



Samsung Renewable Energy Inc. and
Pattern Renewable Holdings Canada ULC

12 Consultation Report

For

Armow Wind Project



February 2013

ARMOW WIND - ARMOW WIND PROJECT APPLICATION FOR RENEWABLE ENERGY APPROVAL

Consultation Report

Submitted to:
Director, Ministry of Environment
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Toronto, Ontario M4V 1L5

REPORT



Report Number: 11-1151-0247 (5000)

Distribution:

2 copies: Ministry of Environment





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1.0 GENERAL INFORMATION

The Armow Wind Project (the “Project”) is an up to 180 megawatt (MW) commercial wind energy generation facility located substantially on leased privately owned lands in the Municipality of Kincardine, Bruce County, Ontario (see Figure 1). The Project is being developed by SP Armow Wind Ontario GP Inc., in its capacity as general partner of SP Armow Wind Ontario LP (the “Proponent”). The Proponent is a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC (“Pattern”) and Samsung Renewable Energy Inc. (“Samsung”). The Proponent is proposing to develop, construct, and operate the Project in response to the Government of Ontario’s plan to integrate more renewable energy into the province’s power grid.

In 2009, the Government of Ontario introduced the *Green Energy and Green Economy Act* and Ontario Regulation (O. Reg.) 359/09. The regulatory amendments to O. Reg. 359/09 came into force on July 1, 2012 as O. Reg. 195/12¹. The Renewable Energy Approval (“REA”) integrates previous requirements under the *Environmental Assessment Act* with clear provincial rules and standards in a new regulation under the *Environmental Protection Act*. This Draft Construction Plan Report has been prepared to provide details of the Project as part of the REA.

Table 1 below, highlights the requirements and how they are addressed in this Consultation Report.

Table 1: Consultation Report Requirements under O. Reg. 359/09

Requirement as per O. Reg. 359/09	Report section where information can be found
A summary of communications with members of the public regarding the Project.	Sections 3.0 and 7.0
A summary of communications with members of aboriginal communities regarding the Project.	Section 4.0
A summary of communications with municipalities and agencies regarding the Project.	Section 5.0 and 6.0
Evidence that the information required to be distributed to aboriginal communities under subsection 17(1) was distributed.	Section 4.0 and Appendix E
Any information provided by an aboriginal community in response to a request made under paragraph 4 of subsection 17(1).	Section 4.0 and Appendix E
Evidence that a consultation form was distributed in accordance with subsection 18(1).	Section 5.0 and Appendix F
The Municipal Consultation Form distributed under subsection 18(1), if any part of it completed by a municipality, Local Roads Board or Local Services Board.	Section 5.0 and Appendix F
A description of whether and how comments from members of the public, aboriginal communities, municipalities, Local Roads Boards and Local Services Boards were considered by the person who is engaging in the Project.	Section 7.0
A description of whether and how the documents that were made available	Section 7.0

¹ All references to Ontario Regulation 359/09 refer to the Regulation as amended Regulation 195/12 which came into force July 1, 2012



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Requirement as per O. Reg. 359/09	Report section where information can be found
under subsection 16(5) were amended after the final Public Meeting was held.	
A description of whether and how the proposal to engage in the Project was altered in response to comments from the public, aboriginal communities and municipalities.	Section 7.2

Technical studies associated with the REA Application requirements were initiated in 2010 and extended into 2012. Additional information about the Project, results of technical studies and assessments of potential negative environmental effects are available in the following reports:

- Draft Site Plan Report;
- Project Description Report;
- Construction Plan Report;
- Design and Operations Report;
- Decommissioning Plan Report;
- Wind Turbine Specifications Report;
- Natural Heritage Assessment Reports;
- Stage 1 and Stage 2 Archaeological Assessment Reports;
- Heritage Assessment Report;
- Noise Impact Assessment; and
- Water Assessment Report.

Stage 3 and Stage 4 Archaeological Assessment Reports are not required as part of an REA Application for this Project (Ministry of Energy and Infrastructure, 2010) and are typically not publically available documents due to the confidential nature of the content. Stage 3 and Stage 4 Archaeological Assessment Reports will be made available to the Ministry of Tourism, Culture and Sport (MTCS), if these levels of assessment are required.

1.1 Project Location

The proposed Project is situated in Bruce County, 3 km from Lake Huron, approximately 2 km northeast of Kincardine, Ontario (see Figure 1).

The Project Location, is defined in O. Reg. 359/09, as amended, (in relation to a renewable energy project) to mean “a part of land and all or part of any building or structure in, on or over which a person is engaging in or proposes to engage in the project and any air space in which a person is engaging in or proposed to engage in the project”. The Project Location is bounded by Highway 21 to the west, Concession 4 to the north, County



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Road 1 to the east and the North Line to the south. The area encompassed by these boundaries is referred to in this document as the “Project Study Area”.

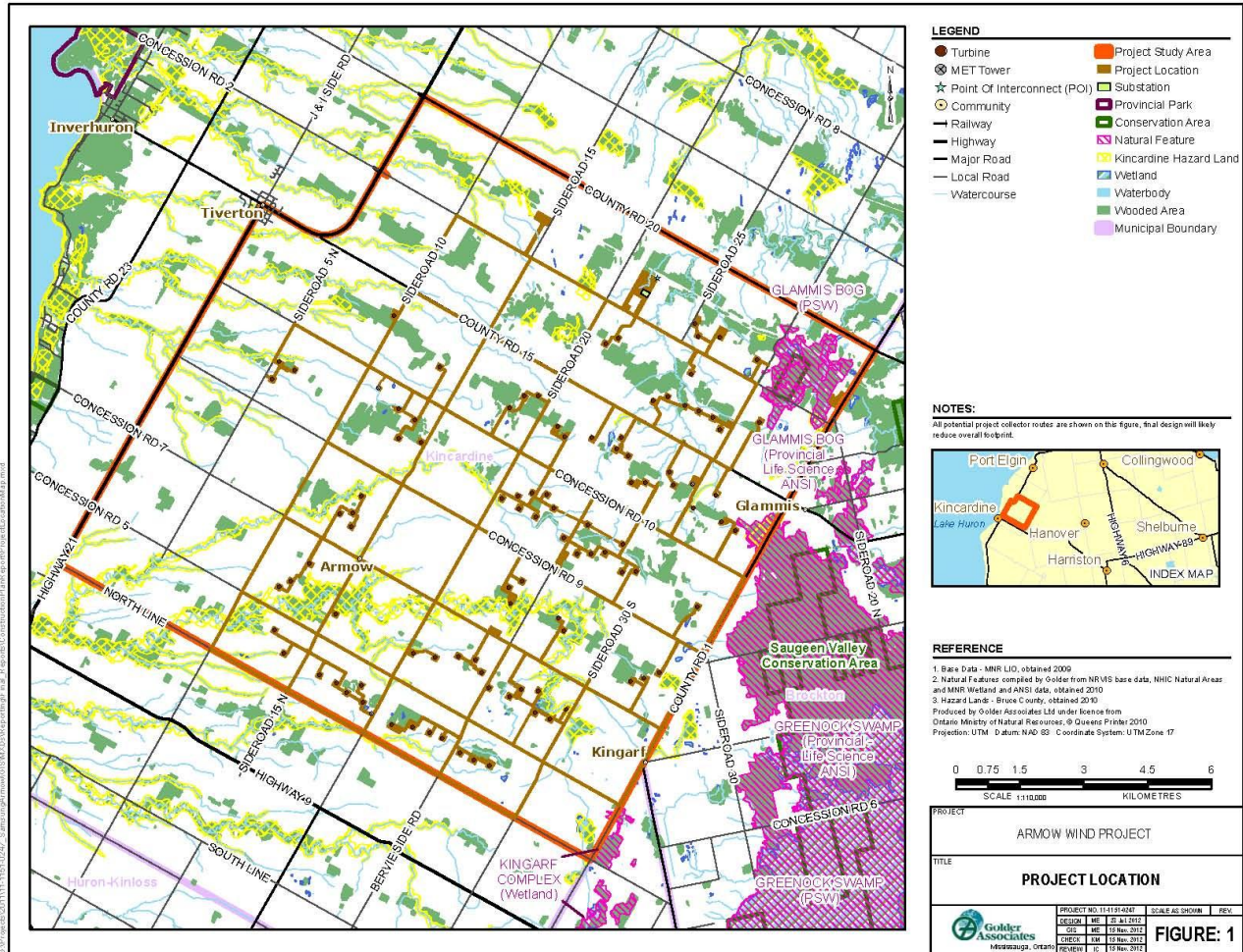
The proposed Project Study Area, covering approximately 18,800 hectares of land in the Municipality of Kincardine, Ontario, is primarily comprised of agricultural lands with fragmented blocks of forest and riparian areas associated with small creeks and farm drains (see Figure 1). The Project will be located primarily within portions of privately owned land parcels with collection cables being placed in public road allowances. Portions of privately owned land parcels that contain Project infrastructure will be under lease or easement to the Proponent for the duration of the Project.

The location of the Project was established based on interest expressed by local landowners, its proximity to high-voltage transmission lines, and its excellent wind resource.



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Figure 1: Project Area





2.0 CONSULTATION METHODOLOGY

Consultation has been a cornerstone of the Project with multiple information sharing and community and stakeholder feedback opportunities provided. The consultation program carried out by the Proponent was initiated in 2011 and continues with the Renewable Energy Approval (REA) Application Submission in November 2012. Prior consultation efforts had been carried out by Acciona in 2010 and 2011; however these consultation efforts are not included in this document as the Project was redefined and the process re-initiated. Further consultations/communications are planned through ongoing development, proposed construction, operations, and decommissioning phases of the Project.

The following sections describe the key consultation activities that were undertaken to date and the proposed activities that are planned for the future. Comments received from Aboriginal communities, Municipalities, agencies, stakeholders, the general public and landowners within the Project Location, have significantly influenced the layout of wind turbines and associated infrastructure since the beginning of the REA process in 2011.

The objectives of the Project public, agency, Municipal and Aboriginal consultation process are:

- To undertake consultation early in the planning process and continue throughout the construction, operation and decommissioning phases of the Project;
- Identify potentially interested stakeholders and the nature of their interests;
- Obtain data and to identify issues associated with the Project;
- Inform stakeholders of all relevant information about the Project and how the Project might affect the physical, natural, social and economic environment in the community; and
- Track and document all communications between stakeholders and the Project team to ensure stakeholder interests are considered in the planning, design, construction, and operation of the wind facility, wherever possible.

Since Project initiation, various forms of consultation have taken place to achieve these objectives. A detailed account of these activities is outlined in the following sections, and includes:

- Discussions with the Municipality of Kincardine, Bruce County, and provincial and federal agencies;
- Discussions with Aboriginal communities (for the purposes of this report, Aboriginal communities include First Nations and Métis Councils);
- Notifications published in the local newspaper;
- Direct mailings to the Project mailing list;
- Public Meetings;
- Public Meeting comment forms (review of comments and the issuing of responses to them);
- Discussions with local landowners;
- Discussions with community members;



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- The release of the REA technical documents to the public, agencies, and Aboriginal communities for review and comment;
- Contact information for Armow Wind Project; and
- A Project website (www.armowwind.com).

Recognizing the unique character of the area and the inherent challenges of consulting and engaging such a diverse population, the Proponent voluntarily undertook additional activities to keep the public informed and engaged, including:

- Establishing a local Project Office;
- Staffing the Project Office with a local community liaison;
- Presenting to Municipal Council;
- Establishing and participation in a Municipal Ad-Hoc Committee;
- Establishing Information booths at local public events;
- Joining local organizations; and
- Sponsoring and attending local community events and initiatives.

2.1 Developing Stakeholder and Aboriginal Community List

A Project stakeholder and Aboriginal community list (Appendix A.1) was established early in Project development to identify potential stakeholders with a potential interest in the Project. The contact list included federal and provincial agencies, elected officials, municipal staff, special interest groups, Aboriginal contacts and all landowners within 550 metres of the Project Location. The full contact list is available upon request but has not been included in this report to protect such private information as names, addresses, email addresses and phone numbers. Relevant agencies were included on the stakeholder list based on the Technical Guide for Renewable Energy Approvals (MOE, 2010).

The Proponent requested a list of Aboriginal communities who have or may have constitutionally protected aboriginal or treaty rights that may be adversely affected by the Project, or otherwise have an interest in the Project. On December 15, 2011, the MOE confirmed the list of Aboriginal communities to be consulted (Appendix E.1).

The Project stakeholder and Aboriginal community list was continually updated throughout the REA processes. Additions to the stakeholder and Aboriginal community list occurred primarily as a result of attendance at Public Meetings but also through direct communication with stakeholders.



2.2 Notifications

Notices were sent to the public, the Municipality, relevant agencies and Aboriginal communities to provide Project information, locations and times of Public Meetings, and locations of Project information and draft reports.

Notices were prepared according to the template provided in *Technical Guide to Renewable Energy Approvals* (MOE, 2011) and were distributed in accordance with O. Reg. 359/09. For some notices, the extent of distribution covered a larger physical area than required. The contact list used for Notice distribution is provided in Appendix A.1 which includes all required Aboriginal, Municipal, County and Agency contacts.

2.2.1 Combined Notice to Engage in a Project and Notice of First Public Meeting

In the early stages of Project development, a Notice to Engage in a Project was circulated to inform the Public of the Proponent's intent to seek a renewable energy approval for the Project. The Notice of Proposal to Engage in a Project was combined with the Notice of First Public Meeting, as permitted in O. Reg. 359/09, as amended. A copy of the combined Notice is provided in Appendix A.2.

The Notice provided the locations that the draft Project Description Report was made available for public review and comment. The Notice was posted on the Project website (www.armowwind.com) and also published in the Kincardine News on two separate dates. The first publication was on November 8, 2011 more than 30 days before the meeting on December 13, 2011. The second Notice was published on December 7, 2011. This Notice also appeared in the Kincardine Independent. The Notices, as they appeared in the newspaper, are provided in Appendix A.2.

A direct and unaddressed mailing was undertaken to all recipients listed in O. Reg. 359/09, as amended, Section 15(6).5. The direct mailing of the Notice was provided to municipalities, government agencies and Aboriginal communities, as detailed in the stakeholder distribution list provided in Appendix A.1. An addressed mailing of the Notice was sent to all assessed landowners within 120 m of the Project Location and an unaddressed mailing of the Notice based on postal codes (listed in Table 2) to all landowners within 550 m of the Project Location.

Table 2: Distribution of Combined Notice to Engage and First Public Meeting

Date	Distribution	Recipient
November 8, 2011	Notice published in Kincardine News	Residents of local municipality
November 8, 2011	Assessed Landowner Mailing	Mailing list of every assessed landowner within 120 m of the Project Location provided by Bruce County
	Unaddressed Postal Code Mail Drop	Tiverton N0G 2T0 Ripley N0G 2R0 Paisley N0G 2N0 Walkerton N0G 2V0



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Date	Distribution	Recipient
	Direct Mailing of Notice	Stakeholder list (provided in Appendix A.1)
December 7, 2011	Notice published in Kincardine Independent	Residents of local municipality

2.2.2 Notice of Draft Site Plan Report

The distribution of a Notice of a Draft Site Plan Report and the Project itself are subject to provisions of O. Reg. 359/09, as amended. In accordance with section 54.1 of the Regulation, the Draft Site Plan Report depicts the following:

- Existing roads situated within 300 metres of the renewable energy generation facility;
- Wind turbines and transformer substations required in respect of the renewable energy generation facility; and
- Any noise receptors that may be negatively affected by the use or operation of the renewable energy generation facility.

In accordance with the Regulation, a written copy of the Draft Site Plan Report was made available for public inspection, as of August 11, 2012 at the following document review locations:

- Tiverton and Kincardine branches of the Bruce County Public Library (56 King Street, Tiverton and 727 Queen Street, Kincardine);
- Bruce County and Kincardine municipal offices (30 Park Street, Walkerton and 1475 Concession 5, R.R. #5, Kincardine);
- The main offices of the Métis Nation of Ontario - lands, resources and consultation office (355 Cranston Cr., Midland);
- The Saugeen Ojibway Nation (35 Lakeshore Rd., Wiarton);
- The Saugeen First Nation (6493 highway 21, R.R.#1, Southampton);
- The Chippewas of Nawash unceded First Nations (R.R.#5, Wiarton);



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- Great Lakes Métis Council (380 9th Street East, Owen Sound); and
- The Historic Saugeen Métis (204 High St., Box 1492, Southampton).

The Notice of Draft Site Plan Report was advertised in The Kincardine News on August 7, 2012. Upon further review, it was determined that the Notice published on August 7, 2012 did not sufficiently detail the legal effects of issuing the Draft Site Plan. As a result, an additional updated Notice was published in the Kincardine News on August 21, 2012. A copy of both Notices is provided in Appendix A.3. The Notice included the locations that the draft Site Plan Report was made available for public review and comment. The Notice was also posted on Armow Wind website (www.armowwind.com).

A direct and unaddressed mailing was undertaken to all recipients listed in O. Reg. 359/09, as amended, Section 15(6).5. The direct mailing of the Notice was provided to municipalities, government agencies and Aboriginal communities, as detailed in the stakeholder distribution list provided in Appendix A.1. A Notice was also provided to all assessed landowners within 120 m of the Project Location.

The unaddressed mailing of the Notice, based on postal codes (listed in Table 3) was sent to ensure that all landowners within 550 m of the Project Location were notified.

Table 3: Distribution of Notice Draft Site Plan Report

Date	Distribution	Recipient
August 7, 2012	Notice published in Kincardine News (Kincardine Independent was not circulated this week due to the long weekend)	Residents of local municipality
August 13, 2012	Assessed Landowner Mailing	Mailing list of every assessed landowner within 120 m of the Project Location provided by Bruce County
	Unaddressed Postal Code Mail Drop	Tiverton N0G 2T0 Ripley N0G 2R0 Paisley N0G 2N0 Walkerton N0G 2V0
	Direct Mailing of Notice	Stakeholder list (provided in Appendix A.1)
August 21, 2012	Updated Site Plan Notice published in Kincardine News	Residents of local municipality



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Date	Distribution	Recipient
August 23, 2012	Updated Site Plan Notice - Assessed Landowner Mailing	Mailing list of every assessed landowner within 120 m of the Project Location provided by Bruce County
	Updated Site Plan Notice - Unaddressed Postal Code Mail Drop	Tiverton N0G 2T0 Ripley N0G 2R0 Paisley N0G 2N0 Walkerton N0G 2V0
	Updated Site Plan Notice - Direct Mailing of Notice	Stakeholder list (provided in Appendix A.1)

2.2.3 Notice of Final Public Meeting and Publication of Draft Reports

The Notice of Final Public Meeting was advertised in the Kincardine News and the Kincardine Independent on September 11 and September 12, 2012 respectively. A copy of the Notices as they appeared in these newspapers is provided in Appendix A.4. The Notice included the locations that the draft REA Reports were made available for public review and comment. The advertisement was also posted on the proponent's website (www.armowwind.com).

A direct and unaddressed mailing was undertaken to all recipients listed in O. Reg. 359/09, as amended, Section 15(6).5. The direct mailing of the Notice was provided to municipalities, government agencies and Aboriginal communities, as detailed in the stakeholder distribution list provided in Appendix A.1. A Notice was also provided to all assessed landowners within 120 m of the Project Location. The unaddressed mailing of the Notice, based on postal codes (listed in Table 4) was sent to ensure that all landowners within 550 m of the Project Location were notified.

An additional Notice for the Final Public Meeting was advertised in the Kincardine News and the Kincardine Independent on October 16 and 17, 2012, respectively. The Notices as they appeared in the paper are provided in Appendix A.4. The Notices included the locations where the draft REA reports were available for public review and comment.

Table 4: Distribution of Notice of Report Publication and Final Public Meeting

Date	Distribution	Recipient
September 11, 2012	Notice published in Kincardine News	Residents of local municipality
	Assessed Landowner Mailing	Mailing list of every assessed landowner within 120 m of the Project Location provided by Bruce County
	Unaddressed Postal Code Mail Drop	Tiverton N0G 2T0 Ripley N0G 2R0



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Date	Distribution	Recipient
		Paisley N0G 2N0 Walkerton N0G 2V0
September 11, 2012	Direct Mailing of Notice	Stakeholder list (provided in Appendix A.1)
September 12, 2012	Notice published in Kincardine Independent	Residents of local municipality

Table 5: Second Notice of Final Public meeting

Date	Distribution	Recipient
October 16, 2012	The Kincardine News	Residents of local municipality
October 17, 2012	The Kincardine Independent	

In addition to communicating the date and location of the Public meeting, the Notice of Final Public Meeting and Publication of Draft Reports indicated that the Draft REA Reports (excluding the Consultation Report) were available for public review. The Draft REA Reports were provided on September 6, 2011 for a 60-day public review period, and included:

- Draft Project Description Report;
- Draft Construction Plan Report;
- Draft Design and Operations Plan Report;
- Draft Decommissioning Report;
- Draft Wind Turbine Specifications Report;
- Draft Noise Impact Assessment
- Draft Natural Heritage Assessment Report;
- Draft Water Bodies Report;
- Draft Heritage Resource Assessment Report; and
- Draft Stage 1 and 2 Archaeological Assessment Reports.



These reports were made available at the document review locations identified above, the local Project Office, and on the Project website.

2.2.4 Notice of Submission of Renewable Energy Approval Application

In accordance with Section 15.1 and 15.2 of O. Reg. 359/09, as amended, the Proponent will post all application reports on the Project website (www.armowwind.com). Within 10 days of a notice of the proposal for a renewable energy approval in respect of the renewable energy project being posted on the environmental registry, referred to in section 5 of the *Environmental Bill of Rights, 1993*, the Proponent will publish a notice that includes the following:

- 1) The name of the person proposing to engage in the renewable energy project;
- 2) A brief description of the renewable energy project;
- 3) A map identifying the project Location;
- 4) The address of the website where project reports are posted; and
- 5) A statement that a proposal for a renewable energy approval in respect of the renewable energy project has been posted on the environmental registry referred to in section 5 of the *Environmental Bill of Rights, 1993* and that comments in respect of the proposal may be submitted to the Director. O. Reg. 521/10, s. 7.

The Notice will appear in the Kincardine News and the Kincardine Independent.

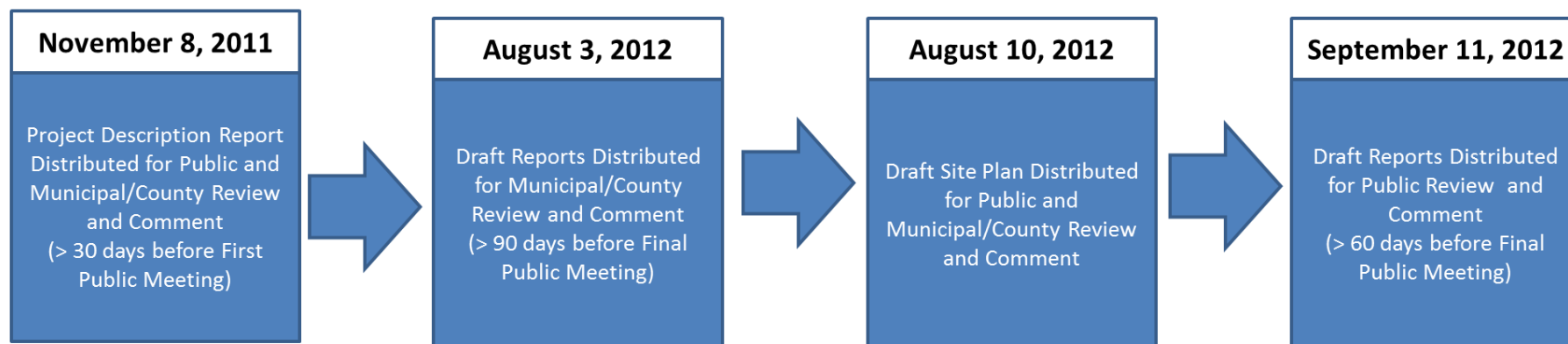
2.3 Report Distribution

The previous sections of this Report have detailed how reports were distributed to each the public, municipalities and the required Aboriginal communities. By providing a copy of the Notices that preceded each report distribution, it has been demonstrated that the required documents were made available to each stakeholder group as required by O. Reg. 359/09. This section summarizes report distribution, which is outlined in Figure 2 below.



Figure 2: Report Distribution Timeline

Public/Municipal Report Distribution



Aboriginal Report Distribution





2.4 The Proponent's Presence in the Community

2.4.1 Local Project Office

As a result of public interest in the Project, the Proponent opened a local office in Kincardine at 322 Lambton Street in June 2012. The office provided an additional avenue for local stakeholders to ask questions and comment on the Project. The office is staffed by a local community liaison that is available three days a week to assist anyone who wishes to learn more about the Project.

2.4.2 Community Involvement

In addition to communicating Project information to the public, the Proponent has been playing an active role in the community through support of local groups and initiatives, including:

- The Penetangore Watershed Group;
- Kincardine Women's Triathlon;
- Fish Kincardine Salmon Derby;
- Kincardine Scottish Festival & Highland Games;
- The Bluewater Summer Playhouse;
- The Tiverton Agricultural Society;
- The Kincardine Chamber of Commerce;
- Women's House Serving Bruce & Grey;
- The Kincardine Bulldogs;
- The Kincardine Family Health Team Cardiac Rehabilitation Unit;
- Community Living Kincardine & District;
- The Elgin Market Public School;
- Kincardine & Community Health Care Foundation;
- The Royal Canadian Legion Kincardine Branch 183;
- SON Golf Tournament;
- Safety Village;
- Christmas Parade; and
- Local business support initiatives.



3.0 PUBLIC CONSULTATION

3.1 Direct communications with public stakeholders

The Project website and all Project Notices provided contact information for members of the Project Team to allow public stakeholders the opportunity to ask questions and express support or concerns about the Project. Project Notices also included a Project email address (info@armowwind.com). The local Project Office also provided an opportunity for the Public to provide comments and ask questions.

Table 6 provides a summary of the one-on-one communications and correspondence between Armow Wind and public stakeholders. Personal information of public stakeholders has been omitted to protect the privacy of those who have provided comments.

Comments provided at Public Meetings are summarized separately in Section 7.0.

Table 6: Direct Communications with Public Stakeholders

Date	Method of Communication	Stakeholder Participant	Communication Summary
August 25, 2011	Presentation	Landowners	Introduction to the Project and Project Team and description of field work, Project benefits, next steps, roles and responsibilities.
August 26, 2011	Face-to-Face	Landowners	Layout consultation, site suitability assessment and fieldwork coordination. Duration approximately 4 months. Included onsite consultation and turbine site selection.
October 7, 2011	Email	Stakeholder #1	Stakeholder request for Project map.
October 11, 2011	Email	Stakeholder #1	Proponent responds to Stakeholder #1 via email to meet and discuss the request for a Project map.
November 2, 2011	Email	Stakeholder #2	Project status, planned expansion over former Acciona Project, location of turbines, outstanding studies, future planned meeting dates.
November 3, 2011	Email	Stakeholder #2	Response to Stakeholder #2's email. Provided information on upcoming release of the draft Project Description Report, indicated that the layout has not been finalized, provided update on current status of Project.
November 9, 2011	Email	Stakeholder #2	Questions about previous correspondence with Proponent, believes that construction has already started as she is seeing fields being plowed, raised concerns about potential health impacts due to wind turbines.
November 9, 2011	Email	Stakeholder #2	Response to Stakeholder #2's email. Clarified that construction has not begun and that field plowing is for the permitting process and various studies (i.e., Archaeological Assessments). Offered to meet for further discussion.
November 9, 2011	Email	Stakeholder #2	Appreciative of the open dialogue. Does not agree with supplying energy via wind turbines. Feels Samsung is getting synergistic advantages from the development of



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Date	Method of Communication	Stakeholder Participant	Communication Summary
			the Project. Raised concerns regarding changes to lifestyle with development of the Project (i.e., views during the night with the blinking lights on top of the turbines).
November 9, 2011	Email	Stakeholder #2	Response to Stakeholder #2's email. Samsung will not benefit from synergistic advantages as the wind turbines will be manufactured by Siemens and are amongst the best in class. Siemens will also be opening 4 manufacturing facilities in Ontario.
November 9, 2011	Email	Stakeholder #2	Feels there is common ground for future discussions and looks forward to a future meeting.
November 11, 2011	Email	Stakeholder #3	Stakeholder forwarded CTV broadcast to Proponent.
November 11, 2011	Email	Proponent's response to Stakeholder #3	Proponent response to CTV clip thanking stakeholder for forwarding.
November 14, 2011	Email	Stakeholder #4	Concerned about a number of issues and potential impacts related to the Project: doubling of Project size (compared to previous Acciona Project); lifestyle, birds, night sky view shed, electricity prices, property values, human health, shadow flicker, stray voltage, noise, vibrations, location of Project vs. demand in cities, role of municipalities in Green Energy Act.
November 14, 2011	Email	Stakeholder #5	Requesting information about the Project and upcoming consultation activities.
November 14, 2011	Email	Stakeholder #2	Follow-up email regarding release of draft Project Description report availability.
November 14, 2011	Email	Stakeholder #2	Response to Stakeholder #2. Provided draft Project Description report, link to Project website and information where hard copies were available for review.
November 15, 2011	Email	Stakeholder #5	Response to Stakeholder #5. Provided Project website, information on upcoming Public Meeting, link to Project mailing list, information on upcoming local Project Office opening.
November 15, 2011	Email	Stakeholder #5	Appreciative of links provided, will be attending upcoming Public Meeting (December, 2011).
November 15, 2011	Letter	Stakeholder #2 on behalf of the Armow Citizens Group	Concerns about public participation, adverse health effects, adverse environmental effects, intensification of Project size, setbacks, land use, noise, local infrastructure, stray voltage, health and safety, groundwater, tree preservation, emergency response, complaint protocol, consumer protection.
November 21, 2011	Email	Stakeholder #2 on behalf of the Armow Citizens Group	Email in response to review of the draft Project Description Report.



ARMOW WIND PROJECT

Date	Method of Communication	Stakeholder Participant	Communication Summary
November 23, 2011	Email	Stakeholder #3's letter to the editor	Stakeholder forwarded letter to the editor in support of wind to Proponent.
November 24, 2011	Email	Stakeholder #6	Stakeholder request for Project information.
November 24, 2012	Email	Stakeholder #6	Email response to Stakeholder #6 providing requested information.
November 25, 2011	Email	Canadian Federation of University Women	Email and attached letter from the Canadian Federation of University Woman Kincardine Committee.
November 28, 2011	Email	Stakeholder #7	Offering to sell vacant land to Project.
November 29, 2011	Face-to-face	Landowners	Holiday dinner for landowners. Project presentation, upcoming events.
December 3, 2011	Email	Stakeholder #2	Requesting PowerPoint presentation given to council and follow-up on previous letter.
December 4, 2011	Email	Stakeholder #8	Stakeholder forwarded information about livestock and wind facilities to Proponent in support of Project.
December 5, 2011	Email	Stakeholder #7	Response to Stakeholder #7. The vacant land falls outside of the Project boundary and hence cannot be used for the Project.
December 5, 2011	Email	Stakeholder #4	Response to Stakeholder #4. Bird and bat surveys will be conducted including migratory path analysis and habitat surveys, monitoring will continue for 3 years post-construction phase. Mitigation measures will be used to reduce impacts where they are identified. Flashing lights at night on top of the wind turbines is a safety feature required by Transport Canada. Electricity price increases are not entirely due to wind energy production. Property values have not been shown to be directly affected by wind turbine developments. Human health impacts are not supported by the literature. The location of the Project was chosen due to the excellent wind resource. Wind development provides widespread benefits to all of Ontario.
December 5, 2011	Email	Stakeholder #2	Response to Stakeholder #2. Provided link to download the PowerPoint presentation given to Kincardine Municipal Council. Indicated that a response to her letter was being developed.
December 7, 2011	Email	Stakeholder #8	Stakeholder email to advise Proponent that they made a good presentation to Kincardine Council especially regarding housing values.
December 8, 2011	Face-to-face	Stakeholder #1	Met with stakeholder who raised concerns regarding potential impacts to property values, setbacks, potential health effects and effects to the Amish community,



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Date	Method of Communication	Stakeholder Participant	Communication Summary
			Stakeholder requested a written guarantee that the Project would have absolutely no impact on their life.
December 9, 2011	Email	Stakeholder #9	Stakeholder request for Project map, setback requirements, and property values.
December 11, 2011	Email	Central Bruce Grey Wind Concerns	Email from Central Bruce Grey Wind Concerns advising contacts of December 13, 2011 Public Meeting in Kincardine
December 11, 2011	Email	Stakeholder #10	Requesting number of turbines that will be used in the Project.
December 11, 2011	Email	Stakeholder #10	Response to Stakeholder #10. Indicated that there are 90 proposed wind turbines for the Project. Provided Project website for additional information.
December 21, 2011	Email	Stakeholder #1	Stakeholder request for map and inquiry regarding infrasound study.
December 21, 2011	Email	Stakeholder #11	Praise of Public Meeting. Offered to facilitate local co-operative participation in the Project.
December 23, 2011	Email	Stakeholder #1	Email response to Stakeholder #1 inquiry regarding infrasound study.
December 23, 2011	Email	Stakeholder #11	Response to Stakeholder #11. Will continue to discuss and evaluate co-operative participation.
January 9, 10, 2012	Face-to-face	Farming community and Amish community members	Set up booth at Bruce-Grey Farmers Week in Hanover. Provided general information about the Project and Samsung and Pattern.
January 11, 2012	Email	Stakeholder #12	Stakeholder email updating Proponent about footage taken for documentary and Penetangore Watershed committee meeting regarding sponsorship opportunities.
January 12, 2012	Email	Stakeholder #12	Email response from Proponent requesting additional information.
January 12, 2012	Email	Stakeholder #12	Stakeholder follow-up on how Proponent can get involved.
January 16, 2012	Email	Proponent's response to Stakeholder #1's email from December 21, 2011	Proponent response to map request. Advised that layout is still being finalized and will follow-up when mapping is available.
January 17, 2012	Email	Stakeholder #1's response to Proponent's Jan 16 email	Stakeholder follow-up regarding infrasound study.
January 23,	Email	Proponent's	Proponent follow-up with map request and infrasound



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Date	Method of Communication	Stakeholder Participant	Communication Summary
2012		response to Stakeholder #1's email from Jan 27, 2011	study.
February 6, 2012	Email	Stakeholder #13	Stakeholder request to know if seasonal residence is being considered in Project studies.
February 6, 2012	Email	Stakeholder #13	Proponent response to confirm that residence is being considered in Project analysis.
February 6, 2012	Email	Stakeholder #13	Stakeholder email to thank Proponent for information.
February 6, 2012	Email	Stakeholder #6	Stakeholder forwarded newspaper article about Project support.
February 11, 2012	Email	Stakeholder #14	Request for Sponsorship.
February 13, 2012	Telephone	Stakeholder #15	Lease payments question.
February 24, 2012	Face-to-face	Journalism student	<i>Green Energy Act</i>
February 29, 2012	Face-to-face	8 Local Applicants	Interviews for 8 of 40 applicants for the Community Liaison position to staff a local Project Office.
March 1, 2012	Face-to-face	3 Local Applicants	Interviews of applicants for the Community Liaison position to staff a local Project Office.
March 13, 2012	Face-to-face	Stakeholder #11	Partnering opportunities with Community Co-op.
March 13, 2012	Face-to-face	Landowners	Project update, Q&A, obtain feedback from landowners, airport vicinity, opposition to the Project.
March 15, 2012	Email	Stakeholder #16	Kincardine Times requesting response to ad hoc committee's concern about Kincardine Airport.
March 15, 2012	Email	Stakeholder #16	Airport vicinity of Project.
March 17, 2012	Email	Stakeholder #16	Response to Stakeholder #16. Project does not want to interfere with airport operations, is awaiting feedback from NavCanada.
March 17, 2012	Email	Stakeholder #16	Requesting feedback from NavCanada once it is received.
April 2, 2012	Email	Stakeholder #12	Stakeholder email to advise of tree planting activities and local stakeholders involved.
April 3, 2012	Email	Stakeholder #12	Proponent interest in sponsoring Penetangore Watershed Group, Grade 4 and 8 student native restoration of stormwater pond.
April 19, 2012	Email	Penetangore Watershed Group	Stakeholder follow-up regarding Penetangore Watershed Group sponsorship.
April 19,	Email	Proponent's	Proponent response to Penetangore Watershed Group



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Date	Method of Communication	Stakeholder Participant	Communication Summary
2012		response to Penetangore Watershed Group	expressing interest in sponsoring.
April 20, 2012	Phone	Penetangore Watershed Group	Proponent call with Penetangore Watershed Group regarding sponsorship.
April 24, 2012	Telephone	Stakeholder #11	Community co-op opportunities.
April 27, 2012	Email	Penetangore Watershed Group	Stakeholder picture forwarded of sponsored tree planting activities with Penetangore Watershed Group and Kincardine public and high school.
April 28, 2012	Email	Penetangore Watershed Group	Stakeholder follow-up with formal letter requesting sponsorship for restoration of stormwater pond.
May 14, 2012	Email	Penetangore Watershed Group	Penetangore Watershed Storm Pond Sponsorship, request to logo.
May 15, 2012	Email	Proponent's response to Penetangore Watershed Group	Sponsorship Logo sent for Penetangore Watershed sponsorship.
May 24, 2012	Email	Stakeholder #17	Proponent advising that it is difficult to support Project if councils questions cannot be answered.
May 25, 2012	Email	Community Living Kincardine and District	Stakeholder request for phone conversation.
May 25, 2012	Email	Proponent's response to Community Living Kincardine and District	Proponents response for phone conversation.
May 28, 2012	Email	Chantry Chinook Classic Salmon Derby	Sponsorship opportunities at the Chinook Classic Salmon Derby.
May 30, 2012	Email	Stakeholder #18	Question regarding carbon dioxide production and spinning reserve capacity.
June 4, 2012	Email	Proponent's response to Stakeholder #18's May 30 email	Proponent answer to the factors that impact the amount of carbon dioxide regarding spinning reserve capacity.
June 8,	Email	Stakeholder #1	Follow-up email to January 23, 2012 email regarding



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Date	Method of Communication	Stakeholder Participant	Communication Summary
2012			Project layout map.
June 10, 2012	Email	Proponent's response email to Stakeholder #1's Jun 8	Proponent follow-up with stakeholder regarding requested map. Proponent advised that layout is still undergoing modifications and they will send map when it is finalized.
June 13, 2012	Email	Proponent's response to Stakeholder #66	Response to Stakeholder #66.
July 10, 2012	Face-to-face	Landowners	Project update.
July 12, 2012	Email	Saugeen Real Estate Brokerage	Requesting map showing turbine locations.
July 12, 2012	Email	Proponent's response to Saugeen Real Estate Brokerage	Proponent's response to Saugeen Real Estate Brokerage. The turbine layout is undergoing various environmental and biological analyses and changes with the final layout expected in the next 4-6 weeks.
July 15, 2012	Email	Penetangore Watershed Group	Email from Penetangore Watershed Group thanking Proponent for support in 2012 tree planting activities.
July 17, 2012	Email	Bluewater Summer Playhouse	Invitation to performance and an invitation to meet and discuss partnership agreement.
July 18, 2012	Email	Stakeholder #1	Requesting map of Project Area.
July 22, 2012	Face-to-face	Stakeholder #1	Brought map to her home and discussed the Project Area.
July 27, 2012	Email	Proponent follow-up with Stakeholder #1	Proponent follow-up with stakeholder regarding layout, proposed in-person meeting to discuss concerns.
July 27, 2012	Email	Stakeholder #1	Project layout and setting up a meeting to discuss the layout. Potential impacts of sound and release of draft Site Plan report.
July 28, 2012	Email	Proponent follow-up with Stakeholder #1	Proponent follow-up regarding studies undertaken on property.
July 28, 2012	Email	Stakeholder #1 response to Proponent's July 28 email	Stakeholder inquiry regarding studies undertaken on property.
July 28, 2012	Email	Proponent's response to Stakeholder #1	Proponent confirmation of study area of property.
July 28,	Email	Stakeholder #1	Question regarding effects on her family as she



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Date	Method of Communication	Stakeholder Participant	Communication Summary
2012			homeschools her children and works from home. Questions about infrasound.
July 28, 2012	Email	Proponent's response to Stakeholder #1	Response to Stakeholder #1 providing requested information.
July 29, 2012	Email	Stakeholder #1's response to Proponent's July 28 email	Stakeholder thanking Proponent for providing requested study area information.
August 1, 2012	Face-to-face	Community Living	Requesting sponsorship for Community Living. Was asked to submit a request in writing.
August 1, 2012	Telephone	Stakeholder #19	Could not access the draft Site Plan report on the Project website. A copy was printed and hand delivered to his home.
August 2, 2012	Face-to-face	Stakeholder #20	Requesting new maps and any additional information. Was told that the new Draft Site Plan is not available yet, when available it will be posted to the Project website.
August 2, 2012	Face-to-face	Enbridge	Welcome to the neighbourhood.
August 2, 2012	Face-to-face	Stakeholder #21	Request for sponsorship. Was told it will be discussed.
August 3, 2012	Face-to-face	Lions Club	Requesting sponsorship of Lions Club Splash Pad.
August 7, 2012	Email	Stakeholder #22	Inquiry as to what it will take to stop the Project. Feels the farmers are suffering and that SP is 'getting away' with something by developing the Project.
August 8, 2012	Face-to-face	Stakeholder #1, Stakeholder #24	Q&A about the wind industry, stakeholder #1 provided a map showing Project infrastructure within 1.5 kilometres of his home.
August 10, 2012	Email	Proponent's response to Stakeholder #22	Response to Stakeholder #22. Recognizing the immense role that the farming community plays in the development of projects such as this one. The Project has committed to some of the strictest regulations in North America. There is a lot of local support for the Project and the Proponent is striving to create a Project from which all will benefit.
August 10, 2012	Email	Stakeholder #23	Requesting map of studied area to be emailed to him.
August 10, 2012	Email	Stakeholder #22	How will those employed at the nuclear plant benefit?
August 11, 2012	Letter	Armow Citizens Group	Response to letter from Armow Citizens Group. Detailed point by point response to original letter. Responded to questions regarding: information in the draft Project Description report, consultation, noise, adverse environmental effects, energy sources, intensification of the Project in size, pulse train, cumulative effects on



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Date	Method of Communication	Stakeholder Participant	Communication Summary
			wildlife and land use, setbacks, Kincardine airport, helicopter access, setbacks for hamlets, expansion of buffer zones, loss of agricultural land, Glamis bog and Greenock swamp, long term effects on wildlife habitat, decommissioning, stray voltage, public health and safety, greenhouse gas emissions, groundwater, emergency response and complaint protocol.
August 12, 2012	Email	Stakeholder #13	Stakeholder request to review seasonal residence and distance to proposed turbine.
August 12, 2012	Email	Proponent's response to Stakeholder #23	Responding to Stakeholder #23. Draft Site Plan is available on the Project website, link provided.
August 12, 2012	Email	Stakeholder #22	Responding to Proponent's response email. More energy is not needed for Ontario's electrical grid, importing of fuel is not true, scientific uncertainty around environmental benefits of wind, wind turbines are not compatible with agriculture, agrees that the Project will create jobs and income, there are no planned fossil fuel plants or nuclear plants as there is not the demand, all energy production costs money and there are very few coal plants left to compare with wind. Would like to know how much taxes are paid per windmill.
August 13, 2012	Email	Proponent's response to Stakeholder #13's August 12 email	Proponent response to review of seasonal residence. Proponent sent aerial photo to clarify outbuildings on property.
August 14, 2012	Email	Stakeholder #13 email response to Proponent's August 13 email	Stakeholder review of aerial photo and confirmation of outbuildings on seasonal property.
August 16, 2012	Face-to-face	Kincardine Lions Club	Presented proposal for sponsorship of Lions Splash Pad 2013.
August 16, 2012	Telephone	Stakeholder #24	Mail addressed incorrectly, follow-up to previous concerns.
August 16, 2012	Face-to-face	Bluewater SP	Requesting sponsorship for Bluewater SP for 2013.
August 17, 2012	Email	Stakeholder #25	Mention that company is based out of Toronto and web site mentions benefits but not health problems and devaluing local house prices.
August 17, 2012	Email	Stakeholder #26	Inquiry as to why some wind turbines are within the 2.75 kilometre municipal setback.
August 18, 2012	Email	Stakeholder #27	Stakeholder email requesting cost and payback numbers for the Project.
August 19,	Telephone	Stakeholder #28	Requesting meeting with Amish community members.



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Date	Method of Communication	Stakeholder Participant	Communication Summary
2012			
August 19, 2012	Email	Proponent's response to Stakeholder #22	Response to Stakeholder #22. Recognizing the immense role that the farming community plays in the development of projects such as this one. The Project has committed to some of the strictest regulations in North America.
August 19, 2012	Email	Proponent's response to Stakeholder #26	Response to Stakeholder #26. The Proponent has been working with the Municipal Ad-Hoc Committee over the last 8 months to accommodate setbacks in Armow and Glammis to the extent possible.
August 20, 2012	Telephone	Proponent's response to Stakeholder #28	Response to Stakeholder #28. Would like to meet but must wait until furniture arrives at Project Office to properly host meeting.
August 20, 2012	Face-to-face	Stakeholder #29	Requesting Project information. Was given all current CANWEA info sheets.
August 20, 2012	Face-to-face	Stakeholder #30	Requesting Project information. Was given all current CANWEA info sheets.
August 20, 2012	Face-to-face	Stakeholder #31	Requesting Project information. Was given all current CANWEA info sheets.
August 20, 2012	Email	Stakeholder #22	Agrees to disagree and declined offer to set up a planned meeting.
August 20, 2012	Email	Stakeholder #26	Respectfully disagrees with the Proponent's response and will take the issue to the Municipal Planning Department and Municipal Ad Hoc Committee.
August 20, 2012	Email	Stakeholder #25	Project website details benefits but not health problems or the cost of devaluing local house prices. Suggests building the Project in Toronto. Feels it takes more energy to construct the wind turbines than they will ever return and the difference will be made in taxpayer subsidies.
August 20, 2012	Face-to-face	Members of the public	Set up booth at Chamber of Commerce street event 'Market on Queen' hosted by the BIA, handed out fact sheets and discussed the Project.
August 21, 2012	Telephone	Stakeholder #32	Would like to know the extent of government subsidies for the Project, lifespan of the Project and efficiency of wind turbines i.e., what percentage of time they run.
August 21, 2012	Telephone	Stakeholder #33	Inquiry if the Proponent is looking for housing for workers. Was told not at this time but has been put on list for future reference if need arises.
August 22, 2012	Face-to-face	Stakeholder #34	Inquiry regarding people living within a mile of the Project receiving compensation. Requesting a copy of the draft proposal and map. Was told that there is no answer to the compensation question yet and that the draft Site Plan report is available on the Project website.
August 23,	Email	Stakeholder #35	Stakeholder email advising Proponent that they feel it is irresponsible to move forward with Project until health



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Date	Method of Communication	Stakeholder Participant	Communication Summary
2012			studies are completed.
August 23, 2012	Email	Stakeholder #35	Believes it is irresponsible to move forward with the Project until health studies have been completed.
August 23, 2012	Telephone	Stakeholder #40	Local concrete company asking to be put on potential contractor list.
August 24, 2012	Email	Proponent's response to Stakeholder #35	Response to Stakeholder #35. The evidence of numerous existing studies does not indicate any need to stop Project development.
August 24, 2012	Telephone	Stakeholder #21	Requesting sponsorship for Legion.
August 24, 2012	Telephone	Stakeholder #36	Requesting Project presentation for Probus Club Meeting on October 16, 2012.
August 26, 2012	Email	Proponent's response to Stakeholder #26	Response to Stakeholder #26. Setbacks must adhere to Provincial O.Reg. 359/09 which requires some of the strictest setbacks and the Project must consider a wide variety of factors.
August 26, 2012	Email	Lake Huron Fishing Club	Requesting sponsorship. Was asked to send through a proposal.
August 27, 2012	Telephone	Stakeholder #37	Issues around Notice of draft Site Plan Report and updated draft site plan report and viewing period.
August 28, 2012	Telephone	Stakeholder #38	Inquiry regarding new contracts.
August 28, 2012	Telephone	Stakeholder #21	Response to Stakeholder #21. Sponsorship of Legion will be looked into.
August 28, 2012	Face-to-face	Stakeholder #39	Requesting information about wind projects and property (as she is trying to sell a property). Was given all CANWEA info sheets.
August 29, 2012	Telephone	Stakeholder #40	Response to Stakeholder #40. Was put on list.
August 29, 2012	Face-to-face	Stakeholder #21	Submitted proposal for Legion sponsorship.
August 29, 2012	Telephone	Stakeholder #36	Confirming presentation to Probus Club on October 16, 2012.
August 29, 2012	Email	Stakeholder #26	Disagrees with previously received response. Feels Municipality is favouring some residents over others.
September 2, 2012	Email	Stakeholder #41	Stakeholder email to advise Proponent that Ontario cannot afford any more green energy.
September 5, 2012	Telephone	Stakeholder #28	Requesting meeting. Was told they would receive a call once the Project Office was ready to host a meeting.
September 5, 2012	Telephone	Stakeholder #42	Recently purchased property and looking for Project information, could not get it from the Project website.
September 6, 2012	Face-to-face	Stakeholder #20	Requesting Project update information. Was provided with Project updates.
September	Face-to-face	Stakeholder #43	Question regarding laydown area for future maintenance



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Date	Method of Communication	Stakeholder Participant	Communication Summary
6, 2012			area.
September 11, 2012	Email	Stakeholder #44	Cheque issued to incorrect person. Will need reissued cheque.
September 11, 2012	Telephone	Stakeholder #24	Requesting reissued cheque. The Proponent requested additional information/documentation before reissuing cheque.
September 12, 2012	Email	Proponent's response to Stakeholder #44	Response to Stakeholder #44. Issue rectified.
September 12, 2012	Telephone	Stakeholder #45	Wanted to know why he received the Notice of draft REA report distribution and final Public Meeting. Was informed that he was included in an unaddressed mail drop based on postal codes near the Project to meet regulatory requirements for consultation.
September 16, 2012	Email with letter attached	The Canadian Federation of University Women, Kincardine Chapter	Chapter has resolved to strongly urge all levels of government to institute a moratorium on the construction of industrial wind turbine developments until evidence-based, impartial, scientific research has identified issues relating to site placement, human health, environmental impacts, economic efficiencies resulting in the development of national, uniform standards and regulations.
September 17, 2012	Email	Stakeholder #46	Inquiry regarding setbacks required by HONI between turbines and corridor hydro line.
September 18, 2012	Telephone	Stakeholder #47	Requesting cheque for plowing that occurred last fall.
September 18, 2012	Email	Stakeholder #48	Change of mailing address. Change was made.
September 20, 2012	Email	Proponent's response to Stakeholder #25	Response to stakeholder #25. Project Location chosen due to excellent wind resource as well as access to transmission capacity. There is no scientific evidence of adverse health effects linked to wind turbine development. Property values are complex and no studies show link between values and wind turbine projects.
September 21, 2012	Email	Stakeholder #49	Stakeholder request for information on turbine modes, setback requirements, proximity of proposed turbines to dwelling and loss of house value.
September 21, 2012	Email	Stakeholder #49	Stakeholder email regarding wrong email address on website.
September 21, 2012	Email	Stakeholder #49	Stakeholder clarification, used email address from other section of website.
September 21, 2012	Email	Stakeholder #49	Notice in newspaper size of map too small. Turbines are located close to his home (7 within 1.5 km, 18-27 within 3 km). Inquiry as to manufacturing safety warning related to turbine erection, if there are Canadian Standards Act



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Date	Method of Communication	Stakeholder Participant	Communication Summary
			inspection numbers for this model of wind turbine, if other Project in Ontario or Canada are using the same turbines. If other Projects are using the same turbines what are the related setbacks? Raised concerns regarding: health and safety, municipal setbacks for hamlets and populated areas, property values, cumulative effects of multiple turbines near a home. Also inquired about the complaint mechanism and wants to know who is ultimately responsible for the Project (the Proponent, individual landowners, Municipality of Kincardine or Provincial government).
September 21, 2012	Email	Stakeholder #49	Website email error sending emails to sender instead of recipient (Armow).
September 21- 22, 2012	Face-to-face	Tiverton community members	Set up booth at the Tiverton Fall fair, handed out CANWEA factsheets and provided Project information, answered questions.
September 22, 2012	Face-to-face	Stakeholder #50	Inquiry as to how neighbours of turbines will be treated, requested Project information. Was told no decisions regarding neighbours have been made.
September 22, 2012	Face-to-face	Stakeholder #51	Requesting to be put on the contractor list. Was added to the list.
September 23, 2012	Email	Stakeholder #52	Stakeholder went to Tiverton Library to obtain a copy of Project plan and was advised that they could not take report home. Stakeholder would like a copy of the report and would like to know when more copies will be made available at the Tiverton library.
September 23, 2012	Email	Stakeholder #53	Stakeholder request for measurements for turbine 108.
September 23, 2012	Email	Stakeholder #35	Believe it is irresponsible to move forward until Canada Health study is complete.
September 24, 2012	Email	Stakeholder #54	Request to be added to the contractor list. Was added to list.
September 24, 2012	Email	Proponent's response to Stakeholder #49	Response to Stakeholder #49. The Draft Site Plan is available on Project website which includes a larger map with more detail. This map will also show turbine locations and their distance from homes. Indicated that the Project will be using Siemens SWT 2.3-101 turbine and in order to receive the manufacturer's warranty all construction and maintenance standards from the manufacturer must be followed. In addition all design and installations will adhere to applicable CSA standards. Requested further information from Jackie regarding 'drafting'. All wake effects will be studied in detail as part of the wind resource assessment. Setbacks are guided by O. Reg. 359/09 as amended. The available peer reviewed scientific literature does not indicate that there is a direct link between wind turbines and human health



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Date	Method of Communication	Stakeholder Participant	Communication Summary
			impacts. Setbacks from hamlets were agreed after 8 months of coordination with the Municipality of Kincardine. Property values are influenced by a number of factors and multiple studies found no evidence of decreased property values due to proximity to wind turbine projects. An upcoming Public Meeting is scheduled for November 12 in Tiverton and Kincardine. Request for further information regarding the dams referred to in Stakeholder #49's original email.
September 25, 2012	Email	Stakeholder #52	Requesting copy of draft REA reports.
September 25, 2012	Email	Proponent's response to Stakeholder #52	Response to Stakeholder #52. Provided Project website where draft REA reports can be viewed and downloaded. Offered to help find any specific information they were looking for.
September 25, 2012	Email	Stakeholder #52	Requesting a hard copy as they do not have a printer capable of printing the maps.
September 27, 2012	Face-to-face	Stakeholder #55	Following up on Sponsorship. Was informed that it has been approved.
September 30, 2012	Email	Stakeholder #18	Inquiry to plans if turbines catch fire and what resources he has if blade debris or ice throw damages his property
October 2, 2012	Email	Proponent's response to stakeholder #49	Proponent response to turbine model, and setback requirements.
October 2, 2012	Email	Proponent's response to Stakeholder #49	Response to Stakeholder #49. Directed Stakeholder to Project website for additional information, document repositories and offered additional help in person at the Project Office.
October 2, 2012	Email	Stakeholder #56	Inquiry regarding plans to build a wind project near Paisley.
October 2, 2012	Email	Proponent's response to Stakeholder #56	Response to Stakeholder #56. Although the Proponent has options on lands in question they have no plans to build in the near future.
October 2, 2012	Email	Proponent's response to Stakeholder #52	Response to Stakeholder #52. Cost of printing documents is in excess of \$3,000 and cannot be printed for individuals. Offered additional viewing locations and support for specific inquiries.
October 3, 2012	Email	Stakeholder #46 follow-up to Sept 17 email	Follow-up email from stakeholder requesting HONI setback requirements.
October 4, 2012	Email	Proponent's Response to Stakeholder #18	Response to Stakeholder #18's September 30, 2012 email.
October 4, 2012	Email	Stakeholder #18	Question regarding insurance if fire damages property and whether Ontario Government is held responsible
October 4,	Email	Proponent's	Response to Stakeholder #18. Provided model of turbine



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Date	Method of Communication	Stakeholder Participant	Communication Summary
2012		response to Stakeholder #18	and informed him that there wouldn't be a fire on the turbine and that if ice forms on the blades they will automatically shut down.
October 4, 2012	Email	Stakeholder #57	Inquiry as to when construction might begin.
October 4, 2012	Email	Proponent's response to Stakeholder #57	Response to Stakeholder #57. Construction is expected to begin late summer 2013.
October 4, 2012	Email	Proponent's response to Stakeholder #46	Response to Stakeholder #46 regarding required setbacks from Hydro One 500 kV transmission corridor within the Project Area. Was directed to Project map on Project website.
October 4, 2012	Telephone	Stakeholder #58	Following up on cheque for spring plowing. Cheque mailed same day and followed up with stakeholder #58 to let her know it had been mailed.
October 5, 2012	Email	Stakeholder #49	Previously reported email error was human error on the part of the user.
October 9, 2012	Email	Proponent's response to Stakeholder #18	Provided details regarding IESO Emergency Preparedness Plan and ice throw.
October 9, 2012	Email	Stakeholder #18	Stakeholder provided response he received from the Municipality of Kincardine Fire Department
October 9, 2012	Email	Proponent's response to Stakeholder #18	Proponent's response regarding ice build up and rare occurrence of fires.
October 9, 2012	Email	Stakeholder #18	Further inquiry as to plans for if a turbine does catch fire and who is responsible for damage caused by ice throw.
October 9, 2012	Email	Proponent's Response to Stakeholder #18	Response to Stakeholder #18. Manufacturer has many safety features built into the turbines, in addition the Proponent is required to submit to the IESO an Emergency Preparedness Plan which describes the emergency response activation process. Reiterated that the turbines have built in safety mechanisms to prevent ice throw. If ice does build up they will fall directly below the turbines.
October 11, 2012	Email	Elgin Market Public School	Elgin Market Public School sponsorship request
October 11, 2012	Email	Proponent's response to Stakeholder #1's Oct 7 email	Proponent response to request for Project map. Layout is in the preliminary stages with natural heritage and archaeological assessments currently underway.
October 11, 2012	Face-to-face	Stakeholder #59	Visiting new office. Was given tour.
October 11, 2012	Face-to-face	Ontario Sustainable Energy	Visiting new office and meet and greet. Offered support for upcoming Public Meeting.



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Date	Method of Communication	Stakeholder Participant	Communication Summary
		Association	
October 16, 2012	Email	Stakeholder #56	Stakeholder inquiry regarding proposed turbine locations and future dwelling location on property.
October 16, 2012	Email	Proponent's response to Stakeholder #56	Proponent response to future dwelling inquiry requesting follow-up phone conversation.
October 16, 2012	Face-to-face	Probus Club	Project presentation given followed by question and answer period.
October 17, 2012	Email	Stakeholder #56 response to Proponent	Stakeholder response to set up call regarding future dwelling location.
October 17, 2012	Email	Stakeholder #12	Inquiry regarding when construction is most likely to start.
October 17, 2012	Email	Proponent's response to Stakeholder #12	Response to Stakeholder #12. Production is expected to begin in the fourth quarter of 2013 but is subject to change.
October 23, 2012	Email	Stakeholder #56 follow-up to Oct 17 email	Stakeholder awaiting Proponent to call regarding future dwelling location.
October 23, 2012	Face-to-face	Kincardine Amish community members	Discussed wind turbine placement and future school development, setbacks from existing school, process of setting setbacks, construction traffic impacts to horse-drawn vehicle traffic. Meeting minutes are provided in Appendix B.4.
October 23, 2012	Face-to-face	Community Living Kincardine and District	Request for fundraising.
October 23, 2012	Face-to-face	Stakeholder #60	Request for fundraising.
October 24, 2012	Email	Stakeholder #56 follow-up to Oct 23 email	Stakeholder awaiting Proponent to contact regarding future dwelling location, request for GPS coordinates and map.
October 25, 2012	Email	Proponent's response to Stakeholder #56's Oct 24 email	Proponent response to advise that lawyers are reviewing contracts and will provide update.
October 25, 2012	Email	Stakeholder #49	Stakeholder request for distance of 8 closest turbines proposed near dwelling.
October 25, 2012	Email	Stakeholder #49	Requesting distance in metres, in writing, of the 8 nearest turbines to his home.
October 25, 2012	Email	Stakeholder #10	Requesting deed for property he recently purchased.
October 27,	Email	Proponent's	Proponent response to cost and payback numbers.



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Date	Method of Communication	Stakeholder Participant	Communication Summary
2012		response to Stakeholder #27's Aug 18 email	Proponent advised that detailed financial information is not publically available, as the company is private.
October 27, 2012	Email	Stakeholder #27's response to Proponent's Oct 27 email	Stakeholder request to know who is paying developers.
October 29, 2012	Email	Proponent's response to Stakeholder #27's Oct 27 email	Proponent advised stakeholder that the off-taker for the power produces if the Ontario Power Authority, and transmission system is regulated by IESO.
October 30, 2012	Email	Proponent's response to Stakeholder #49	Proponent response explaining Draft Site Plan Report and how to determine distances, invitation to Project Office for assistance.
October 30, 2012	Email	Stakeholder #49 response to Proponent's Oct 30 email	Stakeholder request for distances of proposed turbines to dwelling.
October 30, 2012	Email	Proponent's response to Stakeholder #49	Response to Stakeholder #49. Directed Stakeholder to Project website where he can measure distances from his home to any proposed piece of Project infrastructure. Offered assistance in person if he would like to come to the Project Office.
October 30, 2012	Email	Stakeholder #49	Declined offer to visit Project Office for assistance. Would prefer an email with distances to nearest 8 turbines.
October 31, 2012	Email	Proponent's response to Stakeholder #49's Oct 30 email	Proponent provided table of proposed turbines and distances to residence.
October 31, 2012	Email	Stakeholder #49's response to Oct 31 email	Stakeholder thanking Proponent for providing distance measurements.
October 31, 2012	Email	Proponent's response to Stakeholder #49	Response to Stakeholder #49. Provided table listing distances of 8 nearest turbines to Stakeholder's home.
October 31, 2012	Email	Stakeholder #49	A thank you for the provided information.
October 31, 2012	Email	Proponent's response to Stakeholder #35	Response to Stakeholder #35. The evidence in numerous existing studies does not indicate any need to stop development at this time. Also Health Canada does not support a moratorium on development in light of their current study.



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Date	Method of Communication	Stakeholder Participant	Communication Summary
November 1, 2012	Email	Stakeholder #56	Stakeholder follow-up request for GPS coordinates and maps of proposed turbine location.
November 4, 2012	Email	Stakeholder #49	Stakeholder additional request for measurement of all proposed turbines within 3200 m of residence.
November 4, 2012	Email	Stakeholder #49	Requesting list of all turbines within 3200 metres of his home.
November 5, 2012	Email	Stakeholder #56	Stakeholder forwarded a map of property, request for information on surrounding properties and proposed turbine locations.
November 7, 2012	Email	Proponent's response to Stakeholder #56's Nov 5 email	Proponent's response to map request.
November 7, 2012	Email	Stakeholder #56's response to Proponent's Nov 7 email	Stakeholder requesting an expedited review of map forwarded.
November 8, 2012	Email	Proponent's response to Stakeholder #56's Nov 7 email	Proponent email to explain rationale for ensuring legal description of property is correct.
November 8, 2012	Email	Stakeholder #56 email response to Proponent's Nov 8 email	Stakeholder request for GPS coordinates of proposed turbine.
November 8, 2012	Email	Proponent's response to Stakeholder #56's Nov 8 email	Proponent confirmation of participating property regarding future dwelling location.
November 8, 2012	Email	Stakeholder #56	Stakeholder inquiry regarding size of turbine model.
November 8, 2012	Letter	Proponent's response to Stakeholder #26	Proponent mailed response to Stakeholder #26's letter from August, 2012.
November 9, 2012	Email	Proponent's response to Stakeholder #56's Nov 8 email	Proponents response to inquiry regarding turbine model size and advise of Public Meeting date and time.
November 9, 2012	Email	Canadian Federation of University Women,	Response to letter received September 16, 2012. Addressed concerns regarding human health, economics and environmental impacts related to the Project.



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Date	Method of Communication	Stakeholder Participant	Communication Summary
		Kincardine Chapter	
November 10, 2012	Email	Armow Citizens Group	Response to letter from Armow Wind received August 10, 2012. Has requested this letter be included as a response to the most recent Public Meeting.
November 12, 2012	Face-to-face	Stakeholder #62	Meeting with stakeholder. The Stakeholder identified concerns about placement of the collector lines near a hedge row on his property. Additionally this stakeholder has concerns about placement of turbine T52.
November 13, 2012	Face-to-face	Stakeholder #53	Held private Open House for stakeholder that could not attend the Open Houses on November 12. Left the Open House boards up, paid for the cost of a second day rental of the Tiverton Community Centre and a biologist to come back to Tiverton to explain natural heritage results.
November 13, 2012	Email	Stakeholder #4	Inquiry regarding turbine size, setback requirements, cumulative effects of existing projects and low-frequency sound waves.
November 18, 2012	Letter	Stakeholder #26	Letter received detailing concerns regarding setbacks and human health.
November 20, 2012	Email	Stakeholder #49 follow-up email to Nov 4	Stakeholder request for additional measurement to residence, follow-up to previous request and to Public Meeting material.
November 20, 2012	Email	Proponent's response to Stakeholder #49's Nov 20 email	Proponent response to turbine distances requested. Provided table identifying all turbines within 3200 m of stakeholder's residence.
November 20, 2012	Email	Stakeholder #49's response to Nov 20 email	Stakeholder thanking proponent for provided distances and will wait for additional request of 4000 m from residence until GIS staff returns from vacation.
November 22, 2012	Email	Stakeholder #63	Part-time hiring inquiry.
November 22, 2012	Email	Stakeholder #53	Follow-up email from stakeholder that attended private Open House. Stakeholder requests information about the biologists that performed field studies near turbine 108.
November 23, 2012	Email	Proponent's response to Stakeholder #9	Proponent response to advise stakeholder of Draft Site Plan, regulated setback requirements and current studies of land values associated with wind projects.
November 29, 2012	Email	Proponent's response to Stakeholder #4	Proponent's response to specific question from this stakeholder regarding effects on human health and size of Project.
November 29, 2012	Email	Proponent's response to Stakeholder #53	Proponent provides a response to stakeholder regarding information request about biologist. Proponent provides stakeholder with a list of all of the biologists that performed field studies as well as the services they



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Date	Method of Communication	Stakeholder Participant	Communication Summary
			provided.
November 29, 2012	Telephone	Stakeholder #62	Proponent responds to concerns by indicating that they had carried a site visit to the stakeholder's house and that they would continue discuss these concerns with the stakeholder, however they felt as though the collector line proximity would not be an issue.

In addition to the emails summarized in the above table, various emails were exchanged between the proponent and the Canadian and Owners and Pilot's Association (COPA) and their members regarding turbine placement near the Kincardine Municipal Airport. This correspondence occurred between the December 2011 and November 2012 Public Meetings. The Proponent also had various detailed conversations with individual landowners regarding specific pieces of infrastructure and concerns about wind development in general.

Additionally, the Proponent has also received a number of formal letters from members of the public. These letters and their responses can be found in Appendix B.3.

3.2 Public Meetings

Two Public Meetings were held to share information about the Project. The meetings were organized as a drop-in format (Open House), with display boards arranged throughout the venue. A number of Proponent staff and subject matter experts were available to answer and document questions. The Open House format allowed community members to visit on their own schedules and speak directly with the experts. Display panels were grouped by subject matter and staffed by subject matter experts.

3.2.1 First Public Meeting

On December 13, 2011 the first Public Meeting for the Project was held at the Best Western – Governor's Inn, 791 Durham Street in Kincardine, Ontario from 4:00 p.m. to 8:00 p.m. The purpose of the meeting was to share the details about the Project including the Draft Project Description Report and to invite comments from the public. As noted in Section 2 of this report, Notices were sent to meet regulatory requirements, and included newspapers/advertisements, addressed mailings to landowners and a postal code mail drop.

The Proponent staff and subject matter experts that were available to address comments and questions from the public the First Public Meeting is provided below in Table 7.

Table 7: Project Team Members in Attendance at the First Public Meeting



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Project Team Member	Area of Expertise
Pattern	
Jody Law	Project Manager
Kim Sachtleben	General Information about Pattern
Kaitlin Bovenizer	General Information about Pattern
Beth O'Brien	General Information about Pattern
Stan Gray	Electrical
Colin Edwards	General Information about Pattern
Frank Davis	Legal
Alex Dejanovic	Land
Pat Murray	General Information about Pattern
Samsung	
Brian Edwards	Project Manager
James Cho	General Information about Samsung
Hagen Lee	General Information about Samsung
JT Lee	General Information about Samsung
KC Kim	General Information about Samsung
GY Yoo	General Information about Samsung
Ariel Bautista	General Information about Samsung
Golder Associates	
Jeff Muir	Archeology
Tracie Carmichael	Archeology
Ian Callum	Environmental Assessment/REA
Andrew Evers	Environmental Assessment/REA
Rachelle Clinch	Environmental Assessment/REA
Agni Papageorgiou	Public Consultation
Caitlin Burley	Public Consultation
Natural Resource Solutions Inc.	
Andrew Ryckman	Natural Heritage
Pam Tucciarone	Natural Heritage
Kinetrics	
Peter Dick	Electrical
Intrinsik	
Lindsay McCallum	Human Health
Chris Ollson	Human Health
Zephyr North	
Jim Salmon	Noise
Sarah Corby	Noise



3.2.1.1 *Handouts*

Handouts were made available at the Public Meeting that provided the Project website as well as websites where information could be obtained on the following subjects:

- Consumer Benefits;
- Wildlife;
- Health;
- Visual and sound;
- Wind power is reliable;
- Blowing Smoke: Correcting Anti-Wind Myths in Ontario;
- Pricing;
- Time to confront the anti-wind fear campaign;
- When it comes to health, wind power blows away the alternative;
- Frequently Asked Questions;
- Property values; and
- References and Websites.

A copy of the handout is provided in Appendix C.1. Several copies of the Draft Project Description Report were on hand for discussion.

3.2.1.2 *Display Panels*

Proponent staff and subject matter experts were available to explain the information on the display panels and in the handouts, and respond to questions. The following display boards were made available at the Open House:

- Welcome;
- About Samsung and Pattern;
- How Wind Works;
- Environmental Benefits;
- REA Process;
- Project Location;
- Project Design x 2;
- Construction Activities;



- Operation Activities;
- Operation Activities: Stray Voltage;
- Harmonics;
- Electromagnetic Frequencies;
- Decommissioning Activities;
- Sound: dBA Scale;
- Sound;
- Natural Heritage;
- Water Bodies;
- Birds and Bats;
- Archaeology and Heritage;
- Human Health;
- Property Values;
- Community Benefits; and
- Thank You.

Copies of the panels, reduced in size for reporting purposes, are included in Appendix C.2.

3.2.1.3 Attendance and Feedback

Based on the sign-in sheets, 104 people signed into the Public Meeting with 21 people providing completed comment forms. The comment form included three questions and a space to write additional comments. The responses to the first and third questions are presented graphically in the pie charts below. The questions and comments raised through comment forms and during conversation, as well as how these questions were considered, are detailed in Section 7.0. The completed comment forms are provided in Appendix B.1.

As shown in Figure 3, 38% of attendees heard about the Public Meeting through word of mouth.

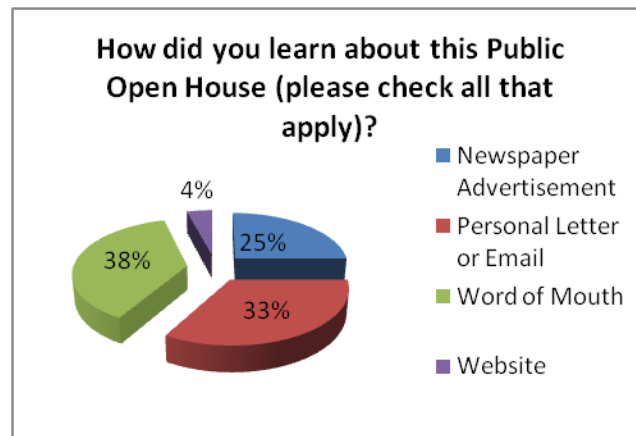


Figure 3: Public Meeting Notification (First Public Meeting)

As shown in Figure 4, 57% of attendees felt that their information needs were met or somewhat met.

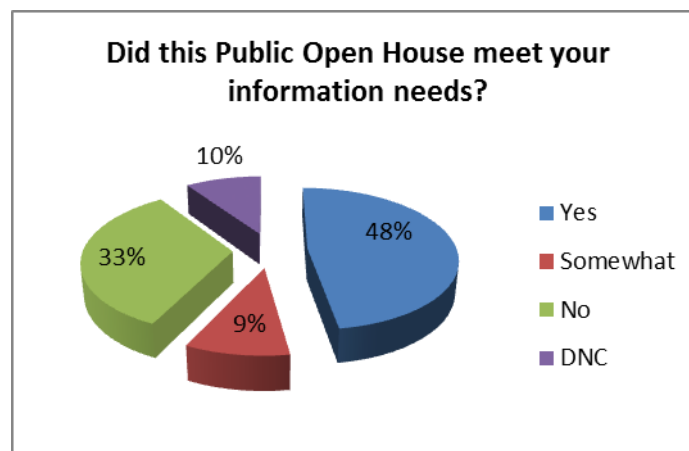


Figure 4: Meeting information Needs (First Public Meeting)

To protect the privacy of the individuals commenting, names are not published. A copy of the comment form is provided in Appendix C.3.

3.2.2 Second Public Meeting

On November 12, 2012 the final Public Meetings for the Project were held in Kincardine at the Best Western, Governor's Inn and in Tiverton at the Tiverton Community Centre. Two Public Meetings were held to allow greater access to the materials being presented and obtain a greater level of feedback from the community. The purpose of the meeting was to obtain feedback on the results of the various studies conducted for the Project and to provide updated information about the Project from the first Public Meeting. This meeting had acoustic



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monitoring equipment set up to allow attendees to view the equipment and identify show sound levels within the Public Meeting. The second Public Meeting was also filmed to provide a more detailed record of the event.

The Proponent staff and subject matter experts that were available to address comments and questions from the public the Second Public Meeting is provided below in Tables 8 and 9.

Table 8: Project Team Members in Attendance at the Second Public Meeting at the Governor's Inn

Project Team Member	Area of Expertise
SP Armow	
Susan Novak	General Information about Samsung
Pattern	
Jody Law	Project Manager
Kim Sachtleben	General Information about Pattern
Michael Moore	Land
Samsung	
KC Kim	General Information about Samsung
GY Yoo	General Information about Samsung
Ariel Bautista	General Information about Samsung
Beatrice Ashby	REA
Alison Forbes	Legal Information about Samsung
Wookyoung Kim	General Information about Samsung
Mohinder Pannu	Electrical/Construction
Richard Ashburn	Land
Golder Associates	
Carla Parslow	Archeology
Ian Callum	Environmental Assessment/REA
Andrew Evers	Environmental Assessment/REA
Chris Gurski	Public Consultation
Natural Resource Solutions Inc.	
Tara Lessard	Natural Heritage
Pam Tucciarone	Natural Heritage
AMEC	
Rabia Yazdanie	Electrical
Intrinsik	
Chris Ollson	Human Health
GLGH	
Nancy O'Blenes	Noise
Siemens	
Jim Trojner	Job Creation/Turbine Specifications
Ann Adair	Job Creation/Turbine Specifications
RWDI	



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Project Team Member	Area of Expertise
Ben Coulson	Acoustics

Table 9: Project Team Members in Attendance at the Second Public Meeting in Tiverton.

Project Team Member	Area of Expertise
Pattern	
Stan Gray	Electrical
Colin Edwards	General Information about Pattern
Frank Davis	Legal
Alex Dejanovic	Lands
Samsung	
Brian Edwards	Project Manager
Ariel Bautista	General Information about Samsung
Beatrice Ashby	REA
Wookyoung Kim	Legal Information about Samsung
Golder Associates	
Jamie Davidson	Archeology
Kalena Metcalfe	Environmental Assessment/REA
Agni Papageorgiou	Public Consultation
Caitlin Burley	Public Consultation
Kristen Farrell	Public Consultation
Natural Resource Solutions Inc.	
Andrew Ryckman	Natural Heritage
Christina Carter	Natural Heritage
AMEC	
Byron Nicholson	Electrical
Intrinsik	
Loren Knopper	Human Health
GLGH	
Darcy Boudreau	Noise
Siemens	
Greg Thrasher	Job Creation/Turbine Specifications
Marie McKeegan	Job Creation/Turbine Specifications
RWDI	
Peter Vandelden	Acoustics

3.2.2.1 Handouts

A variety of handout materials were made available at the Public Meeting. The handout materials included information on the following topics:



- Armow Wind;
- Consumer Benefits;
- Wildlife;
- Health;
- Visual and sound;
- Wind power is reliable;
- Blowing Smoke: Correcting Anti-Wind Myths in Ontario;
- Pricing;
- MPAC news Summer 2012;
- Time to confront the anti-wind fear campaign;
- When it comes to health, wind power blows away the alternative;
- Property values;
- Frequently Asked Questions; and
- Summary of Report Revisions.

Updated copies of the REA Reports were available for review as well. Copies of the key handouts provided are included in Appendix D.1.

3.2.2.2 *Display Panels*

Proponent staff and subject matter were available to explain the information on the display panels and in the handouts, and respond to questions. A total of 34 panels were displayed with information under the following headings:

- Welcome;
- About Samsung and Pattern;
- How Wind Works;
- Project Location;
- Project Layout (x 2);
- REA Process;
- Report Revisions;
- Environmental Benefits;



- Job Creation (x 2);
- Wind Turbine Specifications;
- Current Activities;
- Construction Activities;
- Typical Wind Project Components;
- Operation Activities;
- Stray Voltage;
- Electromagnetic Fields (EMF);
- Decommissioning Activities;
- Community Benefits;
- Sound dBA Scale;
- Visualizing Sound;
- Property Values;
- Human Health (x 2);
- Archeology and Heritage (x 2);
- Natural Heritage;
- Water Bodies;
- Birds and Bats;
- Natural Heritage Features;
- Layout Adjustment to Turbine 59;
- Consultation and Engagement; and
- Thank You.

Copies of the panels, reduced in size, are included in Appendix D.2. In addition to the panels, a large map was displayed on a table to better show the locations of Project infrastructure.

3.2.2.3 *Attendance and Feedback*

Based on the sign-in book, 63 people signed into the Public Meetings with 24 people providing completed comment forms, while Project staff counted a total of 80 participants in attendance. The comment form included three questions and a space to write additional comments. The responses to the first and third question are



presented graphically in the pie charts below. The questions and comments raised the comment form and how they were considered are detailed in Section 7.0. The completed comment forms are provided in Appendix B.2.

As shown in Figure 5, 39% of attendees heard about the Public Meeting through personal letter or email.

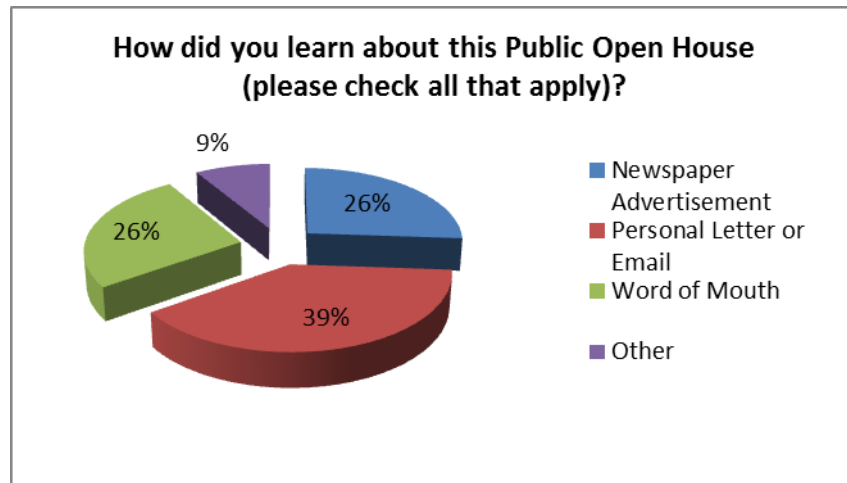


Figure 5: Public Meeting Notification (Final Public Meeting)

As shown in Figure 6, 67% of attendees felt that their information needs were met or somewhat met.

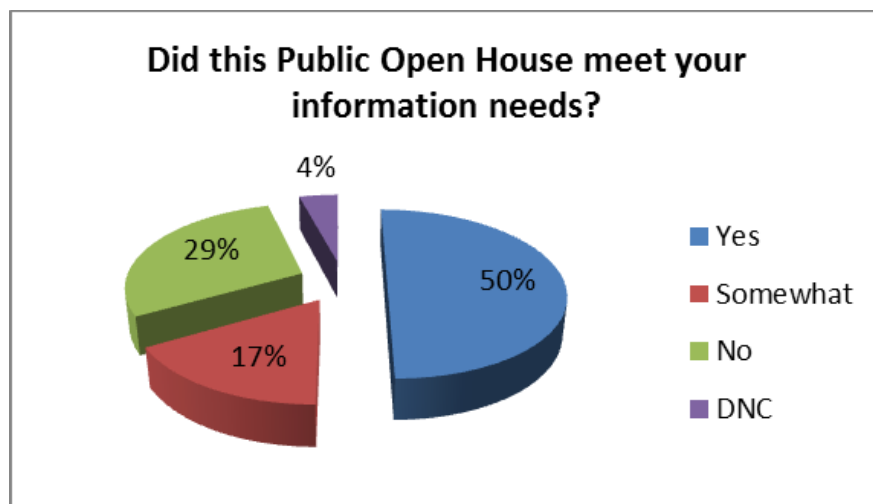


Figure 6: Responding to Questions (Final Public Meeting)

To protect the privacy of the individuals commenting, names are not published. A copy of the comment form is provided in Appendix D.3.



4.0 COMMUNICATIONS WITH ABORIGINAL COMMUNITIES

In order to determine Aboriginal communities that may have an interest in the Project, as required by O. Reg. 359/09, as amended, the Proponent requested that the Director provide a list of Aboriginal communities deemed as having constitutionally protected Aboriginal or treaty rights that may be adversely impacted by the Project or that otherwise may be interested in any environmental effects of the Project.

The MOE confirmed on December 15, 2011 the list of Aboriginal communities to be consulted for this Project. A copy of this confirmation is provided in Appendix E.1. The following communities were included on the Director's list:

- Saugeen Ojibway Nation;
- Chippewas of Nawash Unceded First Nations;
- Saugeen First Nation;
- Historic Saugeen Métis;
- Métis Nation of Ontario; and
- Great Lakes Métis Council.

4.1 Consultations required for the Renewable Energy Approval

Several mandatory consultations with Aboriginal Groups are required by O. Reg. 359/09, as amended. The dates when these consultations occurred are provided in Table 10 below.

Table 10: Mandatory Aboriginal Community Consultations

Consultation Description	Date
Providing 2 copies of the Project Description to each community (included cover letter providing overview of the Project and the consultation process) ¹	November 8, 2011
Draft Site Plan Report delivered to Aboriginal communities for their review and comment ²	August 10, 2012
Report Summaries along with a cover letter requesting review of the documents and soliciting feedback delivered to Aboriginal communities ²	August 29, 2012
Draft Reports provided to Aboriginal communities ²	September 6, 2012
Notices of the second Public Meeting were sent to all required Aboriginal communities ¹	September 11, 2012

¹ Copies of the letter are provided in Appendix E

² Copies of the letter and confirmations of receipt provided in Appendix E



4.2 Summary of Communications by Community

4.2.1 Saugeen Ojibway Nation

Collectively, the Chippewas of Nawash Unceded First Nation and the Saugeen First Nation are referred to as the Saugeen Ojibway Nation. The Nawash and Saugeen communities share traditional territories comprising the Bruce Peninsula and an area 6,500 km² south of the Bruce Peninsula extending to the headwaters of the Nottawasga and Maitland Rivers.

In September 2011, the Proponent contacted representatives of the Saugeen Ojibway Nation (SON) by email to advise them of SP Armow's acquisition of the Project and to communicate the desire to initiate a dialogue with SON. The response from SON indicated that Joselyn Keeshig would act as the key contact for the SON, and that SON agreed to meet with the Proponent to discuss the Project. Ms. Keeshig is the Renewable Energy Coordinator for the SON Environment Office, which provides infrastructure and expertise for environment and resource development matters that affect and impact the interests of the SON.

It was indicated upon initiating communications with SON, that communications should be directed through SON's Environment Office because the Proponent was considered to be in the technical phase of consultation. Upon completion of this phase, the Proponent would be invited to meet with community leadership. At the time of this Report development, the Proponent is still considered to be in the technical phase and therefore meetings with leadership have not occurred.

The Proponent discussed with the SON Renewable Energy Coordinator the need for archaeological and natural heritage monitors. All field work where SON monitors were requested was undertaken in their presence. In addition the Proponent will adhere to the MTCS criteria for Stage 3 archaeological assessment.

A technical memorandum was prepared for SON summarizing the findings of the Stage 2 Archaeological Assessments. The purpose of this report was to identify archaeological sites of interest to the SON based on their guidelines. The Proponent is continuing to discuss and communicate with SON regarding this memorandum.

A detailed record of communications to date with the SON is provided in Table 11. The Proponent is committed to ongoing dialogue with the SON as development of the Project progresses.

Table 11: Summary of Communications with SON

Date	Communication Summary
August 29, 2011	Email to Aboriginal communities informing them of the transition of ownership of the Project from Acciona to Samsung and Pattern.
September 13, 2011	Proponent introduces themselves to Office Coordinator for the SON Environmental Office during Project transition. The email identifies one of the Proponent's representatives. The purpose of the email is to provide an update on current Project activities and establish an avenue for dialogue.
September 14, 2011	SON responds to the introduction email and introduces Joselyn Keeshig as the key contact (Renewable Energy Coordinator) for SON.
September 15, 2011	Proponent follows up with an email to SON's Renewable Energy Coordinator to initiate dialogue and coordinate a meeting.
September 16, 2011	SON responds to proposed meeting request and discusses technical or leadership status of communication about the Project.



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September 20, 2011	Proponent sends a response email with a suggestion that they hold a technical meeting to introduce the Project and SON's participation in the ongoing studies.
September 21, 2011	SON responds to the email regarding proposed technical meeting and confirms technical approach to discussions. In this email SON also confirms technical staff will attend the meeting. This staff includes members from joint council.
September 22, 2011	Proponent emails to begin coordination of proposed technical meeting. The Proponent also asks for clarification about the Consultation Team and technical subject matter experts.
September 22, 2011	SON responds via email and provides requested clarification on the Consultation Team.
September 27, 2011	Proponent follows up with SON to coordinate meeting and provide list of attendees from Proponents side (email).
September 27, 2011	SON Renewable Energy Coordinator emails to suggest tentative dates for the technical meeting and also to discuss SON's participation in Project.
September 28, 2011	Telephone conversation between the SON Renewable Energy Coordinator and the Proponent to discuss coordination of natural heritage and archaeological field monitors. Also discussion occurs regarding funding for SONs participation in the Project field work.
September 29, 2011	Follow-up emails on coordination of archaeological field monitors and capacity funding.
October 2, 2011	Proponent emails to ask for clarification on scope of SON archaeological and natural heritage. Proponent introduces Golder as key contact for coordination of field monitor participation.
October 3, 2011	SON Renewable Energy Coordinator responds to Proponent via email providing details on archaeological and natural heritage monitoring for the Project.
October 4, 2011	SON Renewable Energy Coordinator emails SON contact for Natural Heritage work to Golder and Proponent.
October 4, 2011	Email from SON natural heritage monitor to confirm contact information.
October 5, 2011	Golder archaeology field crew confirms that SON monitor attendance during field studies has commenced.
October 11, 2011	Proponent sends follow-up email to SON Renewable Energy Coordinator to confirm upcoming meeting on October 18, 2011.
October 11, 2011	SON Renewable Energy Coordinator responds to meeting date email to confirm attendees. She advises that the Joint Council Consultation Team has directed her to act as the key contact for wind projects.
October 11, 2011	Proponent requests, via email, a discussion regarding SON's desired level of participation in natural heritage field work.
October 14, 2011	Telephone conversation with SON Renewable Energy Coordinator, Proponent and Natural Heritage Specialists to discuss the coordination of natural heritage work and SON's participation in the field work.
October 18, 2011	Introductory meeting to provide a Project overview, discussion of REA process and SON's involvement in technical field studies. Technical subject matter experts from both Proponent and SON were not in attendance.
October 21, 2011	Email correspondence between Natural Heritage Specialists and the Natural



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	Heritage Field Coordinator to coordinate participation in field work.
October 26, 2011	Additional email correspondence between Natural Heritage Specialists and the Natural Heritage Field Coordinator to coordinate participation in field work.
November 4, 2011	Notice of Proposal to Engage and Project Description Report is mailed to SON and Saugeen First Nation and Chippewas of Nawash.
November 9, 2011	Proponent is informed that, at SON's direction, the Proponent is no longer required to arrange for First Nations monitors for archaeology, as SON is undergoing a review of their Wind Development Participation Policy.
November 14, 2011	Proponent is informed that, at SON's direction, the Proponent is no longer required to arrange for First Nations monitors for natural heritage, as SON is undergoing a review of their Wind Development Participation Policy.
January 26, 2011	Proponent visits the Environmental Coordination Office to provide Project status update. Proponent also tours the community with the Renewable Energy Coordinator. The Proponent also discussed the decision to pull the monitors from ongoing field work.
April 5, 2012	Proponent meets with Renewable Energy Coordinator in Southampton to provide Project status update and to discuss next steps regarding the Project.
August 10, 2012	Proponent mails Draft Site Plan Report to Saugeen Ojibway Nation, Saugeen First Nation and Chippewas of Nawash.
August 22, 2012	Proponent visits Environmental Coordination Office to discuss upcoming draft REA report release as well as the Project in general.
August 27, 2012	SON emails Proponent regarding sponsorship options for Chippewas of Nawash Golf Tournament.
August 28, 2012	SON emails Proponent providing additional information about sponsorship of Chippewas of Nawash Golf Tournament.
August 28, 2012	Proponent mails Draft Project Description Report and Aboriginal Report Summaries to Saugeen Ojibway Nation, Saugeen First Nation and Chippewas of Nawash.
August 30, 2012	Proponent attends Chippewas of Nawash Golf Tournament, sponsors a green and donates to silent auction.
August 31, 2012	Email from Office Coordinator to Proponent for donation to Nawash Golf Tournament.
September 6, 2012	Proponent delivers Draft Renewable Energy Approval Reports to SON Renewable Energy Coordinator for review and comment.
September 11, 2012	Proponent delivers Notice of Final Public Meeting and Draft Reports to Saugeen Ojibway Nation, Saugeen First Nation and Chippewas of Nawash.
October 3, 2012	Proponent, SON Renewable Energy Coordinator and Archaeology contractor for SON have meeting to discuss technical memorandum summarizing the findings of the Stage 2 Archaeological Assessments. The purpose of this report is to identify archaeological sites of interest to the SON based on their guidelines. An additional meeting is scheduled due to the Proponent not having technical experts in attendance at the meeting. See Appendix E.8
October 5, 2012	SON Renewable Energy Coordinator provides a summary of SON's comments and recommendations from the October 3, 2012 meeting.
October 22 – 19, 2012	Email correspondence between Proponent and SON Renewable Energy Coordinator regarding meeting coordination.



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November 28, 2012	SON Renewable Energy Coordinator, Archaeology contractor for SON, Golder and Proponent hold meeting to discuss SON comments on the technical memorandum and reach an agreed scope for field work described in technical memorandum.
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4.2.2 Historic Saugeen Métis

The Historic Saugeen Métis (HSM) consists of the decedents of the Historic Métis that traded at Saugeen. The Proponent met with representatives of the HSM on September 28, 2011 to introduce the Project and members of the Project Team. The Proponent has had ongoing communication with the HSM regarding Project updates and the establishment of a capacity funding agreement. Specifically, the Proponent gave a number of presentations to HSM regarding the Project and relationship-building activities.

A detailed record of communications to date with the HSM is provided in Table 12. The Proponent is committed to ongoing dialogue with the HSM as development of the Project progresses.

Table 12: Summary of Communications with HSM

Date	Communication Summary
August 29, 2011	Email to Aboriginal communities (identified in the list provided by MOE) informing them of the transition of ownership of the Project from Acciona to Samsung and Pattern.
September 15, 2011	HSM sends email regarding continued consultation process with HSM during Project transition. Introduction email expresses interest in finalizing capacity funding documents with previous Project owner.
September 15, 2011	Proponent responds to HSM and proposes meeting to discuss continued consultation process. Proponent explains that the Project is in transition and they are looking forward to maintaining a positive relationship. A face-to-face meeting is suggested.
September 16, 2011	Various emails between Proponent and HSM to coordinate logistics of a face-to-face meeting.
September 26, 2011	HSM provides email confirmation of meeting on September 28, 2011 and a list of attendees.
September 28, 2011	Proponent visits HSM office in Southampton to introduce themselves and provide a presentation on the Project. HSM presents a brief history of their community and land interests. Proponent describes early stages of development and the restarting of the REA process. Proponent also provides preliminary maps and proposed Project schedule for upcoming months. Proponent discusses participation of HSM field monitors. Proponent also requests MOU template and indicates further evaluation will be required as Project progresses.
October 5, 2011	Email from HSM to the Proponent including the MOU template and Capacity and Long Term Agreement template.
November 7, 2011	Proponent mails Notice of Public Meeting and Proposal to Engage to HSM. Draft Project Description Report included in this mailing.
May 1, 2012	HSM emails Proponent to request a meeting to discuss Project and relationship building.
May 8, 2012	Proponent and HSM meet to provide Project update and begin discussion regarding capacity funding agreement.



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Date	Communication Summary
May 22-July 16, 2012	Series of emails between HSM, legal representatives and Proponent to plan upcoming meeting on July 26, 2012.
July 26, 2012	Face-to-face meeting between HSM lawyers and Proponent to establish capacity funding agreement.
August 10, 2012	Proponent mails Draft Site Plan Report to HSM.
August 28, 2012	Proponent mails Draft Project Description Report and Aboriginal Report Summary to HSM.
September 5, 2012	Proponent mails Draft Renewable Energy Approval Reports delivered for review and comment from HSM.
September 11, 2012	Proponent mails Notice of Final Public Meeting and Publication of Draft Reports to HSM.
October 5, 2012	Proponent sends proposal for capacity funding agreement.
October 29, 2012	Proponent receives counter proposal for capacity funding.
November 30, 2012	Proponent and HSM agree to form of capacity funding agreement, with the intent to execute capacity funding agreement immediately.

4.2.3 Great Lakes Métis Council and Métis Nation of Ontario

A detailed record of communications to date with the Métis Nation of Ontario (MNO) and Great Lake Métis Council (GLMC) is provided in Table 13. The Proponent is committed to ongoing dialogue with Métis Nation of Ontario and Great Lake Métis Council as development of the Project progresses.

Table 13: Summary of Communications with the Métis Nation of Ontario (MNO) and Great Lake Métis Council (GLMC)

Date	Communication Summary
November 7, 2011	Proponent mails Notice of Proposal and Project Description Report to MNO and GLMC.
November 9, 2011	Golder emails draft Project Description Report, and provides Proponent contact information to MNO and GLMC.
November 9, 2011	Upon receiving the draft Project Description Report from Golder, MNO advises Golder that they have developed a one-window approach through Consultation Unit. Alden Barty, Lands and Resources Coordinator for MNO, is identified as the key contact.
January 17, 2012	Telephone conversation between MNO Lands and Resources Coordinator and Proponent to set up a meeting.
January 24, 2012	Email confirmation of meeting between MNO Lands and Resources Coordinator and Proponent on February 21, 2012. Included in this email is a budget for carrying out the meeting.
February 10, 2012	Email from Proponent requesting the February 21, 2012 meeting to be postponed to a later date.
February 21, 2012	Email from Proponent to MNO Lands and Resources Coordinator proposing meeting date of March 12 or 15, 2012.
February 21, 2012	MNO Lands and Resources Coordinator advises that all meetings with proponents are to be postponed until after April 1, 2012. The purpose for postponing is that it



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Date	Communication Summary
	is an election year for the MNO.
March 15, 2012	Email from MNO Lands and Resources Coordinator regarding upcoming Métis elections, reviewing Project reports and review schedule.
March 15, 2012	Proponent emails MNO Lands and Resources Coordinator to clarify that meeting will be re-scheduled after May 7, 2012.
March 15, 2012	MNO Lands and Resources Coordinator verifies that meetings will occur following the election on May 7, 2012.
March 30, 2012	MNO Lands and Resources Coordinator sets up a meeting date of April 13, 2012 to review budget and agenda for scheduled meeting.
April 13, 2012	<p>Proponent visits the MNO Lands and Resources Coordinator's office to have a face-to-face meeting. The purpose of the meeting is to introduction to Project and discuss the following:</p> <ul style="list-style-type: none"> ■ harvesting regions; ■ land requirements; ■ jobs; ■ partnerships with other Proponents; ■ request for technical presentation; and ■ An MOU. <p>Proponent presentation included a Project status update, proposed schedule and employment opportunities. See Appendix E.9.</p>
April 22, 2012	Email from MNO Lands and Resources Coordinator with a question regarding REA status of another Pattern Project.
April 22, 2012	Proponent response to Alden Barty regarding the REA status of Pattern Project.
April 24, 2012	Email from MNO Lands and Resources Coordinator regarding Métis Nation of Ontario Presentation.
August 10, 2012	Golder sends email confirmation that MNO will host Draft REA Reports for public review.
August 10, 2012	Proponent mails Draft Site Plan Report to GLMC and MNO.
August 28, 2012	Proponent mails Draft Project Description Report and Aboriginal Report Summary to GLMC and MNO.
September 11, 2012	Proponent mails Notice of Final Public Meeting and Publication of Draft Reports (for public review) to GLMC and MNO.



5.0 MUNICIPAL CONSULTATION

Since September 2011 the Proponent has been communicating regularly with the Municipality of Kincardine and the County of Bruce. As required by O.Reg. 359/09, consultation must occur with both municipal tiers, where upper and lower tiers exist. The Project is located in the Municipality of Kincardine, a lower tier municipality, within the County of Bruce, an upper tier municipality. In addition to the required consultation efforts such as distribution of the Municipal Consultation Form and Site Plan Report, the proponent held multiple meetings with the Municipality of Kincardine. Focus was placed on consultation with the Municipality of Kincardine as they are the closest municipal centre to the Project and because they created a Wind Development Policy that differed significantly from the requirements of O.Reg. 359/09. A copy of this policy is provided in Appendix F.6. A number of meetings with the Municipality of Kincardine were focused on the Proponent understanding and attempting to meet the intent of this Policy. These meetings are described in Section 5.5. Additional information regarding municipal consultation is provided in Appendix F. Communications with the municipalities are summarized in Table 14.

Table 14: Summary of Municipal Communications

Date	Communication
September 14, 2011	Unscheduled meeting with Councillor Hewitt, which visiting landowners of a nearby property.
October 21, 2011	Proponent emails Councillors Hewitt, Faubert, Leggett, Craig, Roppel, Couture, Coristine and Deputy Mayor Eadie offering to meet, introduce Project team and discuss new Project.
October 24, 2011	Proponent receives emails from Councillor Craig and Deputy Mayor Eadie respectfully declining a meeting.
October 26, 2011	Introduction to Project meeting with Kincardine Councilor Maureen Couture.
October 27, 2011	Introduction to Project meeting with Kincardine Councilor Ron Coristine.
November 3, 2011	Met with Building and Planning Manager Michele Barr to discuss Project and REA process.
November 9, 2011	Sent Notice of Proposal to Engage and First Public Meeting.
December 7, 2011	Introduction to Project meeting with Kincardine Mayor Larry Kraemer.
December 7, 2011	Presentation to Kincardine Municipal Council at their regularly scheduled Public Meeting. Presentation included introduction to Samsung and Pattern, Project description overview, Kincardine Wind Generation System Development Policy, setbacks. Questions from council and discussions of stakeholder advisory committee, human health, property values, dispute resolution process with Kincardine Municipal Council.



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Date	Communication
December 14, 2011	Attended regularly scheduled Public Kincardine Municipal Council meeting. Ad-Hoc Committee created.
January 11, 2012	Attended regularly scheduled Public Kincardine Municipal Council meeting, no discussion of Project.
January 18, 2012	Attended regularly scheduled Public Kincardine Municipal Council meeting, no discussion of Project.
January 19, 2012	Telephone conversation discussing council committee and providing a layout update to the Mayor of Kincardine Larry Kraemer.
January 25, 2012	Attended regularly scheduled Public Kincardine Municipal Council meeting, no discussion of the Project.
January 27, 2012	Received email from Kincardine Ad Hoc Committee with agenda for upcoming meeting.
January 31, 2012	First Ad-Hoc Committee meeting. Discussed airport vicinity, collector line placement, setbacks from hamlet buffers, municipal consultation
February 9, 2012	Received email from Michelle Barr of the Kincardine Building and Planning department requesting information regarding vacant lot receptors.
February 10, 2012	Response to Michelle Barr providing 2008 Noise Guidelines with reference to section that deals with vacant lot receptors.
February 10, 2012	Question about absentee landowners from Kincardine Councilor Jacqueline Faubert.
February 10, 2012	Response to Jacqueline Faubert requesting clarification of term used.
February 10, 2012	Response from Jacqueline Faubert providing clarification.
February 17, 2012	Project meeting with Kincardine Councilor Kenneth Craig.
March 5, 2012	Response to Kincardine Councilor Jacqueline Faubert that the question is being looked into but an answer is difficult because it is not known where all the landowners live as mailing addresses do not always identify the parcel.
March 19, 2012	Second Ad-Hoc Committee meeting. Discussed Memorandum of Understanding regarding Kincardine Airport, collector line burial, buffer zones and setbacks with the Kincardine Ad Hoc Committee. Discussed in the Project layout and the provided an in-depth assessment of the Project area.



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Date	Communication
March 23, 2012	Met with the Kincardine Planning and Public Works Departments to discuss the Renewable Energy Act process, collector routing and surveying.
May 7, 2012	Email from Chris Laforest setting up future meeting regarding Project updates.
May 8, 2012	Met with Bruce County officials Brian Knox, Dave Smith and Chris Laforest.
May 17, 2012	Emailed Michele Barr of the Kincardine Buildings and Planning Department requesting meeting.
May 22, 2012	Emailed Mayor of Kincardine Larry Kraemer and CAO Murray Clarke requesting meeting.
May 24, 2012	Met with Kincardine Planning and Public Works Departments and discussed the REA schedule, provided an update on Project status, and discussed the Municipality's role in the REA process.
May 25, 2012	Emailed Mayor of Kincardine Larry Kraemer and Chief Administrative Officer (CAO) Murray Clarke regarding future meeting.
May 29, 2012	Third Ad-Hoc Committee meeting. Presented and discussed proposed MOU. Discussed buffer zones and collector lines.
June 5, 2012	Telephone conversation with Kincardine CAO regarding future meeting.
June 6, 2012	Met with Kincardine CAO and discussed REA process, the Project, next steps and schedule. Permits and fees, community benefits and fostering a positive working relationship were also discussed. Mayor could not attend.
August 3, 2012	Provided draft REA reports for review to the County of Bruce and the Municipality of Kincardine.
August 8, 2012	Various emails with CAO regarding wind turbine specifications and REA reports release schedule.
August 10, 2012	Provided Draft Site Plan Report for review to the County of Bruce and the Municipality of Kincardine.
August 29, 2012	Provided additional copy of Municipal Consultation Form to Bruce County by email.
September 21, 2012	Meeting with Municipality of Kincardine Planning and Public Works Departments to discuss municipal consultation form and timelines. Confirmed that all required information had been provided and that the Proponent was available to answer any questions.



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Date	Communication
September 28, 2012	Email to Michelle Barr of the Kincardine Buildings and Planning Department indicating that survey work within the municipal road right of ways will be commencing to confirm legal boundaries and that the work is non-invasive.
October 2, 2012	Received email from the Kincardine Buildings and Planning Department Manager requesting additional information regarding survey work and potential impacts to road operations infrastructure.
October 22, 2012	Various emails with Kincardine CAO regarding status of MOU and estimated timeline for completion.
October 23, 2012	Golder sends an email following up on a Municipal Consultation Form from Bruce County.
October 24, 2012	Received email from Kincardine CAO inquiring as to the status of the Project's FIT contract approval.
October 27, 2012	Response to Kincardine Buildings and Planning Department Manager indicating that survey work will not have an impact on road operations infrastructure.
October 31, 2012	Response to Municipality of Kincardine CAO that the Armow Project is unique in that it is not officially part of the FIT program. However the Project has been granted a transmission capacity allocation and a power purchase agreement. Also the Project must adhere to all rules in the FIT program, and in some cases, even stricter rules. This is all related to the Green Energy Investment Agreement between the Provincial Government and Samsung. Offered to provide more details if requested.
November 7, 2012	Email to Kincardine CAO and Peter Pickfield (legal counsel) regarding MOU negotiations.
November 5, 2012	Golder requests Municipal Consultation Form from Bruce County prior to the November 12 Public Meeting.
November 8, 2012	Golder requests Municipal Consultation Form from Bruce County prior to the November 12 Public Meeting.
November 14, 2012	Various emails with Kincardine legal counsel to coordinate a meeting to discuss MOU.
November 14, 2012	Inquiry from Jacqueline Faubert to whether questions relating to Noise Impact Assessment at the final Public Meeting have been resolved.
November 14, 2012	Email sent to Kincardine Buildings and Planning Department Manager following up on the Municipal Consultation form.
November 14, 2012	Response from Kincardine Buildings and Planning Department Manager indicating that it will be provided to Armow Wind the following week.



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Date	Communication
November 14, 2012	Email from Jacqueline Faubert regarding updates to the Noise Impact Assessment.
November 14, 2012	Response to Jacqueline Faubert indicating that the comments received during the Public Meeting are being reviewed and analyzed by the sound consultant and updates will be provided when available.
November 14, 2012	Anne Eadie (Deputy Mayor) makes a request regarding updates to the Noise Impact Assessment.
November 21, 2012	Meeting with Kincardine Councilor Anne Eadie, who is the Chair of the Ad-hoc Committee meeting. Purpose of the meeting was to discuss the purpose of the Ad-Hoc Committee and the motion passed at the November 14, 2012 Council Meeting without communication of this to the Proponent. It was understood that the Ad-Hoc Committee was a communication tool between the Proponent and Council.
November 21, 2012	Presentation to Kincardine Municipal Council at their regularly scheduled Public Meeting. Addressed comments received at the November 12, 2012 Public Meeting and made at the November 14, 2012 Council Meeting regarding the noise impact assessment. Presentation explained the nature and extent of errors made in the assessment report, the implications on materials presented at the Public Meeting and next steps.
November 21, 2012	Proponents response to Jacqueline Faubert indicating that an update to the Noise Impact Assessment issue will be presented at the November 21 Council Meeting.
November 22, 2012	Proponent follow-up with Municipal Chief Building Official regarding Municipal Consultation Form progress.
November 22, 2012	Municipality of Kincardine email to advise that Municipal Consultation Form is still in progress and will not be sent to Proponent this week.
November 23, 2012	Proponent response to Anne Eadie providing map, proposed to meet in-person to discuss prior to Public Meeting.

5.1 Municipal Consultation Form

Under O. Reg. 359/09 the person who proposes to engage in the Project shall distribute a Municipal Consultation Form (Part A and Part B) to the clerk of each local municipality and upper-tier municipality in which the Project Location is situated. Part B of the Municipal Consultation Form requests the municipality to provide information relating to municipal or local infrastructure and servicing such as:

- Roads (Including new roads and municipal road use);
- Municipal Service Connections;



- Traffic Management Plans;
- Emergency Management Procedures;
- Facility Other; and
- Project Construction.

Part A of the Municipal Consultation Form, as well as the draft Project Description Report was provided by Armow Wind to the Clerk of Bruce County and the Clerk of the Municipality of Kincardine on November 11, 2011. The cover letter and the Municipal Consultation Form are provided in Appendix F.1. The Municipal Consultation Form was provided for a second time, by request, on August 29, 2012 and the email accompanying it is provided in Appendix F.1. Follow-up emails to the County of Bruce and Kincardine were sent through September to November of 2012. Additionally a meeting was held with the Municipality of Kincardine to identify if the municipal staff required any additional information or had questions about the form. The table above summarizes correspondence around obtaining the Municipal Consultation Form the Municipality and the County.

To date, neither of the Municipal Consultation Forms have been submitted by either the Municipality of Kincardine or the County of Bruce, though ongoing communication is occurring to support the submission.

5.2 Report and Site Plan Distribution

On August 3, 2012 all draft REA reports, with exception of the Consultation Report, were provided to the Municipality of Kincardine and the County of Bruce. The confirmation of receipt of these documents is provided in Appendix F.2.

On August 10, 2012 the draft Site Plan Report was provided to the Municipality of Kincardine and the County of Bruce for review and comment. The confirmation receipt for this document is provided in Appendix F.3.

5.3 Face-to-Face Meetings with Councillors and Municipal Staff

At the outset of the Project, the Proponent made email contact with all councillors of the Municipality of Kincardine with a request to meet in person and discuss the Project and the change in ownership of the Project. Three councillors responded to this request (Maureen Coutour, Ron Coristine, and Kenneth Craig) and organized face-to-face meetings to discuss the Project. A fourth meeting occurred with Candy Hewitt. This was not a scheduled meeting. Councillor Hewitt was present when the Proponent was discussing the Project with a landowner close to her property and she participated in the conversation.

Additionally, a number of face-to-face meetings occurred between planning staff of the Municipality of Kincardine and the Proponent to discuss Project design as well as specific topics such as the Municipal Consultation Form and schedule, permits and fees. The purpose of the first introductory meeting with municipal staff was to get their feedback on how they wanted to proceed with the Project and help them better understand what the Proponent would be asked to do under the REA process. The second meeting was attended by the Roads Superintendent.



At this meeting, the Proponent provided an update on the Project and explained additional information about the REA process and the where they were in the process. At the third meeting the Proponent provided information about layout details and what would be presented upon submission of the application. The final meeting with municipal staff was to follow up after their receipt of all Project documentation and identify if they required additional information on these documents or to complete the Municipal Consultation Form. Ongoing activities on public right of ways were also discussed.

Three face-to-face meetings were