscript-HHTM-Punch-James.pdf>
- Ragheb, M. (2011). *Safety of Wind Systems*. Nuclear Engineering/Computer Science, University of Wisconsin, USA. <https://www.ragheb.co/NPRE%20475%20Wind%20Power%20Systems/Safety%20of%20Wind%20Systems.pdf>
- Ramakrishnan, R. (2007). *Wind Turbine Facilities Noise Issues: Acoustic Consulting*. Report prepared for the Ontario Ministry of Environment.
- Real Estate Clauses Ontario. <https://www.flatprice.ca/real-estate-clauses-ontario>
- Renewable Energy Task Team (2002). *Generating Investment in Ontario Final Report of*

- the Renewable Energy Task Team*. <https://collections.ola.org/mon/7000/10316833.pdf>
- Renewal Energy Approval (2012). *Instrument Decision Notice: EBR Registry Number: 011-3999*. Environmental Registry, Ontario. Proponent: Capital Power GP Holdings Inc.
- Renewal Energy Approval (2014). *Instrument Decision Notice: EBR Registry Number: 011-992B*. Proponent: Grand Bend Wind Limited Partnership by its g/p Grand Bend Wind GP Inc.
- Renewal Energy Approval (2018). *Instrument Decision Notice: EBR Registry Number: 013-1674*. Proponent: Nation Rise Wind Farm GP Inc., as General Partner for and on behalf of Nation Rise Wind Farm Limited.
- Rosenbloom, E. (2004). *A Problem with Wind Power*. <https://docs.wind-watch.org/ProblemWithWind.pdf>
- RTI Laboratories. (1993a). Run Information #1707157-010A. (Commissioned by Home Owners; Water Drawn 12 July 2017).
- RTI Laboratories. (1993b). Run Information: #1801080-01A, 1709494-004A, 1709494-005A and 1709494-006A.
- Runyon, J. (2009). *Ontario Unveils Green Energy and Green Economy Act, 2009*. Renewable Energy World. <https://www.renewableenergyworld.com/2009/02/25/ontario-unveils-green-energy-and-green-economy-act-2009/>
- Sage, C., & Carpenter, D. O. (Eds.) (2012). *A Rationale for Biologically-Based Public Exposure Standards for Electromagnetic Radiation* (pp. 7-10). BioInitiative Working Group. Appendix 20-B Standards of Evidence for Decision Making Differs among Professions. https://bioinitiative.org/wp-content/uploads/pdfs/sec27_2007_Appendix.pdf
- SaskWind (2020). *Land Area Requirements for Wind and Solar*. Saskatchewan (and USA). <https://www.saskwind.ca/land-area>
- Shain, M. (2011). Public Health Ethics, Legitimacy, and the Challenges of Industrial Wind Turbines: The Case of Ontario, Canada. *Bulletin of Science Technology and Society*, 31, 346-353. <https://doi.org/10.1177/0270467611412552>
- Smith, E. R. A. N., & Klick, H. (2007). *Explaining NIMBY Opposition to Wind Power*. Oakland, CA: University of California. <http://smith.faculty.polsci.ucsb.edu/wind.pdf>
- Spencer, J. (2015). *One Lawsuit Settled, but No Truce in Wind Energy Debate*. Capicon, A Michigan News Source. <https://www.michigancapitolconfidential.com/20951>
- Stachura, C. (2018). *Huron County MOH Suffers from Cognitive Dissonance When It Comes to Wind Turbines*. Ontario Wind Resistance. <http://ontario-wind-resistance.org/2019/10/18/huron-county-moh-suffers-from-cognitive-dissonance-when-it-comes-to-wind-turbines/>
- Statement of Environmental Values (1993). S.O. 1993, c. 28. Ministry of the Environment and Climate Change. <http://www.ebr.gov.on.ca/ERS-WEB-External/content/sev.jsp?pageName=sevList&subPageName=10001>
- Sylvester, T. R. (2013-2014). Course Calendar. Office of the Fire Marshal. Announcement to Fire Chiefs and Ontario Fire Departments. Specialized Courses. p. 2.
- Talaga, T. (2011). *Ontario Scraps Offshore Wind Power Plans*. Toronto Star. https://www.thestar.com/news/ontario/2011/02/12/ontario_scraps_offshore_wind_power_plans.html
- The Ontario Sustainable Energy Association (OSEA) (2003). *The Ontario Sustainable Energy Association (OSEA) Is a Provincial Non-Profit Association of Local Organizations Who Are Developing Sustainable Energy Projects in and for Their Communi-*

ties.

<https://davidssuzuki.org/wp-content/uploads/2019/02/bright-future-avoiding-blackouts-in-ontario.pdf>

Tomlinson, G. (2009). Email Communication, Guelph District Office of MOE dated 29 Jun 2009.

Toronto Star (2018). *Ford Government to Repeal Green Energy Act Amid Warnings It's Abandoning Renewable Power.*

<https://www.thestar.com/politics/provincial/2018/09/20/ford-government-to-repeal-green-energy-act-amid-warnings-its-abandoning-renewable-power.html>

Uadiale, S., Urban, E., Carvel, R., Lange, D., & Rein, G. (2014) Overview of Problems and Solutions in Fire Protection Engineering of Wind Turbines. *Fire Safety Science*, 11, 983-995. https://www.iafss.org/publications/fss/11/983/view/fss_11-983.pdf

<https://doi.org/10.3801/IAFSS.FSS.11-983>

Vineland Power Inc. (IPC Energy) (2014). *HF Wind Energy project REA Status Report—Amendment to REA.*

Walker, B., George, F., Hessler, D. M., Rand, R., & Schomer, P. (2012) *A Cooperative Measurement Survey and Analysis of Low Frequency and Infrasound at the Shirley Wind Farm in Brown County, Wisconsin.* Report Number 122412-1. Revised December 24, 2012.

<https://puc.sd.gov/commission/dockets/electric/2018/EL18-003/testimony/testimony/mogen/Noise%20Exhibit%204.pdf>

Wente, M. (2016). *Opinion. Wynne's Way: Rob the Poor, Help the Rich.* The Globe and Mail, Toronto.

<https://www.theglobeandmail.com/opinion/wynnes-way-rob-the-poor-help-the-rich/article31835620/>

Whiteley, A., Dumbrille, A., & Hirsch, J. (2021). Access to Justice: Recommended Reforms to the Ontario Justice System Using the Green Energy Act as an Example. *Open Journal of Social Sciences*, 9, 1-19. <https://doi.org/10.4236/jss.2021.91001>

Whitmill, C. (2006). *UK Energy Policy: The Small Business Perspective and the Impact on the Rural Economy.* Wind Action.

<http://www.windaction.org/posts/5241-uk-energy-policy-the-small-business-perspective-the-impact-on-the-rural-economy>

Wikipedia, the Free Encyclopedia. *Green Energy Act, 2009.* Last Edited 28 August 2020.

https://en.wikipedia.org/wiki/Green_Energy_Act,_2009

Wilson, J., Krogh, C., & Peel, P.C. (2020). Déjà Vu and Wind Turbines: A Review of Lived Experiences after Appeals of Ontario Industrial-Scale Wind Power Facilities. *Open Access Library Journal*, 7, e6276. <https://doi.org/10.4236/oalib.1106276>

Wind Concerns Ontario (2017). *Wind Turbines to Blame for Well Water Problems: Hydrogeologist.*

<http://www.windconcernsontario.ca/wind-turbines-to-blame-for-well-water-problems-hydrogeologist/>

Wind Concerns Ontario (2020). Investment in Wind Power in Ontario. A Review of Who Really Benefited from the Government's Pro-Renewables Economic Strategy.

<http://www.windconcernsontario.ca/wp-content/uploads/2020/10/Wind-Power-Development-and-Ownership-Ontario-October-2020.pdf>

World Health Organization (1999). *Guidelines for Community Noise.* Edited by B. Berglund, T. Lindvall, & D. H. Schwela.

<https://www.who.int/docstore/peh/noise/Comnoise-1.pdf>

Appendices

The contents of the appendices are extracted from the documents filed during an Application to the Supreme Court of Ontario for Judicial Review. They provide examples of how removal of quality controls on technical reports and other factors have greatly reduced impediments to the approval, construction and operation of wind energy facilities.

Appendix 1: Examples of Changes to Requirements for Approval of IWTs

1. *Excessive flexibility in modification of REA documents*

The government permitted proponents to replace reports after the close of the public review period. These replacements could be so extensive that they could not be considered addenda. e.g. wpd White Pines water reports are dated 7 months after the REA application was deemed complete and 5 months after expiry of the comment period, not allowing the public any input.

2. *Excessive flexibility in approval conditions*

Vague wording within IWT approval conditions allowed IWTs to be built outside the intension of the REA. For example, use of “where possible” in permitted construction windows allowed construction in periods that endanger species at risk. The government justified the activity as being “unavoidable”, without further explanation to the public.

3. *Endangered Species Act (ESA) permits readily issued*

As long as certain requirements were met, ESA (Endangered Species Act) permits were issued to authorize a person to perform an activity that isn't otherwise allowed under the ESA (e.g. harm or harass a species at risk, or damage or destroy its habitat). As reported by the Environmental Commissioner, the government never denied an ESA permit to any IWT proponent. Many harmful activities were allowed under a permit system, where proponents were required only to minimize not eliminate or compensate for harm, to the detriment of endangered species. This was a proponent-driven approach, based largely on self-assessment. Increasing the risk to the species, the government made no attempt to ensure routine compliance, to prevent cumulative impacts, or to monitor the effect on species at risk.

Members of the public had no access to the justification of the permit, or the supporting information including the species at risk reports. They could not seek to appeal the government’s decisions to grant an ESA permit. As such, it was difficult to hold the government to account.

4. *Differential access to government*

IWT proponents were permitted unfettered access to government staff throughout the entire period of preparation of REA proposals, whereas the affected communities were allowed only a short window to make written submissions.

5. *Lack of meaningful public consultation*

Thousands of members of the public, many having extensive expertise, re-

viewed and commented on the hundreds of technical reports prepared by the proponents. Relevant concerns about the GEA were expressed. These often in-depth critiques went largely ignored by the government and the proponents, becoming a table of comments and vague assessments of non-relevance or being out of scope. The sham of public review was made even more futile by the exemptions placed on the REA and the ERT review process, and by the government often being a proponent in the ERTs (with industry), having approved each project.

6. Differential Relationships with Government

Government lawyers, senior government officials and lawmakers engaged in close relationships with wind companies. This is evidenced, for example, during ERT hearings, when government and industry lawyers sat together and shared both strategies and arguments, at times at the request of the Tribunal (Whiteley A.: author's personal observation).

7. Advice from the government's own experts was ignored

Internal experts advised the government about reducing IWT approvals and tightening guidelines, both of which would reduce the number of IWTs in Ontario—these appear to have been ignored. This occurred both regarding IWT project approval and creation of requirements/guidelines. Government ignoring expert advice was concealed during ERTs.

Advice was also not taken when it was recognised that energy requirements were exceeded. In 2012, the Department of Energy and the Ontario Power Authority (now "IESO") considered cancelling certain IWT projects that had not yet been approved but were located within designated Important Bird Areas. The IESO (Independent Electricity System Organization) was having difficulty managing "surplus baseload generation" caused by generation from IWTs during periods of low demand. However, none of the listed projects that were in Important Bird Areas were cancelled—maintaining the inflexible policy favouring renewable energy at all costs.

8. Limitations placed on the Environmental Review Tribunal (ERT)

The conditions for securing a hearing under the GEA scheme are highly prejudicial to those who oppose the siting of the IWTs and highly favourable to the proponents. The GEA imposed the legal pathway for appeal through an ERT that had limited jurisdiction. The legal test for health as defined in the GEA, "will cause" serious harm to human health, and serious and irreversible harm to the environment, is not consistent with the Statement of Environmental Values that requires adherence to the Precautionary Principle and is more in scope than the Environmental Protection Act. The GEA required appeal application being filed within two weeks of approval, a very tight timeline for the public to respond.

9. Untrue/Unsubstantiated Public Communication

Regarding the value of IWT installations, enticing but false, misleading or unproven narratives were communicated by the government in order to gain public buy-in. A former premier said: "Ontario is moving ahead with its clean energy program, taking immediate steps to ensure the long-term sustainability of

renewable energy while creating more jobs, lowering prices and giving communities a greater say”, and that: “More than 20,000 clean energy jobs have been created and the province is on track to create 50,000 jobs, while helping build a healthier future for all Ontarians.”

These claims have been refuted. The GEA did not create jobs or improve economic growth in Ontario, but rather increased unit production costs, diminished competitiveness, cut the rate of return on capital, reduced employment, and made households worse off. IWT installations have resulted in massive increases in the cost of electricity. From 2007, the government was informed by the Ontario Power Authority and the C.D. Howe Institute that IWTs would not reduce CO₂ emissions. Reports such as the [Ontario Society of Professional Engineers Report of 2012](#) confirmed that the IWTs greatly increased CO₂ emissions because of the requirement for back-up generation due to their low capacity and intermittence. This is particularly the case where back-up technologies are more carbon intensive than the base load technologies, as is the case in Ontario.

10. *Reduced Power for Communities*

The GEA resulted in changes to the Municipal Act, which took away powers from municipalities. The changes allowed IWTs to be erected in contravention of municipal bylaws, official plans and assessment rights against local objections. Municipalities and the public lost their veto power.

11. *Rules, policies, practices, and procedures of the government favoured industry*

Some examples are given below (details are available in [Appendix 2](#)).

- Guidelines were limited after input from, and to the benefit of industry. For example, noise guidelines have only a requirement for using dB(A) filters to measure emissions by IWTs. They are incapable of detecting infra and low frequency noise (“ILFN”). The short-comings of the dB(A) system of measurement have been well-documented, including in the Vestas presentation in Australia in 2004, the 2017 decision of the Australian Administrative Appeals Tribunal in Waubra, the 1999 WHO Community Noise Guidelines, the HGC Engineering study commissioned in 2010 by the Respondent, and the 2006 publication by the UK Noise Association. The 1999 WHO document states: ...if the noise includes a large proportion of low-frequency components, values even lower than the guideline values will be needed because low-frequency components in noise may increase the adverse effects considerably ([World Health Organization, 1999](#)). The WHO document also states that when prominent low-frequency components are present (i.e., when the difference between C-weighted and A-weighted noise levels exceeds 10 dB), then measures based on A-weighting are inappropriate.
- Reports required for approval of specific IWT projects, such as sound emission test reports, were accepted by the government after the period for public comment expired.
- Draft REAs were sent to the proponent for comment after the period for

public comment expired (e.g., Sumac Ridge—Township of Manvers), to which the government then often incorporated proponent suggestions in the final REA. No such opportunity was afforded to members of the public or municipal staff.

- Changes to a project were made while the project was under appeal to the ERT and Minister, without informing the public or allowing them to review the new information. Changes were also made after approval, without public consultation (e.g., Niagara Region Wind Farm). In some cases, approval was granted after the project was built and in operation and without any possibility of community input. (EBR Case No. 012-2985, posted 14 Dec 2015)
- The government permitted many projects to utilize outdated noise guidelines through “transitional rules” in order that the IWT developers avoid more rigorous compliance requirements. This was the case even when, at the time that the more rigorous standards were imposed, none of the proponents had chosen a turbine model, were aware of the turbine MW output, or knew the number or location of turbines they would need. (e.g., Otter Creek wind project).
- When the public identified flaws in reports such as Noise Assessment Reports and environmental reports, no action was taken by the government. Even when a citizen-project identified species at risk after the proponent reported that there was no habitat for that species in their studies. The industry studies had failed to meet the minimum requirements as described in the government’s “Survey Protocol for Blanding’s Turtle in Ontario”, yet still the government accepted the proponent’s conclusion that the species was not present in the area. (ERT Case No. 15-084)
- When evidence of flawed reports regarding sound emissions were taken to an ERT, it was declared outside the jurisdiction of the ERT to comment. The Tribunal stated that since the government had approved the reports, it must assume that the regulatory limits would be met and it could not consider evidence that the project would exceed those limits. (ERT Case No. 15-053, para 13, posted 17 Sep 2015)
- After an ERT allowed a project to go forward, conditional on the extensive mitigation measures that had been presented to the Tribunal by the IWT developer, the proponent refused to perform any of the promised mitigation measures that were not expressed in the REA. They were said to be unenforceable.
- When a violation of the required setback from a turbine and house was taken to an ERT, the ERT held that it had no jurisdiction to enforce the statutory setback requirement and required the residents to prove that non-compliance would cause serious harm to human health (ERT Case 14-048): notwithstanding that the setback requirements were mandatory and imposed as the minimum measure to protect the health of adjacent residents. At the ERT the government admitted that the setback violation was the fault of the propo-

ment and that the government had exercised no oversight, but “absolutely trusted the proponent”.

- When the government was informed that the restrictions imposed by a permit to destroy the habitat of bird species at risk were being violated, no action was taken. The government replied that the proponent had destroyed the habitat before the timing restrictions were operative, so that it was no longer considered habitat for purposes of the permit (e.g., White Pines).
- When the nest of an eagle, a species of special concern, was in the way of a turbine access road (Summerhaven), its preservation was recommended by government’s expert and required by the *Fish and Wildlife Conservation Act*. The government granted a ministerial exemption allowing the industry to cut down the tree on the basis that this would avoid significant cost and time delay for the proponent without re-starting the REA process.
- A batching plant for the production of cement for use in the foundations for IWTs towers was built immediately beside a primary school on Amherst Island without an impact study. Initially the government held that the cement plant was not part of the REA and would require environmental compliance approval. After the residents intended to challenge the application for the cement plant, the government amended the REA to add the cement plant as part of the “renewable energy project” (EBR 12-0774) thereby allowing construction and operation of a cement plant without any environmental assessment, without any input from the public and without any opportunity to appeal. Construction of a dock and underwater cable were dealt with in the same way.

Appendix 2: REA Approvals and Reduced Impediments

These provide specific examples of REA approvals during which the government of Ontario reduced impediments to the construction and operation of the IWTs.

1. Otter Creek—Lambton County

The project documents for the Otter Creek wind project in Lambton County were deemed complete by the government on 7 July 2017 and opened to public comment for a period of 45 days. The proposed turbines would have “the largest rotor available for an on-shore turbine”. The company could not provide sound emission test reports until 3 months after the Technical Review phase as it had not been completed. Thus the modelled noise levels at nearby homes were merely estimates based on estimates of an untested turbine and could not be finalized before the period for public comment expired.

The government permitted the Otter Creek project and many other projects to utilize transitional rules to permit the IWT developers to avoid more rigorous compliance requirements. No further requirements were enforced even though, at the time that there were more rigorous standards were imposed, the company had not chosen a turbine model, they were aware of the turbine MW output, knew the number or location of turbines they would need or knew the turbines’ noise emission or setback requirements.

Admitting that earlier noise modelling guidelines resulted in underestimates of noise at nearby homes, the government nevertheless also allowed the developers of the Easter Fields, Nation Rise, Romney and Strong Breeze IWT projects to ignore new guidelines designed to restrict noise impact.

2. *Ostrander Point—Prince Edward County*

Ostrander Point was identified by numerous environmental experts as a sensitive site particularly vulnerable to harm from development of an industrial-scale wind project with its ancillary equipment and roads, but the government accepted a report by the agent for the IWT developer and approved the project, indicating that having to complete the environmental assessment was a “regulatory glitch” that should not delay the proponent’s schedule. Prior to approval, the government advised the proponent of the Ostrander Point project that the mandatory Environmental Assessment was an “administrative exercise”, “just a formality” and “no big deal”.

The government approved the Ostrander Point project on 20 December 2012; a citizen group appealed to the Environmental Review Tribunal (ERT) that revoked the permit on the basis of findings that the project would cause irreversible harm to an endangered species, the Blanding’s turtle. The proponent and government appealed to the Superior Court and the citizen group further appealed to the Ontario Court of Appeal, which returned the matter to the ERT to determine whether the proponent could remedy the anticipated environmental harm. At that remedy hearing (2015) the government produced a witness, Joe Crowley, who testified under oath that he was herpetologist engaged by the government to review portions of the original habitat assessment of the REA submission and to provide comments and recommendations prior to the approval of the Ostrander Point project. There had been no information about Mr. Crowley or his review, comments or recommendations in the thousands of documents provided by the government in response to a Request for Information made in October 2010, or at the ERT or the appeal hearings, the subsequent Motion to Stay, or in the final appeal. Documents produced by Mr. Crowley as ordered by the ERT remedy hearing contained a report entitled: *Adult Blanding’s Turtle Mortality and Population Decline*, which concluded: “it is reasonable to conclude that road mortality at the site could result in the eventual loss of the population”. When the ERT ordered the MNR senior manager overseeing the project to produce documentation during the permit process indicating urgent action was required to avoid jeopardizing the project, Ms. Bellamy failed to produce even the emails that had been secured by the citizen group under a Request for Information.

The people of Prince Edward County paid hundreds of thousands of dollars to protect Ostrander Point through 5 legal proceedings, all of which would have been unnecessary had the government not withheld relevant evidence and breached its statutory duties in order to impose IWTs in an unsuitable location.

3. *Snowy Ridge—City of Kawartha Lakes*

The government issued an REA for the Snowy Ridge project in June 2015; a

citizen group appealed to the ERT in July 2015. Their allegation was that the project would exceed permitted noise emissions. Their evidence was that the project's Noise Assessment Report was seriously deficient in five major categories. The ERT struck the evidence of deficiencies on the basis that the ERT must assume that the regulatory limits would be met and could not consider evidence that the project would exceed those limits. If it is assumed that the mandatory noise levels are for the protection of human health, then evidence of potential non-compliance is relevant prior to construction. The practical effect of the ERT decision is that the Snowy Ridge project must be built and then found to be non-compliant with mandatory noise levels before protection of human health can be considered.

In May 2016 the proponent disclosed that significant changes were being made to the Snowy Ridge project while the project was under appeal to the ERT and Minister. The government was aware of the changes at the time, but neither the proponent nor the government advised the citizen group or the ERT of those changes. No one other than the proponent and the government had any opportunity to review or appeal the Snowy Ridge project as built.

4. *Sumac Ridge—Township of Manvers*

The government made no response whatever to the 2874 comments posted to the EBR registry by local citizens. Well after the period for public comment expired, it sent a draft REA to the proponent for comment, which resulted in significant changes to the REA. No such opportunity was afforded to members of the public or municipal staff at the City of Kawartha Lakes. There is no provision in the regulations to permit the proponent to review a draft REA and to have it modified at its behest. The proponent resisted disclosure of documents establishing this collusion and regulatory capture for over two years.

5. *Windlectric Inc.—Amherst Island*

Local residents appealed the issue of an REA for the Amherst Island project to the ERT. The ERT declined the relief requested in reliance on extensive mitigation measures presented by the IWT developer at the hearing to remedy the concerns of the local residents. However, as soon as all legal avenues were exhausted, the proponent refused to perform any of the promised mitigation measures that were not expressed in the REA, as being unenforceable.

At the ERT hearing the proponent stressed that the island roads would need minimal upgrades and widening in three locations only. After the ERT hearing concluded the proponent stated that island roads would suffer “catastrophic failure” if subjected to turbine traffic and proceeded to trench and widen 25 km of island roads without any modification of the REA. Despite the fact that the government's “Technical Guide to Renewable Energy Approvals” mandates that “all activities for all project phases...must be considered in defining the project location” the government refused to require an amended REA on the basis that “construction on a highway...is expressly excluded from the definition of a renewable energy generation facility”.

The proponent's environmental impact study reported that there was no turtle habitat within the project location. Citizens mobilized a project which confirmed sightings of 58 Blanding's turtles within the project location. The government accepted the proponent's flawed study in the face of evidence to the contrary and the fact that studies carried out for the proponent failed to meet the minimum requirements as described in the government's "Survey Protocol for Blanding's Turtle in Ontario".

Even without actual sightings of turtles, the presence of waterbodies such as wetlands and river corridors are accepted surrogates for confirming associations of rare species with habitat. The ERT concluded that the proponent did not map the extent of waterbodies on Amherst Island, thereby potentially underestimating available corridors and habitat for Blanding's turtles. Without valid waterbody data, the ERT accepted the proponent's conclusions; it was constrained to do so for want of any probative evidence to the contrary.

The government issued a permit to destroy the habitat of Bobolinks, Eastern Meadowlarks and Eastern Whip-poor-wills provided that it was not done between specified dates. When notified by a resident that the proponent was violating the restrictions imposed by the permit, the government replied that the proponent had destroyed the habitat before the timing restrictions were operative, so that it was no longer considered habitat for purposes of the permit.

The government showed bias towards the IWT company by not adhering to their own guidelines for background studies. The gaps in, and the poor quality of studies conducted for the proponent and the lack of due diligence by the government in reviewing those studies, coupled with the stringent guidelines that dictate limitations in how ERT decisions are made were a large contributing factor to the denial of the appeal by the ERT.

6. *Niagara Region Wind Farm (NRWF)*

The government issued the REA for the NRWF in 2014. Ten months later, the IWT developer advised that multiple infrastructure changes were to be made to the project. The government failed to respond to requests by the public for particulars of the changes, and permitted multiple amended versions of the noise modelling document without public consultation.

The proponent relied on section 26(3) 7 of O. Reg. 359/09 and section 5.1 of the 2012 Natural Heritage Assessment Guide for Renewable Energy Projects to avoid investigation surveys of lands affected by the NRWF project, alleging that access was denied by landowners, and adjacent properties did not contain natural features that would warrant investigation. Residents advised the government that several landowners had never been asked for access to their lands, site surveys had not been conducted for 55 of the 80 (68%) proposed turbine locations, and there were numerous natural features on adjacent properties that required investigation. The proponent also failed to provide baseline data required to assess habitat disturbance of identified species. However, the government took no action and accepted the erroneous assertions of the proponent.

A home is surrounded by IWTs and a Transfer Station forming part of the Niagara Region Wind Farm. The studies submitted by the proponent and accepted by the government erroneously identify that property as a vacant property. Despite this egregious error, the government issued an REA authorizing the project. Immediately following commissioning of the project, the homeowner was exposed to vibrations and noise; her health has been adversely affected. Despite numerous complaints, the government has failed to provide any resolution to issues including vibrations, interference with internet, stray voltage, shadow flicker or health impact.

7. *Grand Valley Wind Farm—Dufferin County*

In 2014 the government granted an REA for 16 IWTs. Two weeks after the turbines began operating in 2015, the government issued a new REA which altered the Acoustic Assessment Report and the Application. In breach of the Technical Guide to Renewable Energy Approvals, changes to the project had already occurred; the approval was granted after the project was built and in operation and without any possibility of community input.

8. *HAF Wind Energy Project—West Lincoln Township*

The government issued an REA to the IWT developer in 2013 despite the objections of West Lincoln Township and despite the fact that numerous individuals had identified deficiencies in the application. Among the many errors was the failure to specify a safe route for electricity collector lines in a road allowance adjacent to an old natural gas well. Despite indicating that the line would be installed on the south side of a road allowance away from the natural gas well the proponent installed it on the north side within 2.23 m of the gas well. The gas well inventory relied on by the proponent and accepted by the government indicates that the well was active and in good condition, although it had not been used in over 7 years. The proponent's engineering report stated that they had contacted the two registered owners of the well, who in fact have been dead for decades.

9. *Summerhaven—Haldimand County*

During construction of an access road to the IWTs, the IWT developer encountered a 200 year old cottonwood tree containing the nest of a bald eagle, a bird listed as of "special concern" in the Species at Risk List. The government's expert recommended moving the IWT leaving the tree and nest intact. Although the nest would be protected as per Section 7 of the *Fish and Wildlife Conservation Act*, the government helped the proponent to obtain a ministerial exemption allowing it to cut down the tree on the basis that this would avoid significant cost and time delay for the proponent without re-starting the REA process. The proponent was required to remove the tree within 2 days of the permit being posted on the EBR website: "to get the nest removed by Sunday".

10. *Kent-Breeze Wind Farms-Chatham Kent*

The REA for the project was received in 2010. During the first ERT held under the GEA, qualified experts submitted that the acoustical engineering evidence

demonstrated uncertainties, and errors in the noise modeling would lead to residents being exposed to noise in excess of the permitted 40 dBA predicted for the Project. As the government ministry still had no method of accurately measuring IWT noise compliance, there would be no method to ensure compliance with the REA. The evidence before the Tribunal also demonstrated that noise from IWTs is unique, either as a result of amplitude modulation, low frequency sound, infrasound, tonality or a combination thereof. Experts called by both the Appellants *and* Respondents acknowledged that operation of this Project at these levels *would* cause human health impacts.

The approval was not revoked.