Environmental Review Tribunal

Case Nos.: 13-097/13-098

Drennan v. Director,
Ministry of the Environment

In the matter of appeals by Shawn and Tricia Drennan filed August 6, 2013 for a hearing before the Environmental Review Tribunal pursuant to section 142.1 of the *Environmental Protection Act*, R.S.O. 1990, c. E.19, as amended, with respect to Renewable Energy Approval Number 3259-98EQ3G issued by the Director, Ministry of the Environment, on July 23, 2013 to K2 Wind Ontario Inc. operating as general partner of and on behalf of K2 Wind Ontario Limited Partnership under section 47.5 of the *Environmental Protection Act*, regarding the construction, installation, operation, use and retiring of a Class 4 wind facility with a total name plate capacity of 270 megawatts consisting of 140 turbines located in the Township of Ashfield-Colborne-Wawanosh, in Huron County, Ontario; and

In the matter of a hearing held on October 15, 16, 21, 23, 24, and December 17, 2013, at the Lucknow and District Sports Complex, 662 Campbell Street, Lucknow, Ontario and at 655 Bay Street, Toronto and by telephone conference call on January 2 and 22, 2014.

Before: Paul Muldoon, Panel Chair
Helen Jackson, Member

Appearances:

Julian Falconer and Asha James	-	Counsel for the Appellants, Shawn and Tricia Drennan
Danielle Meuleman, Andrea Huckins Matthew Horner and Sarah Wright	-	Counsel for the Director, Ministry of the Environment
Alexandria Pike, Sarah Powell and James Bunting	-	Counsel for the Approval Holder, K2 Wind Ontario Inc.
Eric Gillespie and David Hwang	-	Counsel for the Participant, Harvey Wrightman

Elizabeth Bellavance	-	Participant, on her own behalf
Michael Leitch and Anne Marie Howard	-	Participants, on their own behalf
Stephana Johnston	-	Participant, on her own behalf
John Curran	-	Presenter, on his own behalf
Greg Schmalz	-	Presenter, on his own behalf
Kevin McKee	-	Representative for the Presenter, Huron-Kinloss Against Lakeside Turbines (HALT)

Dated this **6th** day of **February, 2014.**

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REASONS FOR DECISION

Background

[1] This appeal concerns Renewable Energy Approval No. 3259-98EQ3G (the "REA") issued by Vic Schroter, Director, Ministry of the Environment ("MOE") on July 23, 2013, to K2 Wind Ontario Inc. operating as general partner of and on behalf of K2 Wind Ontario Limited Partnership (the "Approval Holder"), authorizing the construction, installation, use, operation, and retiring of a Class 4 wind facility with a total name plate capacity of 270 megawatts ("MW") consisting of 140 wind turbines (the "Project"), located in the Township of Ashfield-Colborne-Wawanosh, in Huron County. The REA was issued under s. 47.5 of the *Environmental Protection Act* ("*EPA*").

[2] On August 6, 2013, Shawn and Tricia Drennan (the "Appellants") filed a notice of appeal of the REA with the Environmental Review Tribunal (the "Tribunal"). The Appellants rely on the ground of serious harm to human health under s. 142.1(3)(a) of the *EPA*. On August 6, 2013, they also filed a notice of constitutional question alleging that the issuance of the REA violates s. 7 of the *Canadian Charter of Rights and Freedoms* (the "*Charter*").

[3] Asha James, counsel for the Appellants, also represented appellants in another renewable energy appeal before the Tribunal, *Dixon v. Ontario (Ministry of the Environment)*, [2014] O.E.R.T.D. No. 5 ("*Dixon*"). The decision on that appeal was issued January 16, 2014. In that appeal, the appellants appealed the issuance of a renewable energy approval to St. Columban Energy LP for a 33 MW Class 4 wind facility located in Huron County. On July 17, 2013, Middlesex-Lambton Wind Action Group Inc. ("MLWAG") and Harvey Wrightman also filed a notice of appeal with respect to that matter. The appellants in the *Dixon* case raised substantially the same grounds with respect to the serious harm to human health ground of appeal under s. 142.1 of the *EPA,* and with respect to the s. 7 *Charter* claim, as the Appellants did in this case.

[4] On September 9, 2013, the Tribunal heard a motion to adjourn the commencement of the main hearings in both this and the *Dixon* proceedings, to have the two proceedings heard in sequence, one to commence immediately after the conclusion of the other, and to have both heard by the same panel of the Tribunal. By order dated September 10, 2013, the Tribunal granted the motion in part. The hearings in both appeals were adjourned, and the schedule for each revised. The Tribunal ordered that the hearing of the *Dixon* proceeding would proceed first, followed by the

hearing of this proceeding. The Tribunal stated that the issue of whether the same panel would preside over both proceedings would be determined later and ultimately the two appeals were heard by different panels.

[5] A motion was brought in this proceeding by the Director to strike portions of the notice of constitutional question. On the basis of the disposition issued by the Tribunal on September 20, 2013, with reasons issued on November 22, 2013, with respect to a similar motion in *Dixon*, the parties in the present appeal agreed to proceed with the hearing on the basis that the Tribunal only had the jurisdiction to hear constitutional issues relating to s. 142.1 of the *EPA.*

[6] On September 13, 2013, the preliminary hearing in this appeal was held in Lucknow, Ontario. At that time, the Tribunal heard submissions on a request by Mr. Wrightman to be granted party status in the proceeding. On October 1, 2013, the Tribunal issued a disposition denying this request, but granting Mr. Wrightman participant status in the proceeding. The Tribunal issued an order outlining the reasons for denying the request by Mr. Wrightman for party status on December 3, 2013. Mr. Wrightman did not attend the hearing or provide evidence. He did provide written submissions in support of the Appellants' grounds of appeal and constitutional issues.

[7] Final submissions were provided in writing by the parties following the conclusion of the evidence at the oral hearing. While oral submissions were heard on December 17, 2013 in Lucknow, the Tribunal heard further submissions by a telephone conference call ("TCC") on January 2, 2014 with respect to the recently issued decisions by the Tribunal in *Bovaird v. Director (Ministry of the Environment)* 2013 CarswellOnt 18046, also cited as: *D&C VanderZaag Farms Ltd. v. Ontario, (Ministry of the Environment),* [2013] O.E.R.T.D. No. 84 ("*Bovaird*") and by the Supreme Court of Canada in *Canada (Attorney General) v. Bedford*, 2013 SCC 72 ("*Bedford*"). The Tribunal also held a TCC on January 22, 2014 to hear submissions on the impact of the *Dixon* decision on this matter and the Tribunal incorporated those submissions in this decision.

[8] The *Dixon* decision is of particular relevance in this proceeding because the evidence of a number of witnesses that were heard in the *Dixon* proceeding was adopted into evidence by way of transcript in this proceeding. This evidence was for two "post-turbine witnesses" (that is, witnesses who testify as to the health effects from other wind turbine projects), Dr. David Michaud and MOE Senior Environmental Officer Gary Tomlinson. Further, the legal arguments submitted by both the Appellants and the participant, Mr. Wrightman, raised substantially the same issues in both matters. As a

result, the Director's submissions were very similar in both matters in response to the issues raised. Hence, the Tribunal is responding to the same issues in this matter as in *Dixon*. In many ways, this case and the *Dixon* are companion cases that cover much common ground. In order to avoid citing the *Dixon* decision repeatedly, the Tribunal will at times simply refer to specific paragraphs in *Dixon* when outlining its findings below. As well, this panel has directly adopted some of the wording and structure of the *Dixon* decision below (without repeated reference to that decision) in describing issues, evidence and submissions, given the similarities of the two cases and the fact that there is a common panel member between the two cases.

[9] For the reasons given below, the Tribunal dismisses the appeals.

Issues

[10] The main issues are:

> Issue No. 1: Whether the Appellants' right to security of person has been violated under s. 7 of the *Charter.*
>
> Issue No. 2: Whether engaging in the Project in accordance with the REA will cause serious harm to human health.

Discussion, Analysis and Findings

Issue No. 1: Whether the Appellants' right to security of the person has been violated under s. 7 of the Charter.

Overview

[11] The Appellants challenge the constitutionality of various sections of the *EPA*, primarily related to the test under s. 142.1.

[12] Section 7 of the *Charter* states:

> 7. Everyone has the right to life, liberty and security of the person and the right not to be deprived thereof except in accordance with the principles of fundamental justice.

[13] Two of the key and relevant sections of the *EPA* being relied upon in these appeals include:

> 142.1(1) This section applies to a person resident in Ontario who is not entitled under section 139 to require a hearing by the Tribunal in respect of a decision made by the Director under section 47.5.
>
> (2) A person mentioned in subsection (1) may, by written notice served upon the Director and the Tribunal within 15 days after a day prescribed by the regulations, require a hearing by the Tribunal in respect of a decision made by the Director under clause 47.5 (1) (a) or subsection 47.5 (2) or (3).
>
> (3) A person may require a hearing under subsection (2) only on the grounds that engaging in the renewable energy project in accordance with the renewable energy approval will cause,
>
> (a) serious harm to human health; or
>
> (b) serious and irreversible harm to plant life, animal life or the natural environment.
>
> 145.2.1 (2) The Tribunal shall review the decision of the Director and shall consider only whether engaging in the renewable energy project in accordance with the renewable energy approval will cause,
>
> (a) serious harm to human health; or
>
> (b) serious and irreversible harm to plant life, animal life or the natural environment.
>
> (3) The person who required the hearing has the onus of proving that engaging in the renewable energy project in accordance with the renewable energy approval will cause harm referred to in clause (2) (a) or (b).
>
> (4) If the Tribunal determines that engaging in the renewable energy project in accordance with the renewable energy approval will cause harm referred to in clause (2) (a) or (b), the Tribunal may,
>
> (a) revoke the decision of the Director;
>
> (b) by order direct the Director to take such action as the Tribunal considers the Director should take in accordance with this Act and the regulations; or
>
> (c) alter the decision of the Director, and, for that purpose, the Tribunal may substitute its opinion for that of the Director.

[14] The Appellants submit that the “serious harm to human health” test under s. 142.1 of the *EPA* violates the protections afforded respecting security of the person under s. 7 of the *Charter*.

[15] More specifically, as stated in their notice of appeal, the Appellants outline their s. 7 *Charter* claim as follows:

5. The Appellants' right to security of the person has been violated by the project inter alia:

   a. The approval for the project has a serious adverse impact on the Appellants' physical and psychological integrity;

   b. The process for granting the Renewable Energy Approval does not require the Director to consider the potential health effects on the Appellants, and as such has a serious impact on the Appellants' psychological integrity;

   c. The Appellants' right to security of the person is violated by a process for granting the Renewable Energy Approval which does not comply with the precautionary principle, and as such has serious impact on the appellants' psychological integrity;

   d. The Director granting approval for a wind project without requiring K2 Wind Ontario Inc. to conduct any form of study to determine adverse health effects on neighbours living in close proximity to the proposed project has a serious impact on the appellants' psychological integrity;

   e. The test of "serious harm to human health", applicable to appeals of the Director's decision by virtue of section 142.1 of the *Environmental Protection Act ("EPA*"), violates s. 7 of the *Charter* by permitting those violations of the Appellants' right security of the person that fall short of the "serious harm" threshold.

[16] The Appellants submit that the evidence heard at the hearing establishes that there:

> … has yet to be established a safe setback distance or appropriate noise level to protect humans from harm to their health associated with industrial wind turbines. The evidence before this Tribunal is that even at setback distances of 800m and noise compliance with 40dBA, Ontario residents are still exposed to adverse health effects associated with noise emitted from industrial wind turbines. It is therefore submitted that because the legislative scheme for the creation of industrial wind turbine projects exposes the public to a risk to their health, the legislative scheme must comply with s. 7 of the *Charter*.

[17] The Appellants submit that the test under s. 142.1 of the *EPA* violates s. 7 of the *Charter* and should therefore be disregarded by the Tribunal and read down such that the section requires appellants to show that engaging in the REA will likely cause an adverse effect to human health. Accordingly, they are seeking a revocation of the Director's decision to approve the REA.

[18] Mr. Wrightman, as a participant, filed submissions with respect to the Appellants' s. 7 *Charter* claim. Mr. Wrightman frames the Appellants' constitutional claim under s. 7 of the *Charter* with respect to the "legislative scheme for granting appeals against wind

farm projects" in that they allege that approvals can be issued to project proponents notwithstanding the known adverse health effects. Mr. Wrightman further states:

> 10. As a result of the regulatory process, which does not require the project proponent to establish that there are no adverse health effects associated with IWTs, it is clear that there will be health effects that will violate the section 7 rights of the Appellants.
>
> 11. Furthermore, reversing the burden of proof in circumstances where there is evidence of adverse health effects is itself a violation of section 7.
>
> …
>
> 13. The Director has the discretion to grant or refuse approval of a renewable energy project. The Director's decision must conform to the Charter. By approving the Project, the Director has violated the Appellant's right to security of the person and such violation is not in accordance with the principles of fundamental justice.
>
> 14. The Government of Ontario has therefore acted in a manner that is contrary to the principles of fundamental justice based on arbitrary conduct, failure to conform to the requirements of provincial law, and failure to apply the precautionary principle.

[19] Mr. Wrightman supports the Appellants' claim for constitutional relief. The remedies relevant to this proceeding include those in s. 24(1) of the *Charter* and s. 52(1) of the *Constitution Act, 1982* which provide:

> 24. (1) Anyone whose rights or freedoms, as guaranteed by this Charter, have been infringed or denied may apply to a court of competent jurisdiction to obtain such remedy as the court considers appropriate and just in the circumstances.
>
> 52. (1) The Constitution of Canada is the supreme law of Canada, and any law that is inconsistent with the provisions of the Constitution is, to the extent of the inconsistency, of no force or effect.

[20] When reviewing the submissions provided by the Appellants and Mr. Wrightman in this proceeding, it is apparent that they have framed the *Charter* challenge in a slightly different manner. However, for the purposes of this proceeding, the Tribunal finds that the differences in the framing of the challenge does not affect the findings of the Tribunal, as outlined below. The conclusions reached herein regarding the *Charter* apply equally to the renewable energy approval appeal provisions and the REA itself.

[21] Moreover, the Tribunal is cognizant of the Tribunal's order dated November 22, 2013 where the Tribunal found in the *Dixon* proceeding that it does not have jurisdiction

to address the constitutionality of s. 47.5 of the *EPA*, namely, issues pertaining to the discretion of the Director to issue a renewable energy approval. Hence, the Tribunal will not address the constitutional claims to the extent that they may relate specifically to s. 47.5 of the *EPA*.

[22] In *Chaoulli v. Quebec (Attorney General)*, 2005 SCC 25 ("*Chaoulli*") at para. 109, the Supreme Court of Canada noted that, in order to succeed in a s. 7 *Charter* claim, the claimants must demonstrate:

a. Whether the impugned provisions deprive individuals of their life, liberty or security of person;
b. If so, whether the deprivation is in accordance with the principles of fundamental justice; and, if so, whether the breach is saved under s. 1 of the Charter.

Sub-Issue No. 1.1: Whether there has been a deprivation of security of the person in relation to the issues raised by the Appellants.

(a) General

[23] The Appellants submit that, although s. 7 of the *Charter* often relates to criminal or penal matters, the courts have afforded s. 7 protections to areas relating to civil and administrative law. Neither the Director nor the Approval Holder seriously challenged this position.

[24] During the course of the hearing and submissions, a number of issues arose with respect to the broader question of whether or not there has been a deprivation of security of the person under s. 7 of the *Charter*, namely:

- Whether the deprivation complained of by the Appellants is state imposed and whether the harm results from the impugned provisions or government conduct;
- Whether the deprivation must be "serious"; and
- Whether the Appellants have proven serious physical and psychological harm.

[25] Each of these issues is dealt with below.

(b) Whether the deprivation complained of by the Appellants is state imposed

Submissions by the parties

[26] The Appellants submit the harm or deprivation in this case, a requirement for a s. 7 *Charter* claim, is state imposed because the deprivation emanates from a state action. In this case, the Appellants submit that a regulatory regime dealing with wind turbines creates the deprivation. They state that, under this regime, the appellant must show harm to health, rather than the state having to establish that the proposed projects are safe. Moreover, they state that protective actions for a REA can only be triggered if the project is out of compliance, and they ask what happens if harm occurs when the project is operating in compliance with the requirements. In short, they submit that the legislative regime makes claimants more vulnerable to harm in the same way that the state laws in other cases create further or additional risks to the claimants.

[27] The Appellants further submit that established case law relating to s. 7 *Charter* claims has recognized that the *Charter* is engaged when there is a risk to health in circumstances where access to health care is impeded. The Appellants submit that where the legislative scheme creates a direct risk to health, the legislative scheme will also be subject to s. 7 scrutiny.

[28] Mr. Wrightman submits that the issuance of the REA itself deprives the Appellants of s. 7 *Charter* rights. More specifically, the issue is whether the approval of the REA deprives individuals of their security of the person provided by s. 7 of the *Charter* because it puts the Appellants' physical and psychological integrity at risk. Mr. Wrightman asserts that their right to security of the person is engaged by the approval of the Project and the associated appeal process to the Tribunal in that they are legislatively required to challenge the approval of the Project in order to protect their health.

[29] Although the Appellants recognize that the courts have yet to interpret s. 7 *Charter* claims as a mechanism to assert positive rights, they point out that the door is not closed on the possibility that the courts may one day allow claimants to use s. 7 to promote such rights. They point to the dissent by Madam Justice Arbour in the case *Gosselin v. Attorney General for Quebec*, [2002] 4 S.C.R. 429 ("*Gosselin*") where she notes at para. 309 that the Supreme Court of Canada "…has consistently chosen instead to leave open the possibility of finding certain positive rights to the basic means of subsistence within s. 7. In my view, far from resisting this conclusion, the language

and structure of the *Charter* – and of s. 7 in particular – actually compel it." (emphasis in the original).

[30] The Director submits that, for a claim to be successful under s. 7 of the *Charter*, the deprivation or harm complained of must be state imposed. In this case, he submits the deprivation outlined by the Appellants is not state imposed and therefore the claim must fail.

[31] The Director states that the relevant provisions of the *EPA* relating to REAs have two objectives: to promote green energy and to protect and conserve the environment. The Director states that the statute creates a regime where the REA must comply with the requirements (such as detailed studies, setbacks, consultation) or the project will not be approved. The Director further states that s. 142.1 of the *EPA* provides the right for any resident to appeal and outlines two grounds for the appeal. He states that if the appeal is successful, the REA can be revoked. The Director indicates that, without these provisions, the only remedy for Ontario residents would be the common law remedies. Hence, the Director submits that the regime is designed to protect human health and the environment. The Director states that the Appellants are using a s. 7 *Charter* claim in an attempt to make the regime more protective, and thus, must fail.

[32] The Director states that because the wind turbines are not owned by the state, the proper route for those who have issues with REAs is an appeal. The Director states that the legislation is protective and there is nothing that puts the Appellants at further risk. The Director submits that the Appellants, in essence, are asserting a positive rights claim by wanting a more protective regime and the courts have been consistent in asserting that s. 7 does not allow positive rights claims. In short, the Director states that there must a criminal or civil prohibition in order for the state imposed requirement to be met.

[33] The Director relies on the case *Flora v. Ontario (Health Insurance Plan, General Manager)*, 2008 ONCA 538 ("*Flora*") to illustrate his point. In that case, a person brought a s. 7 *Charter* claim arguing that the government, in refusing to fund the out-of-country medical costs for a liver transplant, was depriving him of his security of the person. However, the Court refused the claim on the basis that the government outlines in a regulation what medical costs it covers and those that it does not. In effect, the Court characterized the claim as one where the *Charter* claimant is advocating for broader funding coverage. The Director states that the situation is analogous to the

present case where the Appellants are arguing for more protective measures in the *EPA.*

[34] Finally, the Director states that in order to establish a s. 7 *Charter* claim, the claimant must prove that serious physical or psychological harm is or will be caused by the impugned law or government conduct. The Director notes that courts have held that where there is a proven risk of harm, appellants then must prove that the state action or impugned provisions create an increased risk of harm to the known harm that was established.

[35] In this matter, the Approval Holder states that there is no government prohibition on the Appellants that interferes with their rights, and thus, the Appellants' claim is fundamentally a positive rights claim. The Approval Holder states that the Appellants are seeking to change the REA regime, and this is not the role of a s. 7 *Charter* claim, but is a role for the legislature.

[36] The Approval Holder states that every case where s. 7 *Charter* claims have been successful, the impugned state action prohibited the exercise of that right and included in the prohibitions were the removal of decision-making power over the individual's physical or psychological integrity. The Approval Holder goes on to state:

> As noted, there is no such prohibition at issue in this case. The impugned legislation has not deprived the Appellants of any rights. Absent the current regulatory approach to wind turbines, the only steps available to the Appellants to address alleged health effects would have been to seek leave to appeal to the Tribunal or bring a civil claim (which they have already filed under the common law of nuisance and/or negligence). The legislation has not deprived the Appellants of their ability to take this protective step. Their action is outstanding.

[37] The Approval Holder, as did the Director, gives the example in the *Flora* case where the court rejected a claim that the Government of Ontario's policy of reimbursing only certain medical expenses outside of Canada infringed the claimant's security of the person. The Approval Holder notes that the Court makes the point that the decision by the state to fund or not to fund a particular course of treatment may impact a person's interests, but is not the type of infringement contemplated by s. 7; otherwise the burden on government would be limitless.

[38] The Approval Holder states that there is no prohibition in the REA process, and if anything, the province's renewable energy regime promotes and protects human health, and thus complements the rights protected by s. 7, including:

> By promoting renewable energy to protect the environment, including human life; imposing setback requirements, a compliance protocol and mandatory consultation; requiring compliance with the Guidelines; and conferring a statutory right of appeal to a specialized tribunal for a specific, independent and fresh review of whether the project, as approved, will cause serious harm to human health.

[39] Finally, the Approval Holder states that, where a *Charter* breach is established, the impugned legislation can be struck down. The Approval Holder states that for a "true" s. 7 *Charter* case, the remedy would cure the breach by ending the law that is prohibiting or restating the rights of the claimant; however, for this proceeding, such a remedy would not work. The Approval Holder states that if the Appellants were successful, s. 142.1 of the *EPA* would result in the Appellants losing their statutory right to appeal, and thus, reinforcing the view that the impugned legislation does not prohibit any conduct, and thus does not engage s. 7 of the *Charter*.

[40] The Approval Holder also submits that not only must state actions or impugned legislation be state imposed, but the Appellants must establish that the Director's approval of the REA will cause serious psychological or physical harm in order to engage s. 7 of the *Charter*. The Approval Holder relies on both *Energy Probe v. Canada (Attorney General)* (1994), 17 O.R. (3d) 717, at para. 67 (Ont. Gen. Div.) and *Operation Dismantle Inc. v. Attorney General of Canada (Minister of Defence)*, [1985] 1 S.C.R. 144, at para. 29 ("*Operation Dismantle*"), for the proposition that the Appellants must demonstrate the causal link between the state action or the impugned legislation and violation of a *Charter* right.

[41] The Approval Holder also cites *Operation Dismantle* for the proposition that a mere increase in risk to the lives or security of citizens is not sufficient to engage a s. 7 *Charter* claim. The Approval Holder states that the *Operation Dismantle* case stands for the proposition that a claimant must prove that the impugned legislation or state action will result in a deprivation of security of the person and this has been consistently applied by the courts.

Findings on whether the deprivation complained of by the Appellants is state imposed

[42] The Tribunal recognizes that the submissions of the parties with respect to this issue were very similar to those in the *Dixon* proceeding. The Tribunal finds that the findings in *Dixon* at paras. 41 to 50 are equally applicable and adopts those findings in this case.

[43] The key points in those findings can be briefly summarized. Firstly, the Tribunal agrees with the submission of the Director that the jurisprudence to date has not promoted the notion that s. 7 *Charter* claims are intended to further positive rights, but instead, to protect claimants from state imposed harms. However, the Tribunal is also cognizant that the courts, such as in the dissent in *Gosselin*, have considered the possibility that positive rights may be the subject of a s. 7 *Charter* claim in the future.

[44] Secondly, in reviewing the cases on the matter, it would appear that whether the harm complained of is state imposed depends on how the harm is characterized. In *Bovaird*, a similar issue and similar arguments were raised. The Tribunal noted the following:

> [493] The Tribunal finds that the core of the Appellants' claim is that greater protections are required for human health than what are currently provided for under the requirements for renewable energy approvals. This claim applies to **all** renewable energy approvals, not just the current Project, despite the fact that under the legislative scheme it is the approval for the Project that is under appeal to the Tribunal.
>
> [494] Such a characterization might lend itself to a finding that the current appeal is analogous to the OHIP case of *Flora*; that is, the impugned sections of the *EPA* are protective of security of the person, rather than causing a deprivation of a freestanding right.
>
> [495] At the same time, the demand for greater health protections only arises because of the Director's decision to allow a wind project in an area where it did not previously exist. The Appellants argue that the protections built into the approval are insufficient **in the context of** a project that is being allowed to proceed. In this regard the present case is more akin to *G(J)*, where the state action in allowing the Project necessitates sufficient protections to prevent harm to human health. Viewed in this manner, it is the Director's decision, or the statutory scheme that has charged the Director with making this decision based on "public interest" factors, that would engage s. 7.
>
> [496] As noted above, the Tribunal finds that it is not necessary to determine which characterization is more appropriate in this case, in light of its findings respecting sub-issues (b) and (c). Either characterization may be argued and considered by the Tribunal in future.

[45] The Tribunal also finds that it is not necessary to determine which characterization is more appropriate in light of the findings below. The Tribunal further finds that either characterization may be put forth and considered by the Tribunal in a future proceeding.

[46] Thirdly, it is important to note that, with respect to a s. 7 *Charter* claim, a claimant must not only prove the harm complained of is state imposed, but that there is a causal connection between the harm and the state action. The Tribunal agrees with the Director's submission that where there is a proven risk of harm, it must be established that the state action or impugned provisions create an increased risk of harm.

[47] Fourthly, the courts have held that the evidentiary burden is only met where a "sufficient causal connection" has been established between the harm complained of and the impugned state action. This test was most recently articulated by the Supreme Court of Canada in the *Bedford* case.

[48] The Tribunal agrees with the following summary from the *Dixon* decision at para. 50:

> the Tribunal leaves open the possibility that an appellant might frame the s. 7 *Charter* deprivation in a manner that it could be characterized as "state imposed" in circumstances such as in the present claim. However, the Tribunal notes that the onus is on an appellant to demonstrate that there is a sufficient causal connection between the psychological or physical harm complained of (that is, health and psychological effects from the operation of wind turbines at the regulatory requirements and decibel levels) and the impugned state actions or renewable energy approval appeal provisions.

(c) Whether the deprivation must be "serious"

Submissions by the parties

[49] The Appellants submit that "requiring an appellant to show 'serious harm' to human health violates s. 7, because in order for s. 7 to be engaged an appellant must only show that it will interfere with bodily integrity or cause serious state-imposed psychological stress." In effect, the Appellants are submitting that the level of harm to engage s. 7 is different for psychological harm than physical harm in that for physical harm, it does not have to reach the threshold of "serious."

[50] In terms of psychological stress, the Appellants rely on *New Brunswick (Minister of Health and Community Services) v. G(J)*, [1999] 3 SCR 46 at paras. 59-60 ("*G(J)*") to outline the threshold with respect to this requirement, namely, that the impugned state action must have "a serious and profound impact on a person's psychological integrity."

[51] In terms of the threshold for physical harm, the Appellants state:

> With respect to [the] threshold for physical harm, the Appellants submit that the harm must be non-trivial, but it is not required that it rise to the level of "serious" harm. Surprisingly, there appears to be very limited case law on the level of harm needed to engage section 7 with respect to physical security. This may, in part, be due to the fact that bodily integrity is a relatively self-evident concept, and that an action either causes physical consequences or it does not.

[52] The Appellants rely on the decision in *Chaoulli* at para. 123 to support their position of what is needed to engage s. 7 security of the person in a *Charter* claim. The Appellants interpret that case as stating that "the denial of health care for a condition that is clinically significant to one's current and future health" engages the protection of s. 7. The Appellants submit that the threshold of "clinically significant" is not the same as "profound" or even "greater than ordinary" physical maladies. They submit that the threshold suggested in *Chaoulli* is "simply 'serious' enough to warrant clinical attention rather than being life-altering or life-threatening."

[53] The Appellants conclude as follows:

> …the harm suffered by those living within close proximity to wind turbines is harm which is sufficient to warrant clinical attention, as borne out by the witnesses before the Tribunal, and as found by the Tribunal in the *Erickson* decision. A test that requires an appellant to show that the project will cause serious harm fails to capture all the harms that are protected by section 7 of the *Charter*.

[54] In summary, the Appellants submit that physical harm that is non-trivial and clinically significant meets the threshold for a s. 7 *Charter* claim.

[55] The Director submits that, based on the ruling in *Chaoulli*, there is no difference between the standard for psychological harm and the standard for physical harm. The Director submits that in both cases the harm must be serious.

[56] The Director cites both *G(J)* and *Blencoe v. British Columbia (Human Rights Commission)*, 2000 SCC 44 ("*Blencoe*"), for the proposition that, in order to engage s. 7 of the *Charter*, the harm must be more than being troubled, annoyed, disturbed or upset and is more than the ordinary stresses and anxiety of everyday life.

[57] The Director submits that the courts have not sought to expand the protections beyond the threshold of "serious" harm with respect to s. 7 since such expansion would be inconsistent with the purpose of the *Charter* right and would massively expand the scope of judicial review, and would trivialize what it means for a right to be constitutionally protected.

[58] The Director goes on to state:

> …the Appellants' interpretation of *Chaoulli* as creating a threshold of "clinically significant," which they describe as being lower than "serious," is plainly incorrect. The portion of paragraph 123 of *Chaoulli* not quoted by the Appellants is explicit that the harm, whether psychological or physical, must be serious. The harm found to trigger s. 7 on the evidence in that case was in some instances irreparable injury or death…

[59] The Approval Holder submits that the harm or impact complained of, whether psychological or physical, must be serious. The Approval Holder states that state interference with bodily integrity arises where the impugned laws or state action interfere with bodily integrity and/or cause serious harm to physical health. In support of this position, the Approval Holder cites *R. v. Morgentaler*, [1988] 1 S.C.R. 30, at para. 34; *Rodriguez v. British Columbia (Attorney General),* [1993] 2 S.C.R. 519 at para. 137; *Chaoulli,* at para. 123; and *Canada (Attorney General) v. PHS Community Services Society*, [2011] 3 S.C.R. 134, at paras. 91-93.

[60] Citing *Blencoe*, at paras. 84-85, the Approval Holder states that serious state imposed psychological harm arises where the impugned legislation or state action results in a "serious and profound effect" on a person's psychological integrity and gives examples such as where children are removed from the parents' custody and where laws prohibit women from ending their own pregnancy.

[61] The Approval Holder notes that the Appellants' contention is that harm that is less serious cannot result in deprivation of security of the person. The Approval Holder states that this proposition was rejected in *G(J)* where the Supreme Court of Canada held that the right to security of the person is not engaged by ordinary stresses and anxiety such as being troubled, annoyed, disturbed or upset.

Findings on whether the deprivation must be "serious"

[62] As in the *Dixon* case, the Appellants raise the interesting issue of what extent or level of harm is required to render a finding that there has been a breach of s. 7 security of the person under the *Charter*. Again, as held in *Dixon*, the Tribunal will not have to make a specific finding of what is meant by "serious" in this case.

[63] While the parties seem to generally agree that the harm must be serious with respect to psychological harm, there is disagreement as to the level of harm required to engage s. 7 for physical harm. The Appellants suggest that the threshold is less than

"serious," while the Director and Approval Holder submit that the level of harm is "serious." There is also the issue of what is meant by "serious."

[64] Based on the *Chaoulli* decision, the Appellants submit that the threshold for a s. 7 *Charter* claim is met if a claimant has a condition that is non-trivial and "clinically significant" to his or her current and future health. They did not elaborate on what is meant by the term "clinically significant." They further submit that a clinically significant health condition is much less severe than the test outlined in s. 142.1 of the *EPA*, namely, serious harm to human health. They submit that "serious harm to human health" in the context of s. 142.1 connotes death, or irreversible or permanent impairment to one's health.

[65] The Director contends that, in order to engage s. 7 of the *Charter*, the harm must be serious, whether it is psychological or physical in nature. The Director also contends that the term "serious" has essentially the same connotation under a *Charter* claim as in the test under s. 142.1 of the *EPA* for a renewable energy approval appeal. The Director argues, however, regardless of whether the harm alleged is psychological, it must be established through a strong evidentiary base.

[66] The Approval Holder also states that the harm, whether physical or psychological, must be serious.

[67] In the *Dixon* case, the Tribunal canvassed the case law on this topic and made the following observations, which this panel of the Tribunal also adopts in this case:

> [71] From the *Chaoulli* decision, a number of observations can be discerned. First, the case law is clear that the level of harm, whether psychological or physical, must be "serious."
>
> [72] A second observation is that the comments in *Chaoulli* suggest that the term "serious" connotes a "clinically significant health condition." Although still general in nature, the Court has provided significant and useful guidance in holding that in order to meet the threshold for a s. 7 claim, the deprivation must be serious in the sense that the claimant has a health condition that is clinically significant. This, presumably, is a diagnosis made by medical professionals. What is a clinically significant health condition, of course, was not definitively laid out by the Court, and, it can be assumed, will have to be assessed on a case-by-case basis.
>
> [73] An understanding of what is meant by "serious" in the context of a s. 7 *Charter* claim also can shed light on the threshold needed to meet the "serious harm to human health" ground under s. 142.1 of the *EPA*. It can be assumed that there will be some parallels in

> analysis and thresholds between a *Charter* claim and the health ground of appeal for a REA appeal. However, future cases will have to determine whether a "clinically significant" health condition that satisfies the threshold for a s. 7 *Charter* claim would also satisfy the test for a s. 142.1 *EPA* appeal (or *vice versa*).

(d) Whether the Appellants have proven serious physical or psychological harm resulting from the impugned provisions or government conduct

[68] Even if the Tribunal were to agree with the Appellants' submissions with respect to whether the alleged deprivation is state imposed in this case, two further issues arise. First, what is the nature of the evidentiary burden that is required in order for the Appellants to establish their s. 7 *Charter* claim? Second, have they met their evidentiary onus?

Submissions on the nature of the evidentiary burden

[69] The Appellants submit that, based on the findings in *Erickson v. Ontario (Director, Ministry of the Environment)* (2011), 61 C.E.L.R. (3d) 1 ("*Erickson*") and the testimony of the post-turbine witnesses in this proceeding, they have satisfied their evidentiary onus to establish their s. 7 *Charter* claim. More particularly, they submit that the risk of harm has been established by the findings in *Erickson* at para. 872 where the Tribunal found that wind turbines can cause harm to human health if located too close to a receptor, and the testimony of the post-turbine witnesses.

[70] In addition, the Appellants submit that s. 7 of the *Charter* also applies to future harms. They argue that it is only necessary to show that a "risk of harm" is likely to occur for s. 7 to be engaged.

[71] Both the Director and the Approval Holder submit that in order to establish a s. 7 *Charter* claim, the claimant must prove on a balance of probabilities that there was in fact serious physical or psychological harm. They made extensive submissions and reviewed a number of cases supporting the proposition that the claimant must establish a s. 7 claim based on a strong evidentiary foundation.

[72] The Director submits that the Appellants must establish evidence of actual harm, not merely risk of harm. The Director further submits that:

> The requirement in *Operation Dismantle* that a claimant prove that government action causes or will cause harm has remained consistent throughout the Court's subsequent Charter s. 7 case law. Courts have

> found that government actions only engage security of the person where it has been proven on the evidence that the state actions cause serious harm, either directly or (as in the *Insite* and *Bedford* cases cited below) because the impugned prohibitions prevented the claimants from taking measures to mitigate the risk of serious harm.

[73] The Director submits that every successful s. 7 *Charter* claim has been based on an evidentiary foundation. The Director points to the decision of the Alberta Court of Appeal in *Trang v. Alberta (Edmonton Remand Centre,)* [2007] A.J. No. 907 at para. 28 and 29 where the Court states that “mere risk” or any additional risk imposed by a government action does not necessarily engage the *Charter*.

[74] The Approval Holder argues that the claimant has the burden of establishing the relevant *Charter* rights and that to fulfill this role, the claimant must demonstrate through evidence that it is “more likely than not” that a state action has resulted in the breach of a *Charter* right. The Approval Holder cites *R v. Dixon*, [1998] 1 S.C.R. 244 for this latter proposition.

[75] The Approval Holder further states that:

> In section 7 security of the person cases, this evidentiary burden requires the party alleging infringement to show with evidence that, on balance, state action has cause serious physical or psychological harm. Meeting the burden of proof under section 7 of the Charter generally requires objective evidence (usually in the form of independent expert evidence). By way of illustration, in *Truehope Nutritional Support Ltd. v. Canada (Attorney General)*, the Federal Court held that in assessing a Charter claim required “a critical analysis of not only [the plaintiff’s] subjective evidence but also relevant objective evidence with respect to the content of [the plaintiff’s] subjective claim in order to determine the weight to be given to [the] subjective evidence.”

Findings on the nature of the evidentiary burden

[76] As noted in *Dixon* in paras 81 to 84, it is apparent that, with respect to the case law on s. 7 *Charter* claims, the courts have all held that the onus is on the claimant to establish, on the evidence provided, serious physical or psychological harm. Speculation, allegations and mere concerns do not suffice. In *Dixon*, the Tribunal cited extensive authority for this proposition and concluded at para. 84 that for “… a s. 7 *Charter* claim, the Tribunal finds that the onus is on the Appellants to establish, on the evidence, the claimants have suffered or will suffer serious physical or psychological harm.” This panel of the Tribunal adopts that finding in this case.

Submissions on whether the evidentiary burden has been met by the Appellants to prove serious physical or psychological harm

[77] The issue at this point is whether the Appellants have met the evidentiary burden by establishing in evidence that there has been or will be serious physical or psychological harm in order to support a s. 7 *Charter* claim. In this context, the Tribunal will review the evidence presented at the hearing and the parties' interpretation or comments on the evidence. The evidence is outlined in more detail in Appendix A.

Submissions on the Appellants' Evidence

[78] The Appellants contend that, as a result of the finding in *Erickson* and the evidence from a number of "post turbine witnesses," they have met the evidentiary burden to establish a s. 7 *Charter* claim. They rely on the following passage from the *Erickson* decision for the proposition that wind turbines can cause harm to human health:

> [872] This case has successfully shown that the debate should not be simplified to one about whether wind turbines can cause harm to humans. The evidence presented to the Tribunal demonstrates that they can, if facilities are placed too close to residents. The debate has now evolved to one of degree. The question that should be asked is: What protections, such as permissible noise levels or setbacks distances, are appropriate to protect human health?

[79] The Appellants called the following witnesses in support of their case:

- The Appellants (Shawn and Tricia Drennan)
- 4 Post-Turbine Witnesses
- 2 Summonsed Witnesses (Senior Environmental Officer Gary Tomlinson and Dr. David Michaud)
- 2 Expert Witnesses (Rick James and Dr. Jeffrey Lipsitz)

[80] In order to respond to the evidence, the Director called Denton Miller and Robert O'Neal while the Approval Holder called Dr. Kieran Moore, Dr. Kenneth Mundt, Dr. Robert McCunney, Benjamin Coulson, and Debbie Raymond.

[81] At the hearing, presentations were also given by the participants, Michael Leitch and Anne Marie Howard, Elizabeth Bellavance (as a representative of an unincorporated organization known as "We're Against Industrial Wind Turbines – Plympton-Wyoming ("WAIT-PW")), and Stephana Johnson. Presentations were also

made by the following presenters: Greg Schmaltz, John Curran and Kevin McKee, as a representative of Huron-Kinloss Against Lakeside Turbines (“HALT”).

The Appellants, Shawn and Tricia Drennan

[82] Mr. and Ms. Drennan testified as a panel. They operate a farm in the Township of Ashfield-Colborne-Wawanosh, Huron County. The closest proposed wind turbine to their farm from the Project is 717m, with eleven wind turbines proposed to be within 2 km of their home. A 270 MW transformer substation is to be built within 550 m of their home.

[83] Mr. and Ms. Drennan became aware of the proposed wind project in September 2009. They testified that they had concerns regarding the size and scope of the Project, the possible effects on human health, and the proximity of structures to their property. Mr. and Ms. Drennan have concerns about other persons who have suffered health effects due to wind turbines.

[84] Mr. and Ms. Drennan have attended three public meetings for the K2 Wind Project. At these public meetings, the Drennans raised concerns regarding the effects of the Project on human health. The Drennans were frustrated and felt that the public meetings were only held to meet compliance with statutory requirements. Mr. and Ms. Drennan felt that the wind company was not interested in listening to their concerns.

[85] Mr. and Ms. Drennan also contacted the MOE about their concerns but said they did not receive a response.

[86] Mr. and Ms. Drennan suffer from some pre-existing health conditions but agree that they are both physically and mentally healthy. They claim to have experienced anxiety due to the proposed proximity of the wind turbines and the substation, and the number of turbines proposed in the Project. The Drennans testified that have not raised their health concerns with their respective family physicians. Mr. and Ms. Drennan explained that they have changed doctors in recent years. They added that they do not have a doctor with whom they feel comfortable discussing their wind turbine concerns.

[87] Mr. and Ms. Drennan testified that they had made plans in 2005-2006 to build their own set of wind turbines under the FIT Program through Canadian Wind Services. However, the Drennans explained that these plans were abandoned when their community was deemed unsuitable for integration into the transmission grid.

[88] Mr. and Ms. Drennan testified that they were involved in prior wind project related litigation.

[89] Mr. and Ms. Drennan were questioned about a letter written to the editor of a publication called “Ontario Farmer”, and published in August 2012 which questioned the economic and environmental benefits of wind power. They agreed that they had consented to having their names signed at the bottom of the letter although they denied that they had personally authored the letter. Mr. and Ms. Drennan agreed that they were members and co-founders of Safe Wind Energy for All Residents (“SWEAR”), a group in favour of stopping proposed wind projects.

[90] The Drennans testified that they were not aware of the MOE compliance protocol relating to noise from wind turbines. Moreover, the Drennans testified they were not aware of an MOE report prepared by Brian Howe and HGC Consultants regarding infrasound and low frequency noise.

[91] The Director submits that the Appellants expressed concerns about the potential health impacts from wind turbines based on information they gathered from others living near wind turbines and the internet. The Director notes that they did not provide any medical opinion as to the effect that living near a turbine project would have on their health. Further, the Director notes that the Appellants have other concerns such as impacts of the Project on their property value and that they are also involved in civil litigation relating to the Project. The Director submits that the Appellants have not provided sufficient evidence to establish that they will suffer serious harm to their health.

[92] The Approval Holder states that Mr. and Ms. Drennan are anti-wind activists with strongly held beliefs. The Approval Holder notes that the Appellants formed an anti-wind group and pursued litigation to stop the Project. The Approval Holder notes that Mr. and Ms. Drennan are generally in good health and have concerns other than their health, namely, the impact of wind turbines on property values. The Approval Holder points out that, despite the fact that the Drennans knew the importance of a professional medical diagnosis in order to establish their case, the Appellants did not call a medical expert to testify in regard to the impacts of wind turbines or transformers on their health.

Post-Turbine Witnesses

[93] The Appellants called four witnesses who have lived near wind turbine projects in the province. Witness No. 1 lived on a property with the nearest wind turbine 800 m

away. This witness outlined a number of health impacts attributed by the witness to the wind project, such as sleep deprivation, ringing in the ears, increased blood pressure and heart rate, among other concerns. The Appellants submit that the evidence of this witness should carry significant weight because the witness moved from the house because of the wind turbine although the family had intended to retire at that location.

[94] Witness No. 2 had a wind turbine less than 550 m from their residence and attributed a number of health impacts to the turbines including sleep deprivation, stomach aches, heart palpitations, headaches and cognitive and memory problems. The witness stated that once the family moved away from the wind turbines, the symptoms were relieved. The Appellants submit that the Tribunal should also give significant weight to this witness' testimony since there was no other plausible explanation for the adverse health impacts.

[95] Witness No. 3 lives near the Melancthon wind farm and testified with respect to the impacts from the operation of the transformer station located approximately 490m from the home. Witness No. 3 does not complain about the wind turbines located four to 5 km from the home. Witness 3 complained of poor sleep, shakiness, headaches, pressure in the chest and ringing in the ears which the witness associates with the operation of the transformer. The witness testified that the health issues persisted despite a number of mitigation measures being undertaken by the approval holder of that project. The witness did outline a number of pre-existing health issues. The witness states it was the vibration and humming inside of the home that was the cause of concern, although no evidence was adduced with regard to the cause of the vibration and humming and the associated noise levels.

[96] Witness No. 4 lives in a house where the nearest wind turbine is located 724m from that house. The witness complains of experiencing headaches, ear aches, trouble sleeping and associated health effects allegedly commencing once the wind farm became operational. Medical records that relate to the issue only date from August of 2013. Witness No. 4 had a number of health issues prior to the operation of the wind turbine. The witness notes that a number of the health complaints occur when the witness is in the house, irrespective of whether the wind turbines are in operation or not.

[97] The Director stated that the Tribunal should not rely on the evidence of the post-turbine witnesses. For the first witness, the Director notes that no medical professional has linked the turbine projects to any of these health issues and that all of the clinical tests, such as hearing, stress and cardiology tests were found to be normal. With

respect to the second post-turbine witness, the Director notes that the medical records submitted contained virtually no notes of the health issues raised by the witness and that no medical professional has linked the turbine project to any of the health issues.

[98] The Director states that none of the post-turbine witnesses provided a diagnosis from a medical professional “to the effect that their conditions were caused by, were exacerbated by or resulted (even indirectly) from exposure to wind turbines.” The Director notes that the witnesses admitted that they were self-diagnosed. The Director submits that the Tribunal should follow the decision in *Alliance to Protect Prince Edward County v. Ontario (Ministry of the Environment)*, [2013] O.E.R.T.D. 40 (“*Ostrander”)* where the Tribunal stated that the witnesses’ own evidence was not and could not be found to be confirmatory of causation in the absence of expert medical evidence confirming causation and conclusive measurement of sound pressure levels.

[99] The Director also notes, as in *Ostrander*, that the witnesses did not provide noise level measurements such that the Tribunal could determine whether the health complaints arise from noise levels below 40 dBA.

[100] The Approval Holder submits that the evidence of the post-turbine witnesses is unhelpful because:

- the witnesses have self-diagnosed themselves with “Wind Turbine Syndrome”, yet many of them exhibit pre-existing conditions that suggest other underlying conditions;
- some of the post-turbine witnesses have made lifestyle choices that could explain their alleged symptoms, especially those relating to sleep;
- some of the post-turbine witnesses have health complaints but have not communicated them to their doctors or medical professionals;
- the disclosure of medical records for the post-turbine witnesses was deficient, as the medical records were inconclusive or missing entirely;
- there are concerns of bias in respect of each witness in that they may have concerns with respect to loss of property values and because of their participation in or support of groups opposing wind turbine projects.

[101] The Approval Holder concludes that the post-turbine witnesses provided evidence that is “speculative and relies on inadmissible partisan lay person opinion evidence, double hearsay and self-diagnosis without offering a shred of evidence of medical causation.”

Senior Environmental Officer Gary Tomlinson

[102] Officer Tomlinson is a Senior Environmental Officer with the MOE at the Guelph District Office who testified under summons for the appellants in *Dixon.* His evidence relates to the number and nature of complaints the MOE receives concerning wind turbines and the testing protocols, among other issues. His testimony in *Dixon* was adopted for this hearing.

[103] The Appellants note that Officer Tomlinson estimated that approximately 750 complaints alleging health effects with respect to noise from wind turbines or transformers were received by the Guelph District Office. He testified that the MOE does not undertake any testing inside the complainants’ homes; instead, they test within 30 m of the complainant’s home. The Appellants also state that Officer Tomlinson noted that complaints were received although the project near the complainants’ homes was in compliance with the 40 dBA limit.

[104] The Director submits that little or no weight should be given to Officer Tomlinson’s evidence. The Director is not questioning the accuracy of the testimony but “because the complainants attribute symptoms to wind turbines and report this to the MOE does not prove that the project under review will cause harm to human health. There is no context for these complaints and no follow-up about their accuracy or correctness.” Further, the Appellants were not seeking to enter the complaints for the truth of their contents.

[105] The Director also states that Officer Tomlinson’s evidence pertained to the number and breakdown of complaints to the Guelph District Office and that these complaints originated from a minority of receptors and mostly related to noise from transformers rather than wind turbines. The Director further notes that Officer Tomlinson testified that:

> …the Guelph District Office received a total of approximately 750 complaints about wind turbines. Officer Tomlinson confirmed that 659 of these complaints were related to the Melancthon project; that the Melancthon project has approximately 347 receptors; that most, if not all, of the 659 complaints came from 21 households; and that many of these

> complaints were about the transformer station and not about the turbines themselves.

Dr. David Michaud

[106] Dr. Michaud testified under summons for the appellants in the *Dixon* hearing. His testimony was adopted for this hearing. He described the nature and scope of the study he is conducting on the health effects of wind turbines on behalf of Health Canada. In his testimony, Dr. Michaud states that there may be more concern by people living in rural environments regarding exposure from wind turbine noise because rural areas tend to have a very low background sound level to start with. The Appellants noted that Dr. Michaud outlines the concern that when you introduce a source like wind turbine noise, although it may be relatively quiet compared to something like road traffic noise, the absolute increase in the sound can be quite large, particularly at night.

[107] The Appellants state that they recognize that the Health Canada study being conducted by Dr. Michaud on wind turbines is not intended to demonstrate a definitive link between wind turbines and harm to health, but instead, examines whether there is a statistical association. The Appellants want to note, however, the following:

> That there is a knowledge gap with respect to low frequency noise emitted from wind turbines and its effects on residents living in close proximity to the wind turbines;
>
> That there is a knowledge gap generally about the effect that wind turbines have on human health;
>
> That this knowledge gap is deemed as something that is important to address by Health Canada; and
>
> Not having this type of knowledge impedes Health Canada's ability to provide the best scientific advice to the responsible authority on the potential health impacts of projects that change the noise environment.

[108] The Director submits that the evidence of Dr. Michaud does not provide evidence that the Project will cause serious harm to human health. The Director states that even if the study being undertaken by Health Canada was released today, the study is not designed to assess causation. Instead, the Director notes that the study is examining association and it will not be the final or ultimate word on the issue. The Approval Holder notes that Dr. Michaud was not qualified as an expert in the *Dixon* proceeding and gave evidence factual in nature concerning the Health Canada study. The Approval Holder pointed out that Dr. Michaud noted that the Health Canada study is not

intended to be a definitive answer on whether or not wind turbines are associated with health effects and that the Health Canada study is not looking at causation.

[109] The Approval Holder also notes the views of one its experts, Dr. Kenneth Mundt. The Approval Holder notes that Dr. Mundt states that the Health Canada study would be a refinement to the existing array of studies and that he does not expect the results to include "earth-shaking findings. " The Approval Holder also states that Dr. Mundt's opinion is that the Health Canada study does not provide justification for an immediate intervention or moratorium with respect to wind development.

Dr. Jeffrey Lipsitz

[110] Dr. Lipsitz's evidence was adduced through a witness statement provided by the Appellants and there was no request to qualify Dr. Lipsitz as an expert. He provided an opinion pertaining to the impacts of disturbed sleep. He states that most people in society have poor sleep hygiene that could lead to "reduced daytime alertness" and other health conditions.

[111] The Director notes that Dr. Lipsitz's statement makes no mention of any relationship between noise from wind turbines and sleep. Further, the Director notes that Dr. Lipsitz does not comment on the link between the specific health concerns raised by the Appellants and disturbed sleep. The Director notes that Dr. Lipsitz did not conduct a medical examination or diagnosis of any witness.

[112] The Director points out that Dr. Lipsitz states that there are over 90 sleep disorders with different causes, although there is no mention of the link of such disorders to wind turbines. The Director states that the evidence shows that "there are <u>many</u> potential causes for disturbed sleep patterns which individuals living near wind turbines may erroneously associate with the operation of the turbine project."

Richard James

[113] The Appellants called Mr. James as a witness who was qualified by the Tribunal to given opinion evidence as an acoustical engineer with expertise in noise modeling, including noise modeling and measurement of wind turbine noise and the associated effects on residents. The Appellants state that Mr. James gave evidence that the noise assessment prepared by the Approval Holder has a number of deficiencies such that it underestimates the predicted noise levels at the receptor points. Most importantly, the

Appellants point out that the MOE sound modelling approach does not use confidence levels and thus fails to accurately provide the predictable worst case outcomes (which, the Appellants state, is the goal of the MOE sound modelling for wind turbine project.)

[114] The Appellants state that Mr. James notes that, because of the deficiencies in the modelling process, the predicted noise assessment was off by 5 dBA. The underestimation of the predicted noise levels is because ISO 9613, the international protocol used for measuring noise propagation, was not factored into the noise assessment and the Approval Holder should have considered Part 14 of the IEC Standard 61400 which is required under Part 11 of that standard.

[115] The Appellants also state that some of Mr. James' evidence pertains to the associated effects of low frequency sound from wind turbines with respect to the vestibular system. Mr. James' testimony was that infrasound and low frequency noise generated by wind turbines create a significant health risk. Mr. James states that infrasound and low frequency levels are unique and can be compared to the measurement range experienced in natural disasters like tsunamis. He states that the public should be protected by having the MOE develop guidelines with respect to infrasound and low frequency noise from wind turbines.

[116] The Appellants submit that Mr. James' evidence should be given significant weight in light of his expertise in the field of audiology, sound monitoring and testing.

[117] The Director notes that, while Mr. James states that the ISO 9613 was not properly factored into the noise assessment and that part 14 of the IEC standard 61400 was not appropriately considered by the Approval Holder, he admitted that neither the MOE Noise Guidelines nor Part 11 of IEC 61400 refer to or require adherence to or consideration of IEC 61400 Part 14.

[118] The Director notes that Mr. James gave no evidence to suggest that the requirements of the MOE Noise Guidelines were not adhered to and he was of the opinion that 40 dBA was a reasonable limit for audible noise when adhered to.

[119] The Director points out that the thrust of Mr. James' evidence is that the Project, once operational, will not be in compliance with its REA. The Director submits that this evidence should be given little or no weight in the determination of whether the Project will cause serious harm to human health because the Tribunal has held in the past that

it is to be assumed that a project will operate within the terms and conditions of the REA.

[120] The Director states that Mr. James' position that low frequency noise and infrasound emanates from wind turbines is not supported by the current research and he did not provide the scientific basis for his position.

[121] The Approval Holder states that Mr. James has a bias against wind development and purported to give evidence beyond the scope of his expertise, and in so doing breached his obligations as an independent expert and the Tribunal's Practice Direction for Technical and Opinion Evidence ("Practice Direction for Opinion Evidence"). As such, the Approval Holder submits that the Tribunal should give Mr. James' evidence no weight.

[122] In support of the Approval Holder's view of Mr. James' evidence, the Approval Holder makes the following submissions, among others:

- Mr. James demonstrated a lack of independence, in that, among other things, none of his clients have ever supported wind turbine projects; he is a member of a group calling for a moratorium on further industrial wind development; he testified to matters beyond his expertise, in particular, in relation to his opinion concerning adverse health effects caused by exposure to wind turbines.

- Mr. James did not adhere to the Practice Direction for Opinion Evidence in that "he had an obligation to clearly disclose any difference of scientific opinion to the views expressed in his report" and in particular, the fact that other experts held a contrary opinion to his, "namely that infrasound and low frequency noise from wind turbines do not pose a health risk."

- Mr. James only put forward authorities in support of his point of view and not other viewpoints, such as a study by Professor Yokoyama that concludes that low frequency components in infrasound frequency range from wind turbine noise cannot be heard or sensed.

- Mr. James also used exaggerated or alarmist testimony to provide his opinion such as stating that the infrasound from wind turbines is in the 1 Hz range and is generated in the natural environment by sources such as earthquakes and tsunamis whereas Mr. O'Neal, another expert in this proceeding, testified

that infrasound in the 1 Hz range is generated by sources such as waves on a lake, HVAC systems and traffic.

- The reliability of Mr. James' testimony is also put into question since the Approval Holder alleges he gave inconsistent testimony between this proceeding and the hearing in the St. Columban project pertaining to the preparation of the Acoustic Noise Measurement Techniques prepared by an International Electrotechnical Commissioner ("IEC") working group.

[123] The Approval Holder, relying on the words of the *Inquiry into Pediatric Forensic Pathology in Ontario* (the *Goudge Inquiry*) states that the Tribunal:

> …should not risk having its decision-making function eroded by an "expert generalist" who professes to know "something about everything and who [is] only too willing to provide the court with a ready-made solution for any contentious issue that might exist."

[124] The Approval Holder argues that if the Tribunal is to give any weight to Mr. James' evidence, the evidence of Messrs. Coulson, Miller and O'Neal should be preferred since they are better qualified to give such relevant evidence. In particular, the evidence of Messrs. Coulson, Miller and O'Neal should be preferred with respect to issues of infrasound and low frequency sound.

[125] The Approval Holder also submits that Mr. James' evidence that the Project's noise assessment report will result in the underassessment of sound levels should not be followed. The Approval Holder states that Mr. James' opinion is not specific to this Project and he admitted that the noise assessment completed for this Project was undertaken in accordance with the MOE Noise Guidelines for Wind Turbines and the appropriate regulation.

Submissions on the Respondents' Evidence

[126] Three witnesses were called by the Respondents with respect to noise issues: Denton Miller; Robert O'Neal; and Benjamin Coulson.

Denton Miller

[127] Mr. Miller was called as a witness by the Director. Mr. Miller, who is a senior noise engineer with the MOE, was qualified by the Tribunal to give opinion evidence in this proceeding as a noise engineer with specific expertise in the MOE's Noise Guidelines and compliance protocols for wind turbines. The Director notes that Mr.

Miller has undertaken some 30 noise assessments for wind projects and was involved in the review of 800 applications involving various industrial sectors.

[128] The Director states that Mr. Miller's evidence outlined the approach used by the MOE and, in particular, the principle of "predictable worst case," which results in a conservative prediction of noise levels. The conservative prediction, according to Mr. Miller's evidence, is premised on a number of assumptions incorporated into the noise assessments:

> the assumption that all turbines are always facing each receptor under down wind conditions;
>
> the use of the centre of the home to prevent the shielding of the building itself; and
>
> the need to consider cumulative effects by addressing all turbines within a 5 km radius at a point of reception.

[129] The Director notes that once all of these conservative assumptions are incorporated, the resulting noise assessment compares the maximum total noise operating against the most restrictive sound level limit, that is, 40 dBA, following the "predictable worst case" principle.

[130] The Director states that Mr. Miller expressed the opinion that the Approval Holder complied with requirements in the Noise Guidelines and incorporated the "predictable worst case" into the noise assessment and he also confirmed that he recalculated the noise results reported for the most impacted receptors and confirmed that they were correct.

[131] The Director notes that Mr. Miller provided an outline of the conditions imposed in the REA issued to the Approval Holder and stated that Conditions E1 and E2 require the Approval Holder to submit an acoustic audit that is prepared by an independent acoustical consultant.

[132] The Approval Holder did not comment on Mr. Miller's evidence.

[133] The Appellant states that Mr. Miller's evidence is simply that the Project's noise assessment studies comply with the MOE requirements.

Robert O'Neal

[134] Mr. O'Neal was called by the Director and qualified by the Tribunal in this proceeding to give opinion evidence as an expert acoustician with expertise in low frequency noise. The Director notes that he has been involved in sound level studies for over 50 wind energy projects and as lead investigator for a low frequency and infrasound research study on wind turbines.

[135] The Director states that Mr. O'Neal gave evidence that "it is his opinion that infrasound and low frequency sound will not impact people at distances as close as 305 meters and 457 meters from the nearest wind turbine."

[136] The Approval Holder points out that Mr. O'Neal stated that the work he conducted and the literature he reviewed leads him to the conclusion that infrasound and low frequency sound levels from wind turbines were below the criteria for various standards organizations with respect to health impacts.

[137] The Appellants disagree with Mr. O'Neal's contention that it would be inappropriate to extrapolate the adverse health alleged by residents living near one wind project to residents of another project.

Benjamin Coulson

[138] Mr. Coulson was called by the Approval Holder and qualified by the Tribunal to give opinion evidence as a noise engineer. The Director notes that Mr. Coulson reviewed the noise assessment prepared for the Project. The Director states that Mr. Coulson concludes that the noise assessment prepared for the Project was in compliance with the Ministry's Noise Guidelines and thus disagrees with the deficiencies listed by Mr. James in his evidence.

[139] The Approval Holder states Mr. Coulson explained that he does not believe that there is anything unique about infrasound from wind turbines in that there are many natural sources of infrasound and they are consistent with the infrasound from wind turbines.

[140] The Appellants state the following with respect to Mr. Coulson's evidence:

> Mr. Coulson indicated in his evidence that the sound modeling predicted in the noise assessment reports bears out quite well in real world testing. Mr. Coulson did not provide any documentation to support this

> proposition and the Appellant would draw the Tribunal's attention to the Howe paper at Tab F of the witness statement of Mr. James …The Howe paper provides Mr. Howe's experience in doing compliance follow-up in Ontario and it includes his conclusion that even after the improvements in modeling to include such factors as the wind profile and ground attenuation with greater specificity, that Mr. Howe is still observing that sound levels being measured were as much as 5-decibels higher than what was being predicted by the models.

[141] The Appellants submit that this information supports Mr. James' contention that the sound modeling used for this Project does not accurately predict the worst case noise impact for the Project.

Dr. Kenneth Mundt

[142] The Respondents also called a number of medical and epidemiological experts: Dr. Kenneth Mundt, Dr. Robert McCunney, and Dr. Kieran Moore.

[143] Dr. Mundt was called by the Approval Holder and was qualified by the Tribunal to give opinion evidence in epidemiology, which is the study of the causes of disease in populations. The Director notes that Dr. Mundt undertook a review of the available thirteen peer-reviewed scientific studies with respect to wind turbines and human health and concludes that there is no convincing evidence that residential exposure to wind turbines causes harm to human health although the literature reports an association between sound pressure levels and annoyance. The Director also notes Dr. Mundt's conclusion that while some individuals may experience annoyance from wind turbine noise, "there is no indication of a correlation between annoyance from wind turbine noise and adverse health effects in these studies – nor is there any indication of serious harm."

[144] The Director notes that Dr. Mundt concludes that the evidence of the post-turbine witnesses was insufficient to determine a causal connection between their health and exposure to wind turbine noise; and that the health impacts complained of by the post-turbine witnesses cannot be extrapolated to any other group or individuals.

[145] The Approval Holder states that Dr. Mundt gives the view that the complaints from post-turbine witnesses do not provide sufficient evidence to make a diagnosis since the complaints are self-reported, there are incomplete medical records and the witnesses have not been screened by a treating physician.

[146] The Approval Holder notes that, after reviewing peer-reviewed literature, Dr. Mundt states that the only conditions consistently reported with respect to wind turbines are annoyance or irritation. However, the Approval Holder notes that Dr. Mundt distinguished between disease and annoyance and stated that annoyance is not classified as a disease.

[147] The Approval Holder also notes Dr. Mundt's view that a possible explanation for the reporting of adverse health effects by some people is the "nocebo effect"; that is, when persons are presented with first-person accounts of symptoms attributed to wind turbines they tend to report more symptoms and greater intensity of symptoms regardless if exposed to wind turbine infrasound or sham infrasound.

[148] The Appellants state that very little consideration should be given to Dr. Mundt's evidence. The Appellants states that "… Dr. Mundt finds fault with many of the studies that have been undertaken thus far regarding an association between wind turbine exposure and adverse health, the Appellants rely on the findings of this Tribunal in *Erickson*, that exposure to wind turbine noise does cause harm to human health."

Dr. Robert McCunney

[149] Dr. McCunney was called by the Approval Holder was qualified by the Tribunal to give opinion evidence as a medical doctor specializing in occupational and environmental medicine with particular expertise in health implications of noise exposure. Based on his assessment of the noise assessment report for the Project, the relevant scientific literature and the evidence presented by the Appellants, the Director notes that he concludes the Project will not cause harm to human health if operated in accordance with the REA.

[150] The Director also notes that Dr. McCunney has reviewed the relevant literature and concludes that there is no scientific support for a direct causal link between chronic noise exposure of less than 40 dBA and adverse health effects. The Director further points out that Dr. McCunney concludes that infrasound and low frequency sound from wind turbines with conditions similar to the REA in this proceeding are not at levels that are harmful to human health.

[151] The Approval Holder notes that Dr. McCunney states that the post-turbine witnesses have not been properly diagnosed and a proper diagnosis is needed in order to establish the causation between alleged health effects and wind turbine noise. The

Approval Holder notes that Dr. McCunney states that the nonspecific symptoms complained of by the post-turbine witnesses are common to the general population, and sleep disorders are also common in the population and have multiple causes.

[152] The Approval Holder says that Dr. McCunney notes that the World Health Organization's Night Noise Guidelines for Europe ("WHO Night Noise Guidelines") establish that noise levels lower than 45 dBA are not associated with significant sleep awakenings.

[153] The Approval Holder states that Dr. McCunney disagrees with Mr. James with respect to the impact of infrasound. The Approval Holder states that Dr. McCunney concludes, after a review of the literature, that there are no studies demonstrating adverse health effects from sub-audible infrasound at predicted noise levels from wind turbines. The Approval Holder notes that Dr. McCunney states that infrasound has been studied for a long time and that the adverse effects are based on the intensity of the noise exposure rather than the frequency.

[154] The Approval Holder rebuts the Appellants' assertion that Dr. McCunney's position that "annoyance is not a recognized health effect is not supported by documents published by the World Health Organization." The Approval Holder notes:

> Dr. McCunney relied on an international WHO standard in opining that annoyance is not a recognized adverse health effect. He specifically referred to the World Health Organizations, *International Classification of Diseases* (the "**ICD"**), which is the international standard for classifying diseases and other health conditions.
>
> Dr. McCunney opined that annoyance is not considered an adverse health effect, "because whether someone perceives annoyance is based on a variety of factors, not only individual composition and attitude, but the type of source of the annoyance…" Referring to the Panel Review, Dr. McCunney noted that the panel's conclusion that annoyance is not a "pathological entity" and explained that this meant that annoyance is not a bona fide medical diagnosis.

[155] The Appellants submit that Dr. McCunney, apart from co-authoring one non-peer reviewed paper and literature reviews, has no experience in treating or studying those that have been exposed to noise from wind turbines.

[156] Further, the Appellants submit that Dr. McCunney's position that annoyance is not a recognized health effect is not supported by documents published by the WHO. The Appellant states that the WHO Night Noise Guidelines for Europe state that varying levels of noise in the home cause certain direct and indirect health-related effects. The

Appellants submit that the health effects complained of by the post-turbine witnesses are consistent with the type of effects contemplated under the WHO Night Noise Guidelines.

Dr. Kieran Moore

[157] Dr. Moore was called as a witness by the Approval Holder and was qualified by the Tribunal to give opinion evidence as a physician with expertise in family and emergency medicine, public health and preventative medicine. The Approval Holder notes that he is also the Associate Medical Officer of Health for Kingston, Frontenac and Lennox & Addington Public Health.

[158] The Approval Holder notes that Dr. Moore explained the importance of complete medical histories for the post-turbine witnesses in order to form a medical diagnosis. Dr. Moore outlined that the relationship between health effects and exposure can only be drawn by taking into account a variety of factors, including habits, diet, past illnesses, medications being used and the occupation of the witnesses.

[159] The Approval Holder notes that Dr. Moore confirmed that, despite the evidence of the post-turbine witnesses, the current setbacks are sufficient to protect public health. The Approval Holder submits that the concept of "Wind Turbine Syndrome" is not a medically accepted diagnosis and that there is "no evidence for such a set of health effects from exposure to wind turbines that could be characterized in such a manner."

[160] The Approval Holder notes that Dr. Moore commented that the association identified between annoyance and wind turbines is very difficult to "tease out" as annoyance is not necessarily independent of seeing turbines, but this does not suggest that any annoyance related to wind turbines may only arise with visual cues.

[161] The Approval Holder also says that Dr. Moore states that there is no evidence to relate infrasound with alleged harmful exposure from wind turbines.

[162] The Director notes as follows:

> Dr. Moore reviewed the medical records of the four post-turbine witnesses and concluded that, given the limited exposure information, limited medical histories provided, the possible bias he identified, and the wide array of symptoms that are common to the general population, it would be irrational, indeed not biologically plausible for many of the adverse effects alleged by the post-turbine witnesses to be attributed to any one etiology. Dr. Moore applied the nine Bradford Hill criteria and

> concluded that no causal link has been established between the reported health effects and wind turbines.

[163] The Director notes that Dr. Moore states that "annoyance" is not a term used in medicine and is not a diagnosis or a disease. The Director states Dr. Moore explained that "…in the public health arena, many people are observed to react with annoyance and subsequent fear against many new technologies including immunization, WI-FI, fluoridated water, and the like, despite the lack of any scientific documentation of population harm."

[164] The Director states that Dr. Moore's conclusion is that there is no evidence in the scientific literature to date that wind turbine noise has any adverse health effects at sound levels at or less than 40 dBA.

[165] Based on the evidence of Drs. Mundt, McCunney, and Moore, the Director makes the following submissions:

- The K2 Wind Power Project, as approved, will not cause serious harm to human health.
- The health impacts that the Appellants allege are associated with exposure to wind turbine projects – sleep disorders, headaches, tinnitus, dizziness, tachycardia, etc. – are very common in society and have a number of potential causes.
- The information provided by the post-turbine witnesses is insufficient to come to any conclusions as to the cause(s), direct or indirect, of the symptoms described by the post-turbine witnesses.
- The information provided by the Appellants is insufficient to come to any conclusion that they are likely to suffer health impacts from the operation of the K2 project.
- At most, the literature reports an association between wind turbines and annoyance; however, these findings may reflect negative attitudes towards wind turbines, or fears or perceptions of economic loss.

[166] With respect to Dr. Moore's evidence, the Appellants submit the following:

> Dr. Moore recognizes that annoyance can be associated with wind turbine noise. While Dr. Moore did not clarify that it is difficult to elicit the independence of the annoyance from visually seeing the turbine, the Appellants would submit that given that most of the complaints related to adverse health effects result from night time noise exposure, it can be inferred that the post-turbine witnesses that gave evidence before the

> Tribunal were not experiencing annoyance from the sight of the turbine. The Appellants would further submit that the evidence of the post turbine witnesses before this Tribunal is that none of them held negative views about wind turbines prior to experiencing the adverse health effects.

Debbie Raymond

[167] Ms. Raymond's witness statement was filed behalf of the Approval Holder with the consent of the parties with respect to the risk of fire, blade or ice throw. There was no request to have her qualified to give expert opinion. The Approval Holder notes that Ms. Raymond is an Engineering Sales Manager at Siemens Energy, Inc. and she states that the Project will use Siemens SWT-2.3-101 wind turbines which contain fire prevention features that include smoke and heat detectors. The Approval Holder states that Ms. Raymond notes that the wind turbine has a metal nacelle, tower and brake system enclosure, all of which limit the risk of fire. The Approval Holder notes that Ms. Raymond stated that the turbine design also includes reservoirs to collect grease and oil to prevent spillage and lightning protection systems, along with fire extinguishers located in the nacelle and the tower.

[168] The Approval Holder notes that Ms. Raymond states that the design of the turbine blades on the Siemens SWT-2-3-101 includes a monitoring system that detects vibrations caused by internal or external factors, including ice on blades.

Submissions of the Participants

Michael Leitch and Anne Marie Howard

[169] Mr. Leitch and his spouse, Ms. Howard, are residents of Ashfield-Colborne-Wawanosh and own two farms in the vicinity of the Project. Mr. Leitch and Ms. Howard made a presentation on behalf of a group of concerned landowners and residents of Ashfield-Colborne-Wawanosh. The group of landowners is concerned about the possible health and safety risks of the Project.

[170] Mr. Leitch and Ms. Howard noted that there have been reported cases of wind turbine fires, structural collapse, and blade failure. They were concerned with the size and reach of the debris emanating from a possible wind turbine fire. They were also concerned that a possible turbine fire might spread to neighbouring woodlots and rows of trees close to the Project. Additionally, the participants had concerns that debris from blade failure may reach public roads or neighbouring lands.

[171] Mr. Leitch stated that the setback of the proposed turbines was inappropriate for safety reasons. The participants proposed that the setback was not sufficient to mitigate their concerns regarding ice throw or blade throw. They claimed that there is a possibility that one of the turbines close to their property may collapse onto their land. Moreover, they felt that they would not be able to conduct outdoor agricultural and recreational activities safely on their own land due to the alleged safety hazards posed by the wind turbine project. Mr. Leitch conducts dog training activities on his property and sees the wind turbines as a threat to these activities.

[172] The participants had concerns about remediation and clean-up measures in the event of a turbine collapse or turbine fire. They had concerns that if debris were to end up on their land, the landowners might be held responsible for clean-up costs since the Approval Holder does not have access rights to their lands.

[173] The participants had a number of objections to the noise modelling conducted in the acoustics report. They suggested that there is potential error in the measurements and that the sound levels at receptors could be higher or lower than the recorded measurements.

[174] The Approval Holder states that Mr. Leitch's concerns with respect to insufficient setbacks are speculative and remote. The Approval Holder states that it has provided the property line setback assessment report pursuant to MOE regulatory requirements and the report was accepted by the MOE in conjunction with the issuance of the REA. The Approval Holder also notes that :

> The report, filed with the Tribunal by the MOE and the participant, confirms that setbacks with respect to the public road rights of way are met and sets out features that may be adversely affected in the unlikely event of turbine collapse. Potential impacts to hedgerows, fencing and crops are considered and mitigation measures are required, including repairs and compensation. Such property concerns are outside the scope of these Appeals. The participant fails to establish that serious harm will occur with respect to property setbacks.

[175] The Approval Holder states that, with respect to the other concerns raised by Mr. Leitch, such as fire, noise levels, ice throw, no evidence was provided and as such, the allegations are spurious and remote and do not meet either the test for a s. 7 *Charter* claim or the *EPA* test.

Elizabeth Bellavance

[176] Ms. Bellavance presented on behalf of WAIT-PW, an unincorporated neighbourhood group opposing the Suncor Cedar Point Wind Power Project in Lambton County.

[177] Ms. Bellavance expressed concern that the serious harm test to be met under the *EPA* was difficult for communities to meet. Moreover, she stated that ongoing scientific studies on wind turbines show that there is some concern about wind turbine effects on health.

[178] Ms. Bellavance is concerned that some residents continue to experience negative health effects even though the neighbouring wind project is operating within sound guidelines. Ms. Bellavance is concerned by efforts by some to exclude infrasound and low frequency noise monitoring requirements for wind turbines.

[179] The Approval Holder states that Ms. Bellavance represents an "anti-wind organization" comprised of members living outside of the area of the Project. The Approval Holder notes that the goal of the group is to preserve and promote the rural landscape and small town environment. The Approval Holder submits this is insufficient to meet the evidentiary burden for a *Charter* claim or the *EPA* test.

Stephana Johnston

[180] Ms. Johnston lives near an 18 turbine wind farm in Stratfordville, Haldimand-Norfolk which began operation in November 2008. In 2009, Ms. Johnston became involved with the group Norfolk Victims of Industrial Wind Turbines. Ms. Johnston stated that the group petitioned their local MPP, local health unit and local social services committee regarding the wind project. Ms. Johnston was frustrated that no action was taken against the wind project by public officials that the group had contacted.

[181] Ms. Johnston has considered moving, but says she does not have the financial resources for a second residence. Ms. Johnston stated that she put her home on the market in December 2009 but has had difficulty selling the house. Ms. Johnston believes that potential buyers have been discouraged by the neighbouring wind turbines.

[182] Ms. Johnston suffers a number of health conditions that she believes have been caused by the wind project.

[183] The Approval Holder states that, although Ms. Johnston alleges she suffers health effects from wind turbines, she has not provided any medical records in support of her allegations. The Approval Holder notes that she also has other concerns, such as her inability to sell her house. The Approval Holder submits that Ms. Johnston's evidence with respect to her health impacts is unproven and does not assist the Tribunal.

Submissions of the Presenters

Greg Schmalz

[184] Mr. Schmalz is a co-founder of Saugeen Shores Turbine Operation Policy ("STOP"). Mr. Schmalz presented on the health effects experienced by STOP members and residents in his neighbourhood.

[185] Mr. Schmalz's residence is located 400m from a wind turbine in Saugeen Shores. According to Mr. Schmalz, the wind turbine near his home is smaller in comparison to the turbines used in other Ontario wind projects.

[186] Mr. Schmalz alleged that soon after the wind turbine began operation in March 2013, local residents began to experience a variety of health effects from the wind turbines. Mr. Schmalz added that several of the residents filed complaints with the local MOE office. Mr. Schmalz stated that tests for low frequency noise have been conducted in residents' homes, but the noise reports were not released at the time of the hearing. Mr. Schmalz claims that residents continue to experience adverse health effects despite the introduction of the noise mitigation controls.

[187] Mr. Schmalz called attention to various health documents and policies regarding the precautionary principle and public health. Mr. Schmalz alleged that wind turbines were a threat to human health and that the precautionary principle ought to be invoked against industrial wind turbines.

[188] The Approval Holder states that Mr. Schmalz represents an "anti-wind organization" comprised of members living outside of the area of the Project. The Approval Holder notes that although Mr. Schmalz lives in the vicinity of a wind turbine, he provided no evidence of health effects, except hearsay evidence about the health

effects of others. The Approval Holder submits this is insufficient to meet the evidentiary burden for a *Charter* claim or the *EPA* test.

John Curran

[189] Mr. Curran presented on health issues concerning wind turbines and stray voltage and lightning strikes. Mr. Curran is concerned with stray voltage from a buried cable that runs through his property. Mr. Curran has a dug well on his property and is concerned that stray voltage may travel through his water supply. Mr. Curran claims that there is shale rock beneath his land which may also have implications for stray voltage concerns. Moreover, Mr. Curran was concerned about tall structures to be built by the wind company which may be susceptible to lightning strikes.

[190] The Approval Holder states that Mr. Curran's issue with respect to stray voltage is outside the scope of the appeal, and thus, his evidence is not permissible. The Approval Holder also notes that Mr. Curran did not provide any evidence with respect to the other issue he raised, namely, lightning strikes and the risk they pose in relation to the Project. As such, the Approval Holder submits that his evidence does not assist the Tribunal.

Kevin McKee on behalf of HALT

[191] Mr. McKee from HALT outlined that the group's concerns are with respect to wind turbines built near homes. He states that HALT's concerns relate to health issues emanating from the Ripley and Enbridge projects and issues relating to property values near the projects.

[192] None of the parties provided substantial comments on Mr. McKee's presentation in their submissions.

Findings on whether the Appellants have met the evidentiary burden to prove serious physical or psychological harm

[193] The Appellants submit that the harm suffered by those living within close proximity to wind turbines is harm which is sufficient to warrant clinical attention, as borne out by the witnesses before the Tribunal and findings in the *Erickson* decision.

[194] Both the Director and the Approval Holder submit that the Appellants have not met the burden to establish a s. 7 *Charter* claim. The Director states there has been no

evidence put forward by the Appellants with respect to the level of noise (audible, infrasound, low frequency noise) that may be associated with annoyance, much less evidence of a causal link to serious harm to human health. The Director further submits that no new evidence has been brought which would warrant a conclusion that is different from the Tribunal's conclusions in *Erickson* and *Ostrander*.

[195] The Director provides a summary with respect to the evidence from post-turbine witnesses as follows:

> The Director submits that the Tribunal should assess this evidence as did the panel in the *Ostrander* case. In that case the Tribunal held that individuals concerned honestly described real conditions from which they suffered. However, their own evidence was not and could not be found confirmatory of causation, in the absence of expert medical evidence confirming causation, and conclusive accompanying measurements of sound pressure levels.

[196] The Director also notes the witnesses did not provide noise level measurements that provide a basis to assess whether they are experiencing symptoms at sound levels below 40 dBA and, when they gave evidence about sound measurements near their homes, whether "they were referring to incidents in which projects were not compliant with the approval or exceeded 40 dB(A)."

[197] With respect to the pre-turbine witnesses' evidence, the Director notes that no medical opinions were provided about their health concerns, and that the witnesses had other concerns regarding the Project, such as reduced property values.

[198] The Approval Holder points out that the Appellants did not call a properly qualified expert medical witness to conduct a diagnosis of the post-turbine witnesses. The Approval Holder submits that evidence of post-turbine witnesses cannot be relied upon without a confirming medical opinion to demonstrate adverse impacts.

[199] The Approval Holder notes that:

> …the evidence adduced by the Appellants in this case is even less comprehensive than the evidence filed in the APPEC case, where the Tribunal dismissed the health appeal on the grounds that the appellants failed to establish on the evidence that the project would cause serious harm to human health. By necessary inference, the health evidence relied on by the Appellants in this case will also fall short of establishing that the Project will cause serious harm to human health.

[200] The Approval Holder submits that the Tribunal should follow the reasons in the *Ostrander* case in finding that the Tribunal cannot rely on the testimony of the post-turbine witnesses to make the link between the health complaints and wind turbines.

[201] The Approval Holder submits that the Appellants have not established that operating the Project in compliance with the REA will likely cause harm sufficient to warrant clinical attention. The Approval Holder states:

> Very simply, no objective expert medical testimony was put forward in this case to establish either: (i) that one or more of the post-turbine witnesses suffered adverse health effects from exposure to wind turbine noise; and (ii) no expert medical testimony was put forward to establish that there was a likelihood that if the Project is operated in accordance with the Guidelines (500 metre setback and 40 dBA limits) individuals will require clinic attention due to exposure to noise from the Project.

[202] The Appellants put forward a total of four post-turbine witnesses who state that they have suffered harm from wind turbine projects. As in *Ostrander*, the Tribunal has set out the name of the project closest to each of the witnesses and/or the approximate distance from their home based on the information in their respective testimony.

Post-Turbine Witness	Project Name	Distance to the wind turbine or transformers
Witness 1	Ripley	800 m
Witness 2	Melancthon	Less than 550
Witness 3	Melancthon	490 m
Witness 4	Conestogo	724 m

[203] The witnesses outlined their concerns and the health impacts that they say they have experienced when living near wind turbines, including sleep deprivation, headaches, pressure in the ear, high blood pressure and stress, among others.

[204] The evidence of post-turbine witnesses has been put forward in a number of appeals under s. 142.1 of the *EPA*. The Tribunal has not found in any case that the evidence of post-turbine witnesses alone, that is, without the qualified diagnostic skills of a health professional, is sufficient to establish the evidentiary base to meet the test in s. 142.1.

[205] In paras. 149 and 150 of the *Dixon* decision, the Tribunal reviewed a number of cases, including *Ostrander* and *Bovaird*, that discussed the role of post-turbine witnesses in establishing causation. At para. 151, the Tribunal concluded that:

> In summary, it is fair to say that the Tribunal has consistently held in a variety of cases that the evidence of post-turbine witnesses <u>alone</u> has not met the evidentiary threshold so as to meet the "serious harm to human health" test under s. 142.1 of the *EPA*. The question is whether such evidence, although not meeting the threshold for the *EPA* test, nevertheless would meet the test for a s. 7 *Charter* claim.

[206] In the *Dixon* decision, the Tribunal relied on the *Ostrander* case and found that its general conclusions with respect to the role of post-turbine witnesses under an *EPA* appeal are equally applicable to the s. 7 *Charter* test. The evidence provided by the Drennans is also insufficient on its own to establish a s. 7 *Charter* claim.

[207] The Appellants also adduced two fact witnesses, namely, Officer Tomlinson and Dr. Michaud (in addition to Mr. and Ms. Drennan). These fact witnesses do not provide an additional substantial evidentiary base to support a s. 7 *Charter* claim in this proceeding.

[208] Officer Tomlinson provided interesting and contextual information concerning complaints about wind turbines in one Ontario district. There is no doubt that Officer Tomlinson has had long involvement with the issue of noise and wind turbines. When reviewing his testimony, it is abundantly clear that there have been a number of noise and vibration complaints. However, his evidence does not establish that there is a sufficient causal connection between those complaints and an increased risk of serious physical or psychological harm to security of the person. It should be recalled that Officer Tomlinson noted that the wind turbines he investigated were in compliance with the requirements.

[209] In terms of Dr. Michaud, his testimony revealed that the Health Canada study he is conducting is designed to determine whether there is an association between wind turbines and health effects. He testified that the data from his study would not be available for another year. He stated that his study, at best, would assist in determining whether there was an association between wind turbines and certain human health effects. The study alone would neither be determinative nor conclusive with respect to causation.

[210] Mr. James, an expert called by the Appellants, provided a number of critiques of the noise assessment models used to predict sound levels produced by the Project. Mr.

James agrees with the proposition that was put before him that the Approval Holder's noise assessment reports comply with the MOE Noise Guidelines. He states, however, that there are serious issues with the Noise Guidelines themselves such that, by complying with the Guidelines, the actual level noise levels emanating from the Project will be underestimated.

[211] At para. 159 of the *Dixon* decision, the Tribunal makes the following finding which is adopted by the Tribunal in this appeal:

> Mr. James' evidence is rebutted by the experts put forth by both the Director and the Approval Holder. These experts defend the MOE noise assessment model as being inherently conservative and employing well accepted scientific principles. In effect, the Tribunal is being asked to evaluate and select between the MOE noise assessment model and an alternative model or variant of the model proposed by Mr. James. The challenge for the Tribunal is that, even if the Tribunal accepts the "deficiencies" in the MOE model as suggested by Mr. James, the implication is that the sound levels for the Project would be higher than predicted and higher than permitted in the REA. However, in order to discharge the onus to establish a deprivation under a s. 7 *Charter* claim, it is still necessary for the Appellants to establish the causal connection that the elevated noise levels will cause serious psychological or physical harm to human health. No such evidence was presented. This is the case whether the Appellants are pursuing a s. 7 *Charter* claim or attempting to satisfy the *EPA* statutory test. (See: *Middlesex-Lambton Wind Action Group Inc. v. Ontario (Ministry of the Environment)*, [2013] O.E.R.T.D. No. 67, para. 44)

[212] Mr. James also raises a number of issues related to infrasound and low frequency sound. Most of these comments were general in nature and not related to the Project. More important, he did not connect infrasound and low frequency sound to whether it would cause serious harm to physical health. Moreover, Dr. Mundt and Dr. McCunney gave evidence directly challenging Mr. James' evidence and the evidence of Dr. Mundt and Mr. McCunney is more persuasive at this point in time. In this proceeding, the Appellants have not established the evidentiary base for a s. 7 *Charter* claim based on the impacts from infrasound or low frequency sound.

[213] In summary, as in the *Dixon* case, the Appellants did not provide professional medical opinions to diagnose the health complaints from the post-turbine witnesses and to establish a causal link between those complaints and wind turbines noise or noise from transformers. As importantly, the Tribunal has the benefit of the testimony of Drs. Mundt, McCunney and Moore that reinforce previous Tribunal findings that the post-turbine witnesses need to be properly diagnosed by a medical professional and that

there is no reliable evidence to demonstrate that the Project will cause serious physical or any other serious harm.

(e) Overall Findings for Sub-Issue No. 1.1

[214] The Appellants retain the onus to establish that there has been a deprivation of security of the person under a s. 7 *Charter* claim. This onus has not been discharged.

[215] Even if one accepted that the test to prove a causal connection under s. 7 of the *Charter* so as to establish serious psychological or physical harm is less onerous or stringent than the s. 142.1 threshold under the *EPA* to establish serious harm to human health, the burden has not been met by the Appellants. As a result it is not necessary in this case for the Tribunal to determine if the threshold under s. 7 of the *Charter* is less stringent than under s.142.1 of the *EPA*.

Sub-Issue No. 1.2: If so, whether this deprivation is in accordance with the principles of fundamental justice; and if so, whether it is saved under s. 1 of the *Charter*

[216] In light of the above findings, it is not necessary for the Tribunal to address this issue.

Sub-Issue No. 1.3: If it is found that there is a violation of s. 7 of the *Charter*, what is the appropriate test before the Tribunal?

[217] In light of the above findings, it is not necessary for the Tribunal to address this issue.

Issue No. 2: Whether engaging in the Project in accordance with the REA will cause serious harm to human health

[218] In their written submissions, the Appellants also pursue the s. 142.1 appeal in this proceeding (albeit with their proposed revised wording for the test had they been successful with respect to the s. 7 *Charter* claim). Their submissions, however, were limited to two paragraphs which state:

> 109. As set out above in the section that reviews the evidence that was before this Tribunal on this appeal, it is clear that, even at the setback distances and sound dBA levels stipulated in the REA, the project as approved will likely cause an adverse effect to the health of the Appellants. The evidence that is before this Tribunal is that even at

> setbacks greater than 550 meters, Ontario residents have suffered adverse health effects associated with the noise emissions from industrial wind turbines.
>
> 110. Given the evidence before the Tribunal, the Appellants respectfully submit that they have presented sufficient evidence to prove that the project as approved will likely cause an adverse effect to their health.

[219] Hence, the Appellants are relying solely on the evidence adduced in the s. 7 *Charter* claim.

[220] Under the *EPA* statutory test, the Appellants have the onus to establish that engaging in the Project as approved will cause serious harm to human health. Section 145.2.1(3) states that the person who required the hearing has the onus of proving that engaging in the renewable energy project in accordance with the renewable energy approval will cause such harm.

[221] The overall approach to the *EPA* test is stated at para. 648 of *Erickson*. In that case, the Tribunal held:

> To summarize, the Tribunal's overall approach to the statutory test is guided by *Rizzo*. The Tribunal will interpret and apply the wording of section 145.2.1(2) according to that approach. In many ways, the Tribunal finds that, despite the extensive submissions from the Parties, the wording is not particularly ambiguous. As well, the nature of the evidence lead to the Tribunal to approach the totality of the evidence according to the entire wording of the test rather than attempting to artificially subdivide evidence according to the components of the test.

[222] In this proceeding, the Appellants' case, in terms of the evidence presented by the Appellants, included the evidence presented by the Appellants themselves, four post-turbine witnesses, acoustician Rick James, Dr. Lipsitz, and fact witnesses Officer Tomlinson and Dr. Michaud. This evidence was reviewed above in relation to the Appellants' s. 7 *Charter* claim and it was found that the Appellants had not established that the threshold to establish a deprivation or "serious psychological or physical harm" had been met.

[223] As in the *Dixon* case, the Tribunal will make no finding as to whether the "serious harm to human health" test set out in s. 145.2.1 of the *EPA* and the threshold of "serious physical harm" or "serious and profound psychological harm" required to establish a deprivation as required in a s. 7 *Charter* claim, are the same or similar. Further, the Tribunal will not make any specific finding as to whether the test in s. 145.2.1 of the *EPA* requiring the Appellants to establish that the Project "will cause" serious harm to

human health is the same as the need to establish a "sufficient connection" as required in a s. 7 *Charter* claim. However, it is abundantly apparent from the jurisprudence pertaining to both the *EPA* test and s. 7 *Charter* test, that a solid evidentiary foundation is required for both tests.

[224] In this proceeding, the Tribunal has made a finding that the Appellants have not met the evidentiary test for a s. 7 *Charter* claim. The Tribunal further finds that the evidence submitted in this case, as reviewed above and outlined in Appendix A, does not satisfy the statutory test in s. 145.2.1 of the *EPA*.

[225] Again, as found in the *Dixon* decision at paras. 172 and 173, the post-turbine witnesses and a number of experts were called in previous cases pertaining to the test in s. 145.2.1 of the *EPA*, and in those cases, the Tribunal found that the evidentiary burden had not been met. The Tribunal in *Dixon* relied on the findings in both the *Ostrander* and *Bovaird* cases.

[226] At para. 174 of the *Dixon* decision, the Tribunal makes the following finding which is equally applicable in this proceeding:

> In those cases both similar, and substantially more, evidence was called and the Tribunal made findings that the test was not met. Based on the review of the evidence undertaken above, the Tribunal finds that the evidentiary burden of the Appellants to establish that engaging in the Project in accordance with the REA will cause serious harm to human health has not been met in this proceeding.

Overall Conclusions

[227] The Tribunal finds that the Appellants have not established, on the facts of this case, that the renewable energy approval appeal provisions or the REA itself violated the Appellants' right to security of the person under s. 7 of the *Charter*.

[228] The Tribunal finds that the Appellants have not established that engaging in the Project as approved will cause serious harm to human health under the *EPA*.

DECISION

[229] The appeals are dismissed.

Appeals Dismissed

____
Paul Muldoon, Panel Chair

____
Helen Jackson, Member

Appendix A – Summary of the Evidence

Appendix B – Ruling with respect to the Director’s Motion to Exclude Evidence of Two Participants

Appendix A

Summary of the Evidence

1. Shawn and Tricia Drennan
2. Post-Turbine Witness No. 1
3. Post-Turbine Witness No. 2
4. Post-Turbine Witness No. 3
5. Post-Turbine Witness No. 4
6. Officer Gary Tomlinson (Senior Environmental Officer, MOE)
7. Dr. David Michaud (Health Canada)
8. Dr. Jeffrey Lipsitz
9. Richard James
10. Denton Miller
11. Robert O’Neal
12. Benjamin Coulson
13. Dr. Kenneth Mundt
14. Dr. Robert McCunney
15. Dr. Kieran Moore
16. Debbie Raymond
17. Mike Leitch and Anne Marie Howard (Participants)
18. Elizabeth Bellavance (Participant)
19. Stephana Johnston (Participant)

20. Greg Schmalz (Presenter)

21. John Curran (Presenter)

22. HALT – Kevin McKee (Presenter)

1. Shawn and Tricia Drennan

Mr. and Ms. Drennan testified as a panel. They are the residents, owners, and operators of a farm in the Township of Ashfield-Colborne-Wawanosh, Huron County. Their farm is located 717m from the closest proposed wind turbine of the K2 Wind Project. Eleven proposed wind turbines are within 2 km of their home. A 270 MW substation is to be built within 550m of their home.

Mr. and Ms. Drennan became aware of the proposed wind project in September 2009. Since then, the Drennans learned of individuals that have purportedly suffered health effects due to wind turbines. The Drennans attended three public meetings for the K2 Wind Project. At these public meetings, the Drennans raised concerns regarding the effects of the Project on human health. They stated they were frustrated and felt that the public meetings were only held to meet compliance with statutory requirements. The Drennans felt that the wind company was not interested in listening to their concerns.

Mr. and Ms. Drennan testified that they suffer from pre-existing health conditions. Mr. and Ms. Drennan claim to have experienced anxiety due to the proximity of the proposed turbines and the substation, and the number of turbines in the Project.

Mr. and Ms. Drennan testified that they had concerns regarding the size and scope of the Project, the possible effects on human health, and the proximity of structures to their property. The Drennans claimed that they had raised these concerns with the Approval Holder several times. The Drennans claimed that the Approval Holder provided general responses to their inquiries. Mr. and Ms. Drennan stated they also contacted Doris Dumais at the MOE about their concerns but said they did not receive a response.

Mr. and Ms. Drennan testified that they have not raised their health concerns with their respective family physicians. Mr. and Ms. Drennan explained that they have changed doctors in recent years. Mr. and Ms. Drennan added that they do not have a doctor with whom they feel comfortable discussing their wind turbine concerns.

Mr. and Ms. Drennan testified that they had made plans in 2005-2006 to build their own set of wind turbines through Canadian Wind Services. However, the Drennans explained that these plans were abandoned when their community was deemed unsuitable for integration into the transmission grid.

Mr. and Ms. Drennan testified that they were involved in prior wind project related litigation. Mr. and Ms. Drennan filed a motion to seek testimony from Arlene King, the Chief Medical Officer of Health for Ontario. Moreover, they were involved with a constitutional challenge to the K2 Wind Project at the Superior Court. The Drennans stated that when the lawsuit was launched, they were seeking $2 million in damages each against the Approval Holder and the MOE, along with punitive and aggravated damages.

Mr. and Ms. Drennan were questioned about a letter written to the editor of a publication called "Ontario Farmer", and published in August 2012. Mr. and Ms. Drennan agreed that they had consented to having their names signed at the bottom of the letter, and that they had reviewed the letter prior to consenting to the inclusion of their names on the letter. However, they denied that they had personally authored the letter.

Mr. and Ms. Drennan agreed that some statements in the letter from August 2012 had accurately reflected their views on the matter of wind turbines. They agreed with the statement that the wind project was a "very expensive scam" and that the projects had no environmental benefit. Moreover, they agreed that they had concerns about the impact of wind projects on their property value.

Mr. and Ms. Drennan agreed that they were members and co-founders of Safe Wind Energy for All Residents ("SWEAR"). The Drennans agreed that SWEAR has advocated in favour of stopping proposed wind projects.

Mr. and Ms. Drennan were questioned about claims in their witness statement regarding wind project sound testing and compliance. The Drennans admitted that they were not aware of the Approval Holder's plans to conduct an acoustic audit after the wind farm begins operation. However, they testified that they were aware that a complainant could contact the MOE spills line if there were any problems concerning noise. Mr. and Ms. Drennan were questioned about a number of letters sent from Capital Power, now K2 Wind, to the Drennans in 2011 acknowledging questions posed to the Approval Holder by local residents. The Drennans agreed that they had submitted questions to the Approval Holder. However, Mr. and Ms. Drennan denied that the questions addressed in the letters by the Approval Holder were the same questions submitted by the Drennans. The Drennans disagreed that the questions addressed by Capital Power were direct answers to the Drennans' personal questions. However, the Drennans agreed that Capital Power made an effort to respond generally to questions raised about harm to human health.

Mr. and Ms. Drennan agreed that they had filed a Notice of Application in September 2011 to compel the lifting of a gag order over residents involved with the Ripley Wind Project. The Drennans agreed that they have been preparing expert reports since September 2011 in anticipation of litigation. However, the Drennans agreed that they have not produced an expert report of a medical doctor who has examined the impacts of wind turbines on human health.

The Drennans testified that they were not aware of the MOE compliance protocol relating to noise from wind turbines. Moreover, the Drennans testified they were not aware of an MOE report prepared by Brian Howe and HGC Consultants regarding infrasound and low-frequency noise.

Mr. and Ms. Drennan were questioned about their attendance at prior REA appeal hearings. The Drennans admitted that they had heard partial testimony from Officer Gary Tomlinson. However, the Drennans testified that they did not hear Officer Tomlinson's testimony regarding the compliance protocol and wind turbines.

On re-examination, the Drennans were asked about the result of their lawsuit against K2 Wind Project. The Drennans testified that the Director was dropped from the suit. Moreover, the Drennans explained that a decision had been rendered advising the Drennans to begin their appeal of the REA through the Tribunal.

The Drennans were asked about their understanding of compliance testing conducted by the MOE. The Drennans agreed that nothing could be done if the Project is found to have met the 40 dBA threshold.

2. Post-Turbine Witness No. 1

The witness lived close to the Ripley Wind Power Project, but has since moved away. The project is a 76 MW wind facility consisting of 38 wind turbines. The closest turbine to her former residence was approximately 800m away. Eighteen turbines were located within two km of her former home. The project was functional in November 2007, and began full commercial operation in December 2007.

The witness complained to the MOE before the turbines became fully operational. In 2007, she asked the London office of the MOE whether health protocols were in place. She testified that the MOE advised her to contact the company, and that the company was required to contact the MOE within 48 hours. On November 28, 2007, the witness

described hearing turbine noise that was loud and sounding like jets. She complained to the company about the noise, following the protocol outlined to her by the MOE. However, she testified that no action was taken. She stated that she began experiencing adverse health effects immediately after the project began full commercial operation on December 22, 2007. The witness recalled that she experienced heart palpitations, intense earaches, speech difficulties, memory difficulties, increased blood pressure, grinding of teeth, nerve pain, cold sores, body pains, cold body temperatures, blurred vision, dizziness, and shortness of breath. With the exception of elevated blood pressure, the witness stated that she had not experienced these symptoms prior to the wind turbine operation.

The witness testified that she mentioned these symptoms to her physician and an ear and throat specialist. The witness produced her medical records and details of the complaints made to her doctors. She recalled that her doctors' recommendations were to change her living environment. She also began keeping a journal to record the time and dates that she experienced the alleged adverse health effects.

In terms of her health history prior to the installation of the wind turbines, she also testified that she had experienced health issues for six months in 2005 relating to a cyst on her thyroid. She testified that during this time, she often felt fatigued and cold, but did not experience any sleep deprivation. She sought treatment from a doctor. The witness testified that the symptoms have since corrected themselves and that she has not had any issues with her thyroid since 2005.

The witness testified that attempts to mitigate the noise and vibrations were futile. She recalled using ear plugs, unplugging appliances, and shutting the windows to quell the turbine noise. She also testified to sleeping in different rooms of the house in an attempt to escape the noise and vibrations. However, she observed that the vibrations were still felt throughout the house.

The witness testified that her husband and daughter also suffered from adverse health effects. She claimed that her family could not cope with constantly experiencing adverse health effects. She and her family moved off of their former property on April 30, 2008. She stated that the wind company had provided billeting and respite for local residents feeling adverse health effects.

Furthermore, the witness recalled that she was contacted by Shawn Kerry of the Owen Sound office of the MOE in December 2008 to early 2009 regarding sound tests

conducted by the wind company in May 2008. She testified that in the December 2008 phone call, Mr. Kerry informed her that no other complaints had been filed. In a subsequent January 2009 phone call, she claimed that Mr. Kerry was aware of the additional complaints. She testified that during this phone call she was told by Mr. Kerry that the MOE would try to assist with her complaint. In February 2009, she testified that an official from the MOE visited her property to conduct sound tests.

In February 2009, the witness testified that she experienced severe tightness and pains in her chest when visiting her former property. She testified to admitting herself to the hospital for chest pains and heart attack symptoms. She testified that the attending physician recommended time off from work and a new living environment.

On October 2, 2009, the witness spoke at a public meeting chaired by Mr. Kerry of the MOE. At the meeting, she stated that Mr. Kerry noted that additional testing from the MOE was conducted on her property. She received a report from the MOE that concluded the sound of appliances within the house was stronger than that of the wind turbines. The witness claimed that she asked for further information from the MOE regarding the report but she did not receive a response.

After 2009, the witness and her family would stay in their former home intermittently. She claimed that lengthier stays were not possible due to the adverse health effects. She testified that whenever she was away from the wind project, her symptoms diminished. Likewise, the witness claimed that every time she returned to her former property, the negative health effects would return. She permanently moved away from her former home in March 2011. She testified that many physical symptoms have subsided, but that she still experiences sensitivity to loud noises, vibrations, electrical pollution and wireless devices.

The witness was not part of any wind energy groups prior to the wind turbine project completion. She has since joined the Victims of Wind Group, and testified in front of the Standing Committee on the *Green Energy Act*.

The witness said that she had seen an audiologist in June 2008 although the hearing specialist could not find any abnormal activity. The CT scan conducted by the specialist also showed no abnormalities and that her doctor could not suggest an obvious cause for her symptoms. The witness further admitted that a second hearing specialist had been consulted and that the specialist did not find any concerns with her hearing.

The witness testified to being admitted to the hospital for chest pains in February 2009. However, no cardiac problems were diagnosed during the visit. There were no concerns with her heart after an ECG and a stress test.

The witness acknowledged that blood pressure readings conducted before the wind turbines were similar to blood pressure readings conducted after the wind turbines began operation. She stated that her blood pressure was always taken in clinical settings and not in her home environment.

The witness maintained that the cause of her impaired vision was the wind project. However, she agreed that she had a significant medical issue with her vision in 2003. She maintains that there were no additional problems with her retina after 2003. She saw an eye specialist after the wind turbines began operation. However, no medical records from these visits were provided.

She states that her doctor could not identify any neurological issues or explanations for her sleep deprivation symptoms or sensitivity to electronics and her doctor recommended a sleep test. However, she did not seek any further medical attention for her sleep deprivation.

3. Post-Turbine Witness No. 2

The witness testified to the adverse health effects she experienced when living in the vicinity of the Melancthon wind project. The wind project consists of 15 wind turbines, the closest of which is 457 m from her former home, and the next is approximately 700 m away. Four more turbines are within one km of her former home, and all turbines are located within two km of the residence. Her former home has since been subject of a buyout from the wind company as of June 2009.

The witness testified that soon after the wind turbines began operating, she began experiencing sleep deprivation, ringing in the ears, heart palpitations, memory loss, disorientation and dizziness. She said that she had never experienced these symptoms prior to the wind turbines becoming operational. She also kept a journal of the noise and adverse health effects.

The witness testified to having prior medical conditions. In 2005, she suffered from bronchitis. In 2006, she was a living liver donor and also underwent a gallbladder procedure. She did not experience any complications from the surgeries. In 2007, she

began to experience abdominal pain, but the source of the pain was not confirmed by medical professionals. Prior to 2008, she had not experienced any sleep deprivation, ringing in the ears, heart palpitations, memory loss, disorientation and dizziness.

The witness testified that she would raise the adverse health effects with her family physician at regular checkups. She suggested to her doctor that the wind turbines might have caused the adverse health effects. Her doctor did not follow up on her claims.

The witness testified to hearing a hum and feeling a vibration throughout the house. The wind company conducted sound tests at her former home. She recalled being told by the company personnel that the noise was within the range of the MOE guidelines. After raising complaints with the MOE, she found out that the noise test conducted by the developer showed that the project had not complied with MOE guidelines.

On April 15, 2009, the witness presented in front of the Standing Committee on General Government regarding the *Green Energy Act*, *2009*. In addition, she has shared her health concerns in a number of local public meetings regarding the wind turbines.

She said that she contacted MOE Officer Tomlinson in January 2009 to complain about the wind turbine noise. She recalled that Officer Tomlinson advised her that the wind turbines were in compliance. Moreover, she recalled a visit from Officer Tomlinson on March 2, 2009 and stated that Officer Tomlinson visited her former home, and advised her that he could hear the humming and blade noise in the home.

Also in March 2009, the witness testified that the wind company completed sound tests on her property. She claimed that the wind company acknowledged there was a noise problem and that the wind company would turn off the turbines closest to her home from time to time. During these times, she said that there was some relief from the blade noise, but the hum and vibrations continued. Despite the mitigation efforts of the wind turbine company, she and her family continued to suffer from the adverse negative health effects. She made use of ear plugs, sleep medication, and painkillers. In May 2009, due to the continuous hum and vibrations, her family eventually moved into a tent in the backyard in order to gain restful sleep when the closest turbines were not operational at night.

The witness and her family moved out of their home on June 25, 2009 after the property was bought out by the wind turbine company. She states her family no longer suffers

from any adverse health effects and claims that the sleep deprivation that she suffered from stopped immediately after moving.

The witness visited her family physician in January 2009 and answered a medical questionnaire prior to the examination although she did not indicate that she was suffering from some of the adverse health effects that she claimed started immediately after the wind turbines started operating in December 2008. The witness claims that not all the symptoms presented immediately in December 2008, and that some presented after her January 2009 doctor's examination. Moreover, she claims that although she did not indicate the full extent of her symptoms on the questionnaire, she later expanded upon the adverse health effects during her doctor's appointment.

The witness was questioned about her experiences as a living liver donor in 2006. In the years following, she has attended follow-up appointments including one in February 2009. During that appointment, she indicated to the doctor that she had no medical or psychological concerns at the time. The witness agreed that her doctor made a note in her medical records that stated she had been feeling well over the past year. Likewise, she claimed that she informed the doctor in person as to the sleep deprivation and health problems she was experiencing at the time.

The witness was questioned about her perception of the severity of her adverse health effects. Aside from visiting a doctor regarding cognitive and memory issues, she did not seek any further medical opinions concerning the sleep, heart and pain issues she had experienced.

4. Post-Turbine Witness No. 3

This witness and his spouse live close to the Melancthon wind turbine project. There are 133 wind turbines in this project, and the closest to their house is about four to five km away. The transformer substation is about 490 m from their home. The project has been operating since 2006. Witness No. 3 testified that their home is a bungalow, about 2400 square feet ("sq. ft."), on 100 acres of property, and they have been there since 1987. They previously lived east of Orangeville, but bought this bungalow as they had friends in the area, and had intended to retire here. They are now considering selling as he testified that they "have got to do something".

The witness testified that there was initially one General Electric transformer, but that this was replaced with two Siemens transformers. He testified that the symptoms were much worse when the second transformer was added in the latter half of 2006.

The witness testified as to the health issues that he and his wife complain of. He testified that he is not able to sleep, and he awakens in the night. He also complained of headaches, diarrhea, ringing in the ears, pressure on the chest, and a feeling that the insides of his body are vibrating. He testified that sometimes he wakes up shaking in the middle of the night. He testified that his wife has the same general complaints. He testified that it is not just at night that he is affected, but all the time. He testified that he associates his symptoms with the transformer station itself, rather than the wind turbines. He testified that since the transformer has started up he has not been able to sleep a full night. He testified that their health problems began as soon as the substation began working. He said that his dog shakes and twitches as well.

The witness testified that there seems to be a buzzing or humming in the house, as if the house holds the vibration, and that it seems worse inside the house than outside.

He testified that he and his wife sometimes go to another town to get relief. He stated that it takes about one to two days for the symptoms to go away. Sometimes they go to a friend’s cottage for two to three days for relief. He testified that the symptoms vary, and are sometimes worse.

The witness testified that he raised this issue with his doctor in 2010.

The witness testified that he was diagnosed with sleep apnea and that after he was diagnosed he began to use a Continuous Positive Airway Pressure (“CPAP”) unit, and was back to normal sleeping within the first month after using the unit. This was prior to the start-up of the transformer. He testified that he routinely goes to his sleep specialist to follow up on his use of the CPAP.

The witness testified that he intended to retire in 2015 at age 65 but that he took early retirement in 2010. He testified that he took early retirement because he drove off the road twice and therefore he decided that he had to stop work. He testified that he and his wife now farm for a living, and his wife also works about 20 hours per week. They have beef cattle and dairy goats on their farm. He testified that they used to have 23 cows but now only have nine, and they have about 80 goats. He testified that there are conception problems with the cows and goats, and the issue has been investigated by a

veterinarian who was not able to provide a reason for the low conception rate. He testified that he noticed problems with the herd about five years ago.

The witness testified that he has expressed his concerns many times to the project owners. He testified that when the transformer first started up, the residents complained and the company responded by installing a berm, an acoustic wall and an acoustic coating on the transformers. He testified that it helped, but did not fix the problem.

The witness testified that he and his wife along with two others who live 390 m from the transformer went to Queen's Park in April 2011 and gave a press conference to discuss their symptoms to bring attention to the matter. He testified that the two others, as well as other neighbours who lived 360m from the transformer, have since left their homes.

He testified that he has complained to the MOE Regional Office in Guelph and the Spills Action Centre numerous times. He said that the MOE usually responds by saying that the project is operating in compliance. He testified that he had numerous meetings over a period of time with representatives from the MOE, but ultimately, the MOE closed the file, and he had an email from the MOE in September 2013 saying that the file was closed and there was nothing further the MOE would be doing for them.

He testified that the MOE says that they are only responsible for determining whether the project is in compliance with noise standards, and measuring the noise outdoors and finding that it is in compliance. He contends that noise is not the problem; it is the vibration and the buzzing inside the house that is a problem.

The witness testified in regards to his medical records. The ringing in his ears was noted in 2009, when he testified that his doctor sent him to an audiologist due to the ringing in his ears. He did not recall whether he had been fully assessed by the audiologist, but he still has ringing in his ears. In March 2010, there are notes in his file regarding a discussion with his doctor regarding his complaint of lack of sleep due to the transformer. The witness testified that the doctor was aware of the problems that transformers can cause to health, and also that he has a lot of people come to him with problems due to the wind turbine noise.

5. Post-Turbine Witness No. 4

This witness testified as to the impacts that she and her husband have experienced living in the vicinity of the Conestogo Wind Project, which began operation on

December 12, 2012. The Conestogo Wind Project consists of ten turbines; the closest is about 724m from her home, and the next is about 924m away. The remaining eight turbines are within two kms of her home.

The witness testified that her property is a 13 acre bush lot. The house is about 1867 sq.ft., a single storey house that they have had for 27 years. She said that the home is in a beautiful quiet setting. The witness testified that since the turbines began operating, she has experienced health difficulties, such as: pressure in her head, extreme sharp pain in her ears, some heart palpitations, difficulty sleeping and awakening in the night, and nightmares. She testified that her husband is even more affected, and he also suffers from panic attacks, anxiety, difficulty breathing and more severe heart palpitations. He also suffers from diabetes. She testified that it is difficult to say what the problem is, but there is a terrible pressure inside the house, and some nights the chesterfield vibrates. She said that sometimes it feels like her head is being squeezed at the top and it is going to pop. The witness also said that the dog seems to be affected, rubbing her ears on the couch and barking incessantly, when she is not normally a dog that barks.

The witness testified that she and her husband are now sleeping in their mobile home parked at her husband's car dealership in town, and that her husband hardly goes back to the house now at all. She said that she goes to the house during the day as she has things to do, but that she feels sick when she is in the house. She testified that it is very frustrating and that there is a pressure in the house that did not exist before. She testified that many people feel it when they come into the house but some do not. She testified that the pressure is outside as well, and that it is not just the noise that is a problem. The witness testified that they have thought about selling but do not have the house on the market now. They have done extensive interior renovations, but have considerable work to do outdoors. She testified that she is concerned about the potential loss of value of their home based on the comments of their neighbour's real estate agent; however, she also stated that she was fortunate as that type of loss would not be devastating to her.

The witness testified that it was recommended to her that she open the windows and the sliding glass doors at night in order to let the pressure out of the house. She testified that she has tried this but it does not help. They have also tried sleeping in other rooms of the house, but that does not help either. The witness testified that she went to France for 12 days this June, and felt very well – no pain and she did not take

any sleeping pills. She testified that the pain restarted when she returned from holiday. She testified that she and her husband also spent about one month this summer in the mobile home and that this also provided relief from their headaches and sleeplessness.

She testified that she has had her ears checked by her doctor twice and there has been no infection. She also consulted her doctor about her inability to sleep, and he has given her sleeping pills. As an example she testified that the night before attending this hearing, she slept at the house, because she had a cold and the heating in the motor home did not work properly. She testified that she took one half of a sleeping pill to go to sleep but woke up at 3:30 in the morning with pain in her ears and a headache. She testified that because she was coming to the hearing later in the day, she did not want to take another sleeping pill.

The witness testified that a professor from the University of Waterloo, Dr. Nicholas Kouwen, P.Eng., undertook to do a sound audit of her property, and that this audit found that the sound levels were exceeded 24% of the time between February 9 and March 16, 2013. She testified that she shared this report with MOE Officer Gary Tomlinson and others, as well as Denton Miller, the noise specialist. There were questions raised about the methodology of the noise audit, and that it did not match the protocol required. The witness testified that this was still in discussion with Mr. Miller, but that it was her understanding that the concerns of Mr. Miller regarding the methodology were addressed by Dr. Kouwen. The witness testified that the MOE has never monitored sound levels specifically at her home or inside her home, but that Officer Tomlinson did do a sound survey nearby. She testified that one evening she found him monitoring sound levels; he was “in a ditch”, and he said to her that the project was in compliance, because the turbine noise level was 51 dB, whereas the traffic noise level was 51.1 dB. She said that Officer Tomlinson explained to her that because the turbine noise is less than the background traffic noise, the turbine is determined to be in compliance.

The witness testified as to her efforts to bring attention to her concerns regarding the impacts that she was experiencing due to the operation of the wind turbines near her home. She testified that the approval holder was of no help. She said that she called the MOE and the Spills Action Centre at least 35 times. She testified that Officer Tomlinson asked if he could put a test tower in her backyard, and she agreed, but that never happened.

The witness testified as to her involvement in citizen’s groups. She joined the group Stop Mapleton sometime after attending the first public meeting on December 9, 2009

for the Conestogo Wind Project. She testified that the group was concerned about human health, the health of their livestock, the local springs and aquifers, and the Conestogo River and its tributaries in the vicinity. She testified that she joined the group because she wanted to become better informed. The witness testified that the group became incorporated as Preserve Mapleton Incorporated, in order to protect the individual members against liability and to appeal the approval of the Conestogo Wind Project and to request a judicial review.

6. Officer Gary Tomlinson (Senior Environmental Officer, MOE)

Officer Tomlinson's evidence was given *viva voce* in the *Dixon* appeal, and adopted in evidence in this appeal by way of transcript. Officer Tomlinson has been a Senior Environmental Officer with the MOE since October 1989. As Senior Environmental Officer, he is responsible for the enforcement of provincial acts including the *EPA.* He is currently working out of the Guelph District Office. The district assigned to Officer Tomlinson has five industrial wind projects connected to the electrical grid. The district contains 170 wind turbines. Three approved projects are slated to add an additional 57 wind turbines. The five projects are located within rural areas and the majority of them have residential homes within 1,000m of the turbines.

Officer Tomlinson's office has received complaints about adverse health effects in regards to four of the five projects located in his district. He did not receive any complaints for the fifth project, the Plateau Wind Project. While no complaints were filed with Officer Tomlinson's district office for the Plateau Wind Project, he was aware that complaints for that project were submitted to the neighbouring Owen Sound District Office.

Officer Tomlinson received complaints about the noise level of the turbines and adverse health effects pertaining to hearing, sleeping and headaches. He has received some complaints about a phenomenon known as "shadow flicker".

Officer Tomlinson agreed that the MOE will acknowledge a complaint from a resident more than 1,500 m away from the turbine, but the MOE will not be able to take action since the distance is too remote to warrant a follow-up. He stated that compliance checks are completed by the MOE without notice to the company or complainant when complaints about health effects are received. He states that attempts have been made to have compliance checks done twice a month in the Guelph District and if complaints

are raised after a project has been found to be in compliance, the MOE is unable to take further steps other than continued monitoring.

Officer Tomlinson has visited at least one resident's home, and was able to feel vibrations. Officer Tomlinson has observed distress and discomfort of residents living near wind turbines. He has had no medical training and maintained that it is outside his ability to assess what causes the residents' material discomfort.

Officer Tomlinson has observed that over time, the number of complaints reduce in number after the wind projects become operational. He concluded that the resident complaints decrease because residents have moved away, because they have chosen not to make additional complaints since the MOE cannot take action, and because residents have adjusted to the wind turbine effects. However, he does not have data or the medical background to support these conclusions.

He states that the MOE has not conducted any epidemiological studies regarding wind turbines and adverse health effects. He was aware that an opinion was sought by the MOE from Chief Medical Officer of Health, Dr. Arlene King. Officer Tomlinson was also aware of wind turbine studies by Health Canada, and an MOE funded study at the University of Waterloo.

In terms of the MOE complaint process, complaints may be filed with the district office, with the Spills Action Centre, or with the Approval Holder. If the Approval Holder is in receipt of a complaint, the company will have 48 hours to inform the Ministry. Officer Tomlinson testified that the operators and companies in his district have been in compliance with their notification requirements under the REAs. Moreover, he estimated that between 600 and 1,000 complaints had been received regarding the wind projects in his district dating back to 2006.

Officer Tomlinson states that the majority of complaints were filed early on in the operation of the wind projects and dropped off soon after the wind projects began commercial operation. He noted that if an officer makes contact with the complainant to investigate the substance of the complaint an assessment is made by the officer as to whether there should be further action taken by the MOE based on the information gathered by the officer.

He states that there were instances where the complaint was launched in regard to sound annoyance when sound levels from the wind project were in compliance with the

MOE guidelines. In these cases, the officer could approach the company to perform an in-depth acoustics analysis. He noted that most of the complaints pertained to noise occurrences during the nighttime and that his district office has sent teams during the evenings to conduct sound tests with noise meters in order to ensure compliance. He states that the companies are not informed in advance of the test, and that the companies are notified if the project is not operating in compliance.

Officer Tomlinson explained that the noise meter sound tests are done approximately 30m away from a resident's home and the measurement is done from outside the home. He states that a setback is measured from the wind turbine to the centre of home. He states that the MOE did not follow up on complaints coming from areas in excess of 1,500 m away from the closest wind turbine although this group of complainants are spoken to by MOE staff and are given explanations as to why no follow up can be done.

Officer Tomlinson testified that the turbines in the district were manufactured by General Electric, Siemens, and Enercan.

Officer Tomlinson testified that the majority of the complaints he has received relate to turbine noise and sleep deprivation. Further, he states that the remainder of the complaints pertain to health effects attributed by the complainants to living in close proximity to the wind turbines. He notes that noise meter sound tests were completed for most complaints from residents living within the 1,500 m setback. He states that no projects were found to be out of compliance since 2010. However, Mr. Tomlinson testified that annoying tones and mechanical issues were observed in some projects, but were still within 40 dbA readings.

Officer Tomlinson explained that the MOE does not conduct measurements of low frequency or infrasound. However, he testified that the MOE has provided additional guidelines in the Standard Operating Procedure to assist field officers in understanding the effect of low frequency noise.

Officer Tomlinson testified that he had visited complainants' homes and recalls one home visit where he had heard the noises that the resident was complaining about. He explained that he had heard what he described as "turbine whoosh" in addition to buzzing and humming inside of the home. In this particular instance, he testified that the projects were in compliance with sound guidelines.

Officer Tomlinson testified about recourse for complainants respecting projects that have been deemed to be within compliance. He explained that the MOE will continue to monitor the operation of the wind project, however he noted that, aside from the sound tests completed by the MOE, nothing above and beyond can be done for the complainant if the project is in compliance.

Officer Tomlinson states that the vast majority of the wind turbines in the district belong to the Melancthon wind project. He notes that he made an information note in 2010 regarding the Melancthon wind project. He states that 659 noise complaints were received from 21 households regarding the Melancthon wind project by the MOE since March 2006. Officer Tomlinson agreed that the majority of complaints to his office originated with the Melancthon wind project. Since the 2010 information note was authored, Officer Tomlinson agreed that the owner and operator, TransAlta, is buying six resident homes. Officer Tomlinson agreed that three of the six residences being purchased by TransAlta were part of the 21 complainant households mentioned in the information note.

Officer Tomlinson agreed that the complaints filed by the 21 households were for transformer complaints in addition to turbine complaints. He states that the transformers in the project lacked noise abatement measures and the noise abatement measures were later added. Officer Tomlinson testified that no new complaints were filed with regards to transformers for the Melancthon wind project.

He states that many of the noise complaints about the Melancthon wind project were eventually traced to a gear train malfunction and to transformer issues on the site. Officer Tomlinson states that he has had experience with several Siemens wind turbines, that the Siemens model did not have a gear train and that the technology applied to the General Electric turbines could not apply to the Siemens models. He noted that the Siemens turbines have attracted complaints from residents. He was not able to confirm whether the Siemens turbines in his district were the same model as the Siemens turbines in the current [*Dixon*] appeal.

7. Dr. David Michaud (Health Canada)

Dr. Michaud was summonsed by the appellants in the *Dixon* proceeding and gave factual evidence. His evidence was adopted in this proceeding by way of transcript. Dr. Michaud is a research scientist at Health Canada and the lead investigator on a Health Canada study about the health impacts of wind turbines. Dr. Michaud co-

authored a document on the Health Canada website entitled, “Health Impacts and Exposure to Sound From Wind Turbines: Updated Research Design and Sound Exposure Assessment”. He stated that the Health Canada study aimed to assess community responses to wind turbine sound and self-reported health effects in a targeted sample of 2000 residences in different provinces.

Dr. Michaud stated that Health Canada was made aware of public health concerns relating to wind projects through various complaints processes including e-mails and public meetings. Dr. Michaud states that his department conducted a literature review of articles relating to wind turbine projects. Dr. Michaud noted that not all studies considered in the literature review found associations between wind projects and self-reported health effects.

Dr. Michaud discussed concerns in rural environments regarding exposure to wind turbines. Dr. Michaud testified that Canadian rural areas tend to have low background sound levels. Dr. Michaud explained that wind turbine noise may be relatively quiet compared to road traffic noise. However, Dr. Michaud further explained that, in rural areas, the absolute increase in noise could be quite large and noticeable at night.

Dr. Michaud testified that the purpose of the Health Canada study is to assess exposure or dose-response relationships between turbine sound and various self-reported health endpoints including community annoyance, sleep disturbance, quality of life, and stress levels. Dr. Michaud explained that the study will attempt to statistically relate the self-reported health endpoints to sound levels at the participants’ residences. In addition to the self-reported health endpoints, Dr. Michaud explained that blood pressure, cortisol levels, and heart rates would be recorded.

Dr. Michaud testified about the study’s attention to low-frequency noise and infrasound emissions from wind turbines. Dr. Michaud explained that the study would take long-term measurements of low frequency noise and infrasound from various distances from four wind turbines. Dr. Michaud testified that there was a knowledge gap regarding low-frequency noise and infrasound emissions, and that the IEC standards for assessing sound from wind turbines did not address low-frequency elements. He stated that complaints received by Health Canada regarding wind turbines have related to low-frequency noise and infrasound, but no data has been received supporting these claims.

Dr. Michaud testified about the study's attention to community annoyance. Dr. Michaud explained that community annoyance is measured through social surveys. He explained that community annoyance measurements are meant to be a reflection of the respondents' experiences of annoyance when at home over the entire year. Moreover, he states that there is an international standard on specific questions asked of respondents. Dr. Michaud explained that, according to the international standards, if more than 6.5% of residents are categorized within "high community annoyance", noise mitigation strategies should be considered.

Dr. Michaud was asked about a co-authored presentation document entitled, "Health Canada Policy and Research Approach for Wind Turbine Noise", which was presented to the Science Advisory Board on February 2, 2012. Dr. Michaud testified that the Health Canada study was undertaken through the *Radiation Emitting Devices Act*. Dr. Michaud explained that under the Act, acoustical energy is characterized as non-ionizing radiation and that wind turbines are considered a device under the Act.

Dr. Michaud was also asked about the presentation's mention of possible negative health effects associated with wind turbines. He stated that the claim was based on the literature review conducted by Health Canada as well as complaints made by individual residents.

Dr. Michaud stated that he was aware of other studies conducted regarding wind turbines in countries around the world, however, he noted that not all of the studies are in respect to health effects related to wind turbines. Moreover, he stated that the Health Canada study is the largest and sole epidemiological study of wind turbines conducted in Canada. Dr. Michaud agreed that there was credible scientific support for an association between wind turbine noise and community annoyance.

Dr. Michaud was asked about the requirements for the Health Canada study's approval. He stated that the study must first align with the department's mandate. Second, he said that there must be a knowledge gap for the department to address. Third, Dr. Michaud explained that there must be available resources including expertise and funding.

Dr. Michaud was asked about his agreement that there was credible scientific support for an association between wind turbine noise and community annoyance. He stated that high quality studies done in Sweden and the Netherlands showed an association between wind turbine noise and community annoyance.

Dr. Michaud was asked about the study's consideration of statistical association. He stated that the study looks at statistical association and not causation. He stated that looking into causation was not the goal of the study and would involve several years of research into controlled exposure to wind turbine sound. Moreover, Dr. Michaud explained that causation studies are more often done in laboratory settings. He stated that the study is not intended to be a final or definitive answer on whether wind turbines are associated with health effects. He stated that the results of the Health Canada study could not be relied upon as proof that wind turbines cause health effects.

8. Dr. Jeffrey Lipsitz

Dr. Lipsitz's evidence was put into evidence by way of a witness statement with the consent of the parties. No qualification for his evidence was sought. He is a licensed physician in Ontario and is the director of a number of sleep clinics and sleep laboratories. Dr. Lipsitz has provided consulting services to governments and corporations on sleep and fatigue related issues.

Dr. Lipsitz noted that one cause of sleep deprivation is the encroachment of various stimuli during sleep times. Moreover, Dr. Lipsitz explained that extrinsic or environmental factors such as noise, light, physical factors, and sensitivity to various energy forms, including high tension wires, may cause sleep disturbance.

Moreover, Dr. Lipsitz agreed that sleep disturbance can lead to fatigue, lost productivity, poor performance and other physical effects. Dr. Lipsitz also noted that studies are being conducted regarding sleep disturbance and its association with a variety of prevalent conditions including Attention Deficit Hyperactivity Disorder and Alzheimer's Disease.

9. Richard James

Mr. James was presented as an expert witness by the Appellants and was qualified by the Tribunal as an acoustical engineer with expertise in noise modeling, including noise modeling and measurement of wind turbine noise and the associated effects on residents. He is principal consultant for E-Coustic Solutions and an adjunct instructor at Michigan State University and Central Michigan University. His role at both universities is to work with graduate students in evaluating how noise impacts people and provide expertise in acoustics. He also has a bachelor's degree in mechanical engineering in 1971 from the General Motors Institute in Flint, Michigan.

Mr. James has testified at wind turbine hearings as an expert for Huron County, Michigan Zoning Board and the Calumet County Board of Supervisors, in the United States, and for the Kent Breeze and the St. Columban wind projects in Ontario. There are overlaps with the testimony and evidence that Mr. James gave in the St. Columban hearing and this hearing.

His testimony addressed the reports and information presented by Zephyr North Ltd. (the "Noise Assessment Reports") on behalf of the Approval Holder. He states that he has identified a number of deficiencies that relate, in part, to the requirements of O. Reg. 359/09 and the MOE's 2008 Ontario Noise Guidelines for Wind Farms and in part, relate to the input data, assumptions and methodology used "in constructing the computer model used to estimate sound propagation from wind turbines and transformers that comprise the Project to noise receptors." In short, he states that the MOE model will not predict a worstcase scenario and thus will underestimate the actual noise levels for many receptors within the Project. Mr. James states that the model used in the Project's noise assessment reports is deficient in that sound power data used as input to the computer sound propagation model was not corrected to include confidence levels as required in IEC 61400-11 and IEC 61400-14 test standards. These standards, according to Mr. James, require the sound power levels to be adjusted by adding the confidence adjustments for the test measurement in order to produce the "Declared Apparent Sound Power Level." He states that the Declared Apparent Sound Power Level "is the appropriate input value for the model output to present the mean predicted sound level with a 95% confidence level." He states that the noise assessment studies for the Project do not include the adjustments for confidence levels as required by IEC 61400-14. If the adjustment for confidence levels were included, he states that the proper input value for the noise assessment models should be increased by 2 dBA.

Mr. James testified that it is his view that the approach required by the MOE guidelines is inadequate, because it only requires the use of IEC61400-11 for the sound modeling. He testified that the predictable worst case sound power level should consider the IEC Part 14 which gives the additional element for batch error. He testified that the Zephyr report did not use the measurement error or the batch error. It is Mr. James' view that the subsequent audit does not compensate for the requirement to look at tolerances and errors prior to deciding whether the Project could go forward.

Mr. James also states that there is a requirement under the MOE Noise Guidelines for Wind Farms that predictions of the total sound level at a point of reception or a

participating receptor must be carried out according to the method described in standard ISO 9613-2. He states that the stated confidence limits for ISO 9613-2 are +/- 3 dBA. In his report, Mr. James states that the Project's noise assessment reports "do not include any adjustments to account for the ISO confidence limits." He further states that the stated confidence limits are for predictions between 100 and 1,000 m from each noise source. He states the rationale for including confidence limits is to "adjust measurement test values for the confidence level to provide results with a stated degree of confidence." He states that because the MOE 2008 guidelines require the model to represent "predictable wort case" conditions, the upper bounds of the confidence limits should be used as adjustments to input data for the sound propagation model, and this would add 3 dBA to the predicted values.

Mr. James concludes by stating that if the NAR model had included the combined adjustments of +2 and +3 dBA to account for the confidence levels for measurement, batch, and modeling, then all the noise receptors in Table 6.1 and all noise receptors with a predicted sound level of 35.1 dBA or higher in Table 7-1 would exceed the 40 dBA limit of the MOE guidelines. He states "240 noise receptors may exceed the 40 dBA threshold within the 95% confidence limits of both the modeling and measurement protocols."

Mr. James testified that in regards to the transformer, he thought it was hard to understand how a permit could be granted for a project that does not even know what components it is going to use. He stated that "given the potential for transformers and other sub-station components to produce tones, and that the distance between the transformer and receptor is less than 1000 m … it is the opinion of this reviewer that there is a high potential for complaints from adjacent residents unless a barrier or other noise controls are installed".

Mr. James testified that the ISO 9613 Part 2 modeling method incorporates a ground factor for noise attenuation. Mr. James provided in his witness statement that "for the model to represent a predictable worst case scenario, the presence of reflective ground such as hard packed farm fields must be considered. Ground attenuation for that situation would be equal to 0.0. The Zephyr model did not make this conservative assumption but instead used ground attenuation equal to the upper limit permitted by the MOE." He further explained that the modelling method proposes that as long as the noise source is no more than 30 m above the ground, that the sound from that noise source as it travels to a receiver will reflect off the ground a number of times, and

depending on the porosity or absorption of the ground, some of that energy will be absorbed. He testified that because the noise source is up to 100 m or more above the ground, this methodology is not applicable and the current method of using 0.5 to reflect the presence of farm land and vegetative surfaces is not appropriate as the factor used should vary with distance from the turbine. He discussed an analysis where different ground factors were used and determined that there is a 5 dBA underestimate of the measured value from the modelled value, based on the different ground factors used. Mr. James suggests that alternate monitoring and modelling methods should be used to deal with ground attenuation.

Mr. James commented on the data for the average summer night time wind speed profile. Mr. James referenced a report by Brian Howe and Nick McCabe, where they indicate that acoustical measurements in the field can be different by +/- 5 dBA from model predicted values.

Mr. James testified regarding the calculations in common use with regard to wind shear and wind speed. He testified that the equation only applies to a condition where the wind speed increases at a consistent rate from the ground level up towards the hub and at the blade level. He testified that often there are discontinuities and aberrations in the wind speed, particularly at night when there are temperature inversion boundaries, and that the calculations do not account for discontinuities.

Mr. James testified that in this situation, he thought that the Approval Holder was trying to “shoe-horn” the Project into the area, based on the fact that most of the turbines will be operating at a reduced capacity in order to meet the MOE guidelines. He testified that only 4 of the 140 wind turbines in the Project will operate at full capacity. He expressed concern that there would be no flexibility for mitigation measures in the future if the turbines are already operating at a reduced capacity.

Mr. James testified that he and Wade Brady undertook testing of infrasound and low frequency sound of a wind turbine in Huron County Michigan and demonstrated that not only did the wind turbine produce infrasound but that it produced infrasound at levels that exceeded the thresholds of audibility. He testified that up to that point, acousticians had been saying that wind turbines do not produce infrasound and even if they did, it would not be significant because it wouldn't rise to the threshold of audibility.

Mr. James testified that they used advanced analysis methods and were able to demonstrate that when the wind turbines were under a heavy load, they measured

peaks of noise that exceeded 95 dBA, in the infrasonic range. The sounds were not steady sounds, but were short pulsations. He testified that the turbulence in the air results in little bursts of infrasound when the turbulence hits the blade. The bursts are sometimes as short as 70 milliseconds, seldom much more than 250 milliseconds and are random. Because traditional sonometers use acoustic filters, these short bursts are not recorded.

Mr. James testified that four independent acousticians commented in regard to infrasound and low frequency sound.

The four investigating firms are of the opinion that enough evidence and hypothesis have been given herein to classify low frequency noise and infrasound as a serious issue possibly affecting the future of the industry. It should be addressed beyond the present practice of showing that wind turbine levels are magnitudes below the threshold appearing at low frequencies.

Mr. James testified that the pulsating infrasound can impact the body and results in the equivalent of “sick building syndrome”. He testified that infrasound from wind turbines is unique because the bulk of it is at frequencies less than or equal to 1 Hz, and it is modulating. He also testified that by using dBA levels as the criteria, audible sound, and hence infrasound, is ignored.

Mr. James referred to a study by Dr. Kelly in 1987 where he determined that test subjects reacted to pulsed infrasound. Dr. Kelly recommended a 60 dB limit for infrasound. Mr. James referred to work by Dr. Salt, who identified that when infrasound is presented to the human cochlea, that at 60 dB the cochlea begins to send out nerve signals not through the auditory nerves but through the nerves connected to the vestibular system.

Mr. James described the symptoms that people have who complain of low frequency and infrasound noise. He testified that “there are a group of people who complain about dizziness, motion sickness, et cetera. They complain about the sense of pulsations. Sometimes it is a pulsation they feel in their head. Often times the pulsations can be, if you watch the wind -- if a person will say I'm feeling something, you watch the wind turbine out the window, pulsations are exactly in sync with the wind turbine blades”. He testified that in all cases it relates to stimulation of a vibratory nature that is only present when the wind turbines are near them. All of them say that when they are not near wind turbines or when the wind turbines are off, these sensations go away.

He testified that these symptoms are still experienced when sound measurements show that the turbines are operating at the 40 dBA level, as evidenced by the Shirley wind study, where levels outside the home were 35 dBA. Residents had no complaints about the audible sounds, whereas it was the inaudible aspects that they were responding to.

Mr. James testified that in his opinion, the likelihood of complaints from the project due to audible sound and the vestibular-type symptoms that he described is 100%.

10. Denton Miller

Mr. Miller was qualified by the Tribunal to give opinion evidence as a noise engineer with specific expertise in the MOE Noise Guidelines and compliance protocols for wind turbines.

Mr. Miller is a Senior Noise Engineer, and works for the Environmental Assessment Branch of the Renewable Energy Unit of the MOE. He is responsible for assessing wind turbine and solar farm projects. He has been in this role for six years and with the MOE for 22 years. He has reviewed over 30 proposals for wind turbine facilities in the province. He has testified at three other Tribunal hearings. Mr. Miller adopted the witness statements he made in preparation for this hearing.

Mr. Miller outlined that section A4 of MOE Noise Guidelines NPC-232 defines what a "predictable worst case" is with respect to the prediction of sound levels from wind turbines. He testified that the predictable worst case assessment is done assuming the receptor is at the centre of the home, that all wind turbine sources up to a distance of five km are included, including wind turbine sources from other projects if necessary. He states that it is assumed that all receptors for wind turbines are downwind, and that all vacant lots are assessed, since vacant lots may have a building on them in the future. He states that the prediction method is based on two documents, the IEC 61400-11 which is a standard that predicts the sound power levels which are used in the next model, and the ISO 9613-2, that predicts the sound propagation outdoors to the receptor location. Mr. Miller testified that in order to respond to concerns regarding the accuracy of the predictions obtained using the ISO 9613 model, a study was done by Cooper and Evans where they took measurements at four different wind farms, at 10 different locations and compared the results using four different models. They found that there was good agreement using the ISO model.

Mr. Miller testified that in regards to the question of whether noise from a wind turbine is broad-band or whether it is concentrated to one section of the frequency band, he referred to a reference document, "Low frequency Noise and Infrasound Associated with Wind Turbine Generating Systems: A Literature Review" which states that from their analysis of wind turbines, it is broad-band and not tonal so it is not concentrated in one particular frequency band of sound.

Mr. Miller testified that under Ontario Regulation 359/09, if the Approval Holder does an acoustic assessment report and can demonstrate that the levels will be met at the receptor, they are not subjected to the setback distances noted at s. 35 of the Regulation. For this Project an acoustic assessment report was submitted and therefore they are not subjected to the setback distances. Mr. Miller testified that the MOE approved the transformer substation for this project with only limited information available because noise from transformers is well known and predictable. He testified that there are a number of sources that could be used in the assessment, however, once a value is selected it becomes part of the approval under Schedule B. In this case Mr. Miller testified he believed the value is 92 dBA. Therefore, the Approval Holder cannot use a transformer with a maximum sound power level greater than 92 dBA.

In response to concerns raised by Mr. James that the noise assessment report was not undertaken by a licensed engineer, Mr. Miller testified that the noise assessment must be conducted by someone who is very familiar with acoustics and knowledgeable of the Ministry’s guidelines and limits, but does not need to be an engineer. He further stated that the Noise Assessment Report is reviewed by an MOE screening engineer, and then assigned to a senior engineer, and for this project that would have been Mr. Miller, who determined that compliance would be met.

Mr. Miller explained the procedure of de-rating, as explained to him by Siemens, as a procedure used to decrease the electrical output of the turbine which, in turn, will also decrease the sound power level. It can only be done by their engineers as it is encoded in the micro-circuitry of the control modules in the turbine.

Mr. Miller testified that if there was an issue with excess noise produced by a wind turbine, the Ministry through its district office will require abatement, possibly by further de-rating the turbines, or restricting their use to daytime only where the limits are 5 dBA less onerous. Operation could also be restricted to certain wind conditions, since wind direction and wind speed can affect the noise level by up to 10 dBA.

Mr. Miller testified that if MOE staff still had concerns with the noise being emitted and that the abatement measures were not working, then it is possible they would have to stop the operation of the offending noise source.

Mr. Miller testified that there are four groups within the MOE, the environmental assessment branch, the district officers, the compliance officers, the sector compliance branch, and the investigations branch that can independently check on and make requirements of the Approval Holder. Mr. Miller testified regarding the audit requirements that the Approval Holder is required to undertake. He testified that there are two types of audits; the first one requires that an independent acoustic consultant measure each of the six different types of turbines and verify that the sound power levels are correct. Secondly, they have to verify the sound levels at three worst case receptor locations twice, preferably in the spring or fall when there is less ambient noise that can interfere with the measurements. The results are to be submitted to the Ministry within the time period stated.

Mr. Miller testified that the Ministry hired HGC Engineering to investigate and to report on low frequency and infrasound from wind turbines. HGC undertook a peer-reviewed literature research and published a document which showed that low frequency noise was not an issue based on the setback distances that the Ministry currently employs.

Under cross-examination, Mr. Miller was asked to comment on Recommendation #3 of the HGC report where it says:

Since it is evident that complaints related to low frequency noise from wind turbines often arise from the characteristics of the sound impact indoors and since the indoor low frequency sound levels and frequency spectra can differ markedly from those outdoors, it is recommended that the MOE consider adopting or developing a protocol to provide guidance for addressing such complaints. Given the significant variation in sound impact from house to house as a function of room layout and sound transmission characteristics, this protocol cannot replace the current compliance guidelines but would prove helpful in assessing unique situations.

Mr. Miller testified that the MOE has not developed a protocol to deal with such complaints, but is awaiting the results of studies underway by the Ontario Research Chair of Renewable Energy, Technology and Health, at the University of Waterloo, the Health Canada study, and work that is being done by the Japan Ministry for the Environment. The Ministry is waiting for these results before they take any action. He

also testified that the MOE does not have protocols to quantify infrasonic levels in specific situations either.

Mr. Miller testified that if a complaint is made and the wind turbine is determined to be in compliance with the 40 dBA level, then the compliance officer can do nothing further. When asked whether the 40 dBA limit is appropriate for wind turbine noise, given that even when the project is found to be in compliance, the Ministry still seems to get complaints about adverse health, Mr. Miller stated that his opinion was that the limit was acceptable as that is the limit that the WHO has stated is acceptable outside the window of a home. He also followed this up by stating that in some cases people complain about the wind turbine noise, whereas their annoyance stems from other aspects of the project, and not the acoustics themselves.

11. Robert O'Neal

Mr. O'Neal was called by the MOE as a witness and was qualified by the Tribunal to give opinion evidence as an expert acoustician and meteorologist with special expertise in infrasound, low frequency sound and wind turbine noise. He has a Bachelor of Arts in Engineering Science from Dartmouth College and a Master's Degree in Atmospheric Science from Colorado State University. He is a Certified Consulting Meteorologist. This is a national certification in the industry and is based on education, experience, and a written and oral exam. Meteorology in the atmosphere deals with the propagation of waves through the atmosphere and therefore is related to the field of sound propagation.

Mr. O'Neal adopted his witness statement as part of his testimony. In his witness statement he described three main issues. The first was the evolution of modern wind turbine technology, the second was what wind turbine noise sounds like and the third was a discussion of low frequency sound and infrasound.

Mr. O'Neal testified that there have been numerous advances in technology over the years to reduce the mechanical sound that emanates from the nacelle of a wind turbine. He also testified that there have been advances in reducing the aerodynamic sound, which is the sound from the blades passing through the air. In particular, the main evolution over the last 20 to 30 years is the current upwind design where the blades sit in front of the tower and face into the wind. When the blades are downwind the wind hits the tower and results in turbulence and impacts the blades behind it. This is eliminated with the upwind design.

Mr. O'Neal testified that the sound profile is different for every wind turbine. He likened it to a car, where the sound from one car will not be identical to another, as each one is a bit different from the other.

He also testified as to the frequency spectrum for infrasound (0 – 20 Hz), low frequency sound (20 – 200 Hz) and the typical audible spectrum (20 – 2000 Hz). He testified that low frequency and infrasound come from many different sources, both natural and man-made, and gave examples such as wind turbines, diesel engines, and a vibrating screen at a quarry, and noted that infrasound and low frequency sound are not unique to wind turbines.

Mr. O'Neal commented upon testimony given by Mr. James regarding testing of infrasound that he conducted with Wade Brady in Huron County Michigan where they used binaural recording and proprietary software. Mr. James testified that they demonstrated that when the wind turbines are under a heavy load, they measured peaks of noise that exceeded 95 dBA, in the infrasonic range. Mr. O'Neal questioned Mr. James' assertion that this paper was one of the first written regarding the audibility of infrasound from wind turbines. Mr. O'Neal said Mr. James did not cite the paper in his testimony, but it was likely written for the Noise-Con Conference in July 2011, three years later than the study done by HGC Engineering that measured low frequency and infrasound from wind turbines, diesel engines and vibrating screens, and the article on low frequency and infrasound that he and his colleagues published in March of 2011. However, Mr. O'Neal noted that these two papers did not report levels that exceeded audibility.

Mr. O'Neal further stated that he could not find the infrasound values that Mr. James quoted in the Shirley Wind Farm report of the range of 94 and 104 dBA. Mr. O'Neal did state that when he reviewed Appendix A of the report, prepared by Channel Island Acoustics, he found that the peak amplitude measured was 76 dB of infrasound in the range from 0.7 Hz to 5.6 Hz, and that this was consistent with what Mr. O'Neal measured in his study. Mr. O'Neal testified that his study included a literature review to determine criteria and standards for low frequency and infrasound, and they did a field study measuring noise inside and outside residences. Using set back distances of 305m and 457m, they concluded that the infrasound and low frequency sound levels measured were below the criteria and standards found in the literature.

Mr. O'Neal commented on statements made by Mr. James regarding the sources of infrasound that include fires, tornados, earthquakes, etc., and stated that there are

many natural and non-natural sources of infrasound and low frequency energy and that there are industrial sources that generate infrasound at 1 Hz and lower.

In relation to the paper by Sakae Yokoyama, Mr. O'Neal testified that he disagreed with Mr. James' contention that the Yokoyama paper "had nothing to do with what he expressed in his witness report". Mr. O'Neal testified that he thought it worthwhile to consider the tests and conclusions reached by the Japanese scientists. He testified that he sat in on the presentation of this paper at the 5th International Meeting on Wind Turbine Noise (August, 2013) and considered the paper to be authoritative. He agreed that the sensation of low frequency components of sound were related to sensation in the ears.

Mr. O'Neal testified that his assessment from his attendance at the conference was that there are differences in opinion in the scientific community, but the research that has been going on confirms that while low frequency energy and infrasound is present, it does not rise to a problematic level. He testified that he did not include papers from the conference in his witness statement, as he did not have time.

In regards to the complaints of pounding in the chest and head and the feeling that the world is rotating around you, which have come from people living in the vicinity of wind farms, Mr. O'Neal testified that people complain for a variety of reasons that do not necessarily have to do with acoustics. They may not like the wind farm or may not be receiving financial compensation.

Mr. O'Neal testified with respect to vibroacoustic disease ("VAD") a theory proposed by a researcher named Branco and other Portuguese researchers that is caused by exposure to low frequency and infrasound. Mr. O'Neal noted that if VAD were common, it would be showing up from other sources, not only wind turbines, as there are many other sources of low frequency sound energy.

Mr. O'Neal testified that his study looked at criteria besides audibility, including vibrations and rattles. The study looked at what the low frequency energy would have to be in 1/3 octave bands for some part of a structure (house) to have a vibration.

He also testified that another criterion they looked at was the appropriate night time noise level in a bedroom. Ontario does not have these criteria.

Mr. O'Neal testified that at 10 Hz the sound level needs to be around 97 dBA or greater to be audible for the typical person (taken from the literature), however at 100 Hz, the sound level would be audible at 27 dBA or greater.

12. Benjamin Coulson

Mr. Coulson testified at the request of the Approval Holder and was qualified by the Tribunal as an expert in acoustics and noise engineering with experience with wind turbines. He is a professional engineer and is currently the leader of the noise and acoustic group at a consulting firm. He undertook a peer review of the Noise Assessment Report ("NAR") by Zephyr North Ltd., and determined that it was conducted in accordance with the MOE policies and guidelines. Mr. Coulson adopted his witness statements as part of his testimony. He testified that the receptors, including the Appellants' home, were properly considered.

He testified that in this Project there are three transformers and two substations. The Appellants are closest to Glen Hills Road where there are proposed to be two transformers to the south of their home, about 700 m away. Mr. Coulson testified that the transformers for this project have not yet been identified, therefore for the predictive noise modelling, the approach is to use conservative surrogate information and to assess on that basis. Mr. Coulson testified that this is appropriate because transformers are well studied and there is sufficient information on the sound levels of various transformers. In this situation, a sound power level of 87 dBA was used for the surrogate transformer, plus 5 dBA penalty for the tonal hum of transformer sound for a total of 92 dBA used as the input parameter for the noise modelling. Mr. Coulson testified that the impact assessment method is prescriptive and requires input parameters for temperature and humidity and the like in order that there be a consistent basis for assessment. He stated that the model results are considered to be conservative and provide a "predictable worst case" to measure against the criterion. This includes the combined effect of adjacent wind projects and ground attenuation.

Mr. Coulson testified that the Appellants' home, identified as receptor R817, is 714m from the nearest source, Tr91, and that the predicted sound is 36.6 dBA.

Mr. Coulson responded to the concern of Mr. James that the confidence limits are not considered in the calculation of the "worst case", and that the measurement and reporting methodology prescribed by the MOE may result in under predicting the actual sound levels by about 5 dBA. He testified that the audit requirements in the REA that

require the sound power levels to be verified after installation make the uncertainty in the model predictions inconsequential, and in any event, he did not agree with Mr. James' assertion that the confidence limits were not appropriately considered.

Mr. Coulson testified that IEC 61400-14 is not applicable in this situation, and when the IEC 61400-11 test is conducted as per the MOE guidelines with longer averaging times, the measurement uncertainty is expected to be less significant.

In response to Mr. James' concern about the presence of infrasound and low frequency sound, Mr. Coulson referred to the HGC review "Low Frequency Noise and Infrasound Associated with Wind Turbine Generator Systems – A Literature Review", December 10, 2010, conducted for the MOE. He noted that this report stated that there is strong evidence that the sound pressure levels produced by modern upwind turbines will be on the order of 20 dB below the average threshold of human hearing, at the typical setback distances, and it notes that the use of overall A-weighted criteria is still appropriate for the assessment of overall sound impact. Mr. Coulson opined that he does not expect infrasound or low frequency noise to be a concern for the K2 Wind Project.

13. Dr. Kenneth Mundt

Dr. Mundt testified at the request of the Approval Holder and was qualified by the Tribunal as an expert in epidemiology. He is an adjunct professor of epidemiology at the University of Massachusetts and a Fellow of the American College of Environmental Science in Epidemiology. He actively conducts research in the field. He has testified at a previous Tribunal hearing and at a hearing for the Ohio Energy Commission. Dr. Mundt adopted his witness statements as part of his testimony.

Dr. Mundt testified that policy development is made on the basis of epidemiological studies. He testified that the "gold standard" for epidemiological studies is a cohort study where there is a defined group of workers who work at the same company but at different plants and these people are studied over time to measure the rate that disease develops in each group. These studies look at statistical correlation with disease and require that confounding issues need to be taken into account.

Dr. Mundt testified that a synthesis of many studies and evidence is required to conclude a causal relationship. Cross-sectional studies, commonly known as surveys, are used as an approach in understanding health issues. They provide a snapshot of a population with respect to exposure or health status. However, there are issues with

surveys because they are biased. They rely on self-reporting, and are not random, as it is like recruiting volunteers, so the ones who are interested in the problem are the ones who participate. This steers the experiment further from an objective scientific methodology.

Dr. Mundt testified that he did a scientific literature search by looking at PubMed and Google Scholar and found about 12 epidemiological studies on wind turbines and health. He found that most were cross-sectional studies and most were performed in Europe, and there were no cohort studies done, which are the preferable types of study from an epidemiological perspective. He testified that there is consistently no specific disease associated with wind turbines or wind turbine exposure; however, he does see annoyance or irritation due to the wind turbines being present.

He testified that the International Classification of Diseases ("ICD") does not include annoyance or irritation as a disease, though some have said these could or should be classed as a disease.

He testified that the largest predictor to annoyance is the attitude of a person to the wind turbine, and that this raises the question of whether it is the exposure to the wind turbine, the sound pressure, or something else that results in the annoyance.

He referred to the study undertaken by Creighton in 2013 that looked at exposure to noise including wind turbine noise. The high expectancy group, who were told that wind turbine sound might be harmful, was more likely to report conditions whether it was due to wind turbine sound or other sound. The low expectancy group, who were told that there was no harm from sound, had fewer reported conditions.

Dr. Mundt testified that his conclusion, after reviewing peer and non-peer reviewed literature, was that he "cannot classify wind turbines as causing harm to human health or causing any disease in particular".

Dr. Mundt testified that the case reports provided for this wind turbine hearing are not particularly useful in assessing the body of evidence. He testified that they are not clinical, and they are mostly self-reported, and therefore it is not scientific evidence and does not impact his scientific opinion. He testified that many people have health problems that they may or may not attribute to something in their environment.

In reference to the Health Canada study by Dr. Michaud, Dr. Mundt testified that the study may identify associations that will need to be further studied. He testified that the study substantially overlaps with the evidence already in hand, and so he does not expect there to be new, significant results.

He also testified that by using the measurement of blood pressure and cortisol levels in hair it would be difficult to isolate the role of wind turbines based on these measurements.

With respect to low frequency sound and the Health Canada Study, Dr. Mundt testified that there is an inability to quantify it in a meaningful way as there is no good method of measurement. He testified that low frequency noise is not thought to be a human health hazard.

He testified that there is no need to intervene by placing a moratorium on wind turbines due to the ongoing Health Canada study, because he anticipates that the findings of the study will be similar to what has been determined to date, and will not conclusively show causation. For that reason, he cannot justify intervention.

Under cross examination, Dr. Mundt testified that to show something is likely to cause harm, a lot of affirmative evidence is required. He testified that the body of evidence to indicate that wind turbines can cause harm is not available.

He conceded that annoyance is consistently demonstrated, but that this is not indicative of harm to human health.

Dr. Mundt testified that he did not think that the precautionary principle would result in the halting of wind turbine development in Ontario. He testified that there are many areas of our lives where some people think there is risk, but it must be serious to cause harm or disease.

14. Dr. Robert McCunney

Dr. Robert McCunney testified on the request of the Approval Holder and was qualified by the Tribunal to give opinion evidence as a medical doctor specializing in occupational and environmental medicine with particular expertise in health implications of noise exposure. He is board certified in occupational and environmental medicine and a research scientist at the Massachusetts Institute of Technology in the department of

Biological Engineering. Dr. McCunney adopted his witness statements as part of his testimony.

Dr. McCunney co-authored the “Wind Turbine Sound and Health Effects: Expert Panel Review” (Colby, 2009) which was a review of scientific literature related to wind turbines and human health.

Dr. McCunney discussed annoyance and testified that it is not a bona fide medical diagnosis, and there is a lot of variability in the perception of annoyance and how it affects people. He testified that as far as he is aware, the WHO does not have an official position that annoyance is an adverse health effect.

He testified that the symptoms that the post turbine witnesses described combined with their medical records are not sufficient to make a diagnosis. He testified that further tests would be required, along with physical examination and historical and family histories in order to determine causation of the symptoms.

Dr. McCunney concluded on the basis of his literature review that there are no studies showing adverse health effects from sub-audible infrasound at levels encountered in the vicinity of wind turbines.

15. Dr. Kieran Moore

Dr. Kiernan Moore testified on the request of the Approval Holder and was qualified by the Tribunal to give opinion evidence as a physician with expertise in family and emergency medicine, public health and preventative medicine.

Dr. Moore is an Associate Professor of Medicine at Queen’s University and a Royal College Specialist in Public Health and Preventative Medicine. He is a Fellow of the Canadian College of Family Physicians and has a Master’s degree in Public Health. He is the Associate Medical Officer of Health for Kingston, Frontenac, Lennox and Addington Public Health, where he has dealt with health concerns related to wind turbines for the wind farm on Wolfe Island, and the proposed facility for Amherst Island. Dr. Moore adopted his witness statements as part of his testimony.

Dr. Moore referred to the document “Wind Turbines and Health, Summary of a Scoping Review, May, 2013”. He testified that this document is given to groups who approach his department with concerns regarding wind turbines. He testified that the work was

initially done by Masotti and Hodgetts, from his research team in 2011, and was updated by Dr. Kate O'Connor who has a Ph.D. in epidemiology, in 2013.

Dr. Moore testified regarding the "required steps for a proper medical diagnosis". He testified that it is essential to get a good initial history of the patient concentrating on their potential exposure in the environment, such as their home, hobbies, occupation, habits, diet, etc. Once the potential exposures are identified then a physical assessment of the patient is done, and when these two pieces are in place, a differential diagnosis can be made, and then specific tests can be ordered to help confirm or deny that differential diagnosis. It can be very complex, but that is the general format. This method is what is done and recommended in the Canadian Medical Association Journal and the Center for Disease Control in the United States.

Dr. Moore discussed "environmental exposure" and "environmental risk". He testified that it is important to identify the exposure of concern and to describe it as scientifically as possible. Following its identification, the exposure is measured, and for most toxins including sound, there is a dose-response curve. The person or community that is exposed is then characterized as to where they fit on that dose-response curve. Once that is done then the risk to the person or community can be characterized. Following that step is risk management and then risk communication. Dr. Moore testified that it is very important that a thorough initial history be taken to avoid bias, either by the person doing the interview or the individual being interviewed.

Dr. Moore discussed the nocebo effect where a harmless substance or exposure creates the perceived harmful effect in a patient, much like the opposite of a placebo. He testified that he has seen this effect related to wind turbines, and testified that it is human nature to associate a symptom with an exposure and to make the assumption that the exposure is causative.

Dr. Moore testified that Wind Turbine Syndrome is not a medically accepted diagnosis or syndrome. It is not accepted by the International Classification for Disease. He also testified that Vibroacoustic disease is not a medically accepted diagnosis.

Dr. Moore testified that he reviewed the evidence of the four post turbine witnesses, including their medical evidence, and it is his opinion that nothing he has read in the medical records or witness statements of those four people changes his medical opinion that the current setbacks in decibel limits required by legislation will protect the public from harm. He testified that he has reviewed medical records and witness statements

from other post turbine witnesses in other matters and has not found any evidence that any of those individuals suffered from health effects because of the 40 dBA limit at a 550m setback.

He also testified that he reviewed the evidence provided by the Drennans and his opinion was that they would not suffer serious health effects from a sound exposure of 40 dBA.

Dr. Moore discussed the prevalence of sleep disturbance as a common complaint in medical practice. He testified that sleep disturbance is complex, and that it is very common and it is more common as people age and have a higher burden of chronic disease. He testified that it is difficult to determine whether exposure to a turbine can cause the sleep disturbance, because it is so prevalent and the symptoms are so common in both family practice and on a population level. He testified that sleep disturbance may be temporally associated but not causative.

In response to questions about arrhythmia, or irregular heartbeat, as a symptom that some of the post turbine witnesses complain of, Dr. Moore referred to the Wind Health Impact Study prepared by the Massachusetts Department of Environmental Protection, in the Massachusetts Department of Public Health. This study was conducted by expert independent panel members. They reviewed the limited epidemiologic evidence and state, on page 7, paragraph 9: “none of the limited epidemiologic evidence reviewed suggested an association between noise from wind turbines and diabetes, high blood pressure, tinnitus, hearing impairment, cardiovascular disease, and headache and migraines.” Dr. Moore testified that abnormal heart rates are common, and it is common for people to have up to six extra beats a minute. He testified he could not conceive of a biologically plausible mechanism where exposure to a wind turbine sound could cause arrhythmia.

Dr. Moore testified that tinnitus is similar, in that it is very common and has an increasing prevalence with patients as they get older, and it is a subjective sound. He does not see any biologically plausible mechanism where exposure to a wind turbine can cause tinnitus. He testified that this is the same conclusion that the Chief Medical Officer of Health, Dr. Arlene King found in her report in 2010, and that was reached in the Massachusetts report.

Dr. Moore also testified that he did not find any biologically plausible mechanism where vertigo or dizziness could be connected with exposure to wind turbines at the current setbacks. He testified this was the same situation for headaches and migraines.

Dr. Moore testified that there are numerous side effects from medications and drug interactions and these can be common causes of symptoms described.

Dr. Moore testified that when considering the Bradford Hill Criteria for Causation, there is no evidence of causation, given the current setbacks and measured decibels at the receptor. He testified that this applies to low frequency noise and infrasound as well.

Dr. Moore discussed the precautionary principle as it relates to the medical field. He testified that persuasive evidence of harm does not need to exist before measures are taken to protect individuals from harm. He gave examples of how important it is to apply this principle appropriately. He testified that there is a framework for public health decision makers to take a three step approach to invoking the precautionary principle. The first step is to establish the level of certainty of the cause and effect relationship between the exposure and the supposed harm. If there is not a causative association between the exposure and the outcome, then the precautionary principle should not be invoked.

The second step is to understand the risk and the level of certainty of the effect. That is, how significant an effect is that exposure having on the population? The third question is to assess what measure should be applied to trace the exposure to ensure that there is a proportional response to the level of certainty and the magnitude of risk.

Dr. Moore discussed “annoyance”. He testified that in his opinion there has been an association found between annoyance and wind turbine projects. He testified that annoyance is a psychological state of being irritated, annoyed, angered, unhappy, dissatisfied, frustrated or disappointed, but it is not a medical diagnosis. He testified that if someone is annoyed with a policy, that person is typically referred to the policy makers.

Under cross examination, Dr. Moore testified that he thought that it would be an appropriate course of action to share information on complaints of adverse health effects that the MOE might receive with the local Medical Officer of Health. He also conceded that annoyance may be an adverse health effect, but held that it is not an outcome of significance.

When it was put to him that the *EPA* has a definition of "adverse effect" that includes: among other things: "c) harm or material discomfort to any person; d) an adverse effect on the health of any person…"

Dr. Moore testified that he did not agree that the Project would cause an adverse effect.

Dr. Moore testified that there are typically 5 to 8% of people that disagree with public health interventions, such as fluoride in water or immunizations. He testified that those 5 to 8% of people are referred back to the policy makers. He could not confirm whether this was a "non-trivial" percentage of the population.

16. Debbie Raymond

Ms. Raymond's evidence was put into evidence by way of a sworn statement on the consent of the parties. No qualification for her evidence was sought. She is an Engineering Sales Manager at Siemens Energy, Inc.

Ms. Raymond agreed that the K2 Wind Project will use Siemens SWT-2.3-101 wind turbines which contain fire prevention features.

Ms. Raymond agreed that the blades of the Siemens SWT-2.3-101 wind turbines are made with fibreglass-reinforced epoxy.

Ms. Raymond agreed that the Siemens turbines used in the K2 Wind Project were equipped with a Turbine Condition Monitoring ("TCM") System which monitors vibrations in the turbines caused by internal factors or external factors such as ice build-up on the blades. Ms. Raymond explained that the TCM System detected deviations from normal operating conditions and that the turbines will automatically shut down due to ice build-up if vibrations exceed a certain threshold.

Ms. Raymond explained that as an additional measure of icing protection, the wind turbines will stop operating if the anemometer or wind direction vane mounted on the turbine nacelle were to stop working due to icing. In this instance, Ms. Raymond explained that a manual release would be required to restart the turbine, which would allow operators to determine if icing posed a hazard.

17. Michael Leitch and Anne Marie Howard (Participants)

Mr. Leitch and his spouse, Ms. Howard, are residents of Ashfield-Colborne-Wawanosh and own two farms in the vicinity of the Project. Mr. Leitch and Ms. Howard made a presentation on behalf of a group of concerned landowners and residents of Ashfield-Colborne-Wawanosh. The group of landowners was concerned about the possible health and safety risks of the Project.

Mr. Leitch submitted into evidence a copy of his presentation and a series of documents to support that presentation. The Director moved that Mr. Leitch be prohibited from making a presentation based on the issues raised by the documents on the basis that the evidence is outside of the issues on appeal. The Tribunal ruled that Mr. Leitch and Ms. Howard were permitted to make their presentation, and that the Tribunal would rule on the admissibility at a later time. Details of the motion and oral ruling are provided in Appendix B.

Mr. Leitch and Ms. Howard noted that there have been reported cases of wind turbine fires, structural collapse, and blade failure. The participants noted other reports where turbine blades had been lost. The participants were concerned with the size and reach of the debris emanating from a possible wind turbine fire. The presenters were also concerned that a possible turbine fire might spread to neighbouring woodlots and rows of trees close to the wind project. Additionally, the participants had concerns that debris from blade failure may reach public roads or neighbouring lands.

Moreover, the participants expressed concerns that the local fire department would not be well equipped to deal with fire suppression in a wind turbine fire due to the height of the turbines. The participants claimed that height inaccessibility had been a problem at the K1 wind project fire. Moreover, the participants noted that the wind turbines would not be located in areas where a water supply would be accessible to fight a wind turbine fire.

The participants stated that the setback of the proposed turbines was inappropriate for safety reasons. The participants proposed that the setback was not sufficient to mitigate their concerns regarding ice throw or blade throw. The participants claimed that there is a possibility that one of the turbines close to their property may collapse on to their land. Moreover, the participants felt that they would not be able to conduct outdoor agricultural and recreational activities safely on their own land due to the

alleged safety hazards posed by the wind turbine project. Mr. Leitch conducts dog training activities on his property and sees the wind turbines as a threat to these activities.

The participants had concerns about remediation and clean-up measures in the event of a turbine collapse or turbine fire. The participants had concerns that if debris were to end up on their land, the landowners might be held responsible for clean-up costs since the Approval Holder does not have access rights to the presenters' lands.

The participants had a number of objections to the noise modelling conducted in the acoustics report. The participants suggested that there is potential error in the measurements and that the sound levels at the receptor could be higher or lower than the recorded measurements

18. Elizabeth Bellavance (Participant)

Ms. Bellavance made a presentation on behalf of We Are Against Industrial Wind Turbines, Plympton-Wyoming ("WAIT-PW"), a neighbourhood group opposing the Suncor Cedar Point Wind Power Project in Lambton County.

Ms. Bellavance expressed concern that the serious harm test to be met under the *EPA* was difficult for communities to meet. Moreover, Ms. Bellavance stated that ongoing scientific studies on wind turbines show that there is some concern about wind turbine effects on health.

Ms. Bellavance is concerned that some residents continue to experience negative health effects even though the neighbouring wind project is operating within sound guidelines. Ms. Bellavance is concerned by efforts by some to exclude infrasound and low frequency noise monitoring requirements for wind turbines.

19. Stephana Johnston (Participant)

Ms. Johnston lives near an 18 turbine wind farm in Stratfordville, Haldimand-Norfolk which began operation in November 2008.

In 2009, Ms. Johnston became involved with the Norfolk Victims of Industrial Wind Turbines. Ms. Johnston stated that the group petitioned their local MPP, local health unit and local social services committee regarding the wind project. Ms. Johnston was

frustrated that no action was taken against the wind project by public officials that the group had contacted.

Ms. Johnston has considered moving, but says she does not have the financial resources for a second residence. Ms. Johnston stated that she put her home on the market in December 2009 but has had difficulty selling the house. Ms. Johnston believed that potential buyers have been discouraged by the neighboring wind turbines.

Ms. Johnston outlined her current health issues. She believed the health effects she experiences have been caused by the wind project. Ms. Johnston visited a nose and ear specialist in March 2010. There were no problems documented with Ms. Johnston's hearing by the hearing specialist. Ms. Johnston stated that she had no problems with hearing or sleep when she was far away from the wind project.

20. Greg Schmalz (Presenter)

Mr. Schmalz is a co-founder of Saugeen Shores Turbine Operation Policy ("STOP"). Mr. Schmalz made a presentation on the health effects experienced by STOP members and residents in his neighbourhood.

Mr. Schmalz's residence is located 400 m from a wind project in Saugeen Shores. According to Mr. Schmalz, the wind project contains Enercon E48 wind turbines which are smaller in comparison to the turbines used in other Ontario wind projects. Mr. Schmalz stated that since the turbine model has a lower power rating, the turbine model can be built in Ontario with no setbacks from residences.

Mr. Schmalz stated that soon after the project began operation in March 2013, local residents began to experience health effects. Mr. Schmalz added that several of the residents filed complaints with the local MOE office. Mr. Schmalz stated that tests for low frequency noise have been conducted in residents' homes, but the noise reports were not released at the time of the hearing.

Mr. Schmalz claimed that residents in his neighbourhood have been suffering from headaches, sleep deprivation, and other health effects. Mr. Schmalz claimed that the health effects dissipate when residents leave the area and that the health effects begin when residents return to the neighbourhood.

Mr. Schmalz acknowledged that the wind turbines have noise mitigation controls and stop when wind speeds exceed a certain threshold. However, Mr. Schmalz claimed that

residents continued to experience adverse health effects despite the introduction of the noise mitigation controls.

Mr. Schmalz called attention to various health documents and policies regarding the precautionary principle and public health. Mr. Schmalz alleged that wind turbines were a threat to human health and that the precautionary principle ought to be invoked against industrial wind turbines.

21. John Curran (Presenter)

Mr. Curran made a presentation on health issues concerning the wind Project with regard to stray voltage and lightning strikes. Mr. Curran is concerned with stray voltage from a buried cable that runs currently through his property. Mr. Curran has a dug well on his property and is concerned that stray voltage may travel through his water supply. Mr. Curran claims that there is shale rock beneath his land which may also pose stray voltage concerns. Moreover, Mr. Curran was concerned about tall structures built by the wind company. Mr. Curran added that these tall structures may be susceptible to lightning strikes.

22. HALT – Kevin McKee (Presenter)

Kevin McKee testified for Huron-Kinloss Against Lakeside Turbines ("HALT"). He states that there are approximately 100 members around Kinkardine and Kinloss. The group started prior to 2010, but incorporated in 2010. He states that the group is concerned about three wind projects at the present time and another four to five that are being planned. They are not anti-wind advocates but want questions answered. He states that the group has concerns when wind turbines are built near to homes. He states that their concerns started in relation to the Ripley and Enbridge wind farms.

He states that the main issues relate to health concerns from the Ripley project such as stray voltage. He states that with the Enbridge project, dozens of residents complained about sleep deprivation, headaches and nausea. He states that the MOE investigated the matter but nothing was done.

He states that HALT's concerns relate to health issues emanating from the Ripley and Enbridge projects and issues relating to property values near the projects. It has tried to engage with politicians, using newspaper advertisements, among other measures. For

example the group's concern was that one project has potential to shut down the local airport.

He states that HALT is not getting the answers it wants although it is trying to get some resolution for these people to stop this from happening to other people. He states that specific concerns with this Project are no different to concerns with other projects the group has been involved with over the years.

Appendix B

Ruling with respect to the Director's Motion to Exclude Evidence of Two Participants

During the hearing, the Director made a motion seeking to exclude some evidence relating to the presentations by the participants, Michael Leitch and Stephana Johnston.

On October 24, 2013, the Tribunal provided an oral ruling on the motion to exclude certain parts of the evidence of the participant, Michael Leitch. The oral ruling was as follows:

> The other issue I said is the ruling with respect to the number of exhibits submitted by Michael Leitch, and this is where we're at with respect to that issue.
>
> Mr. Leitch gave his evidence last week and the Tribunal stated it would reserve submissions as to the appropriateness of his tendering of number of documents that are to be marked as exhibits to the presentation.
>
> First it is the Tribunal's understanding that exhibits Q, P, O, T, E, W as they relate to the issue of health to humans is not opposed by the Director of [or] the Approval Holder, so there is no issue with respect to those documents.
>
> Second, the presenter made reference to a number of documents on the public record -- which are on the public records, like newspaper articles, extracts from reports from the Approval Holder and documents like that. These exhibits will not be excluded, but it is to assume that they could not be admitted to verify the truth of the context [contents], but to add context to the presentation we heard. I may say that this is a unique situation, in the sense that we heard the material already. So, the parties are fully aware of the context for that. Final submissions can be -- can make reference to the weight that should be given to these documents in this regard.
>
> Third, the Tribunal finds that exhibits F, G, H, J, K, R, and U would not be marked as exhibits in this matter with reasons to follow.

Tabs X, Y and Z to Exhibit 19 were not presented by Mr. Leitch as they relate to environmental issues and are outside the scope of these appeals. Therefore, Tabs X, Y and Z were not marked as exhibits.

On October 24, 2013, Anne Marie Howard, who joined Mr. Leitch in making his presentation, confirmed to the Tribunal that Tabs H and K-1 of Exhibit 19 were also documents in the public domain and, therefore, the Tribunal subsequently determined

that these could be accepted for the context that they provide. Additionally, Ms. Howard confirmed that Tab U to Exhibit 19 is already an exhibit and need not be included in Exhibit 19.

Submissions

Oral submissions were heard by the Tribunal on October 16, 2013 with respect to the admissibility of Mr. Leitch's evidence; however, because Mr. Leitch was only available that day to appear before the Tribunal, upon consent, it was determined that he would be permitted to give his evidence and the Tribunal would rule later on the appropriateness of his tendering a number of documents that were entered collectively as Exhibit 19 to his presentation.

The Director submits that some of the evidence disclosed by Mr. Leitch on October 11, 2013 is outside of the issues on appeal and as such the Tribunal lacks jurisdiction to consider this evidence. The Approval Holder adopted the Director's submissions and also noted that, if the exhibits were admitted, the Approval Holder may be required to call reply witnesses, and that would be inappropriate considering the late stages of the hearing and the little notice given to the parties of the issues raised by the participant.

Ms. Johnston gave her presentation following Mr. Leitch, but did not tender any exhibits other than a copy of her presentation marked as Exhibit 20, which was not objected to by the parties. Therefore, to the extent that the motion initially addressed Ms. Johnston as well, that matter is moot given that she ultimately did not seek to introduce other exhibits.

Reasons

The reasons for the exclusion of Tabs F, G, J, K-2 and R to Exhibit 19, Mr. Leitch's witness statement, can be briefly stated. Tab F is an affidavit of Paul Frayne which pertains to his description of a wind turbine fire that occurred on April 2, 2013 and attached to his affidavit are a number of supporting documents. Tab G is a map outlining the potential debris field from the turbine fire. Tab J contains a number of emails between a person and the approval holder of a wind turbine project regarding the April 2, 2013 incident. No other documents were presented to give context to the emails and Mr. Leitch's name is not mentioned in the email chain of correspondence. Tab K-2 is a letter between an approval holder in the United States and a U.S. state official.

Tab R concerns issues related to aerial spraying and the impact of wind turbines on that business.

The Tribunal excluded the documents contained in Tabs F, G, J, K-2 and R because they were not relevant to this proceeding. The issue of turbine fires and accidents and the impact of wind turbines on aerial spraying was not mentioned by the Appellants in the notice of appeal and the Appellants did not seek to raise this or any related issue. By introducing this evidence, Mr. Leitch is seeking to raise new issues. Rule 68(a) of the Tribunal's Rules of Practice makes it clear that a participant may not raise issues that have not already been raised by a party.

Further, the Tribunal is cognizant that Mr. Leitch's evidence was filed near or at the start of the hearing of evidence. Although the Tribunal granted the opportunity for Mr. Leitch to file his evidence at that time, the Tribunal recognizes that neither the Director nor the Approval Holder would be in a position to fully respond to a new issue, assuming the Tribunal granted permission to raise a new issue.

In summary, the Tribunal confirms its ruling that Tabs F, G, J, K-2, and R of Mr. Leitch's documents should not be admitted into evidence in this proceeding. As well, Tabs U, X, Y and Z were also not admitted for the reasons set out above.

No reasons are necessary in relation to Ms. Johnston's evidence as she did not tender any documents in the hearing during her presentation.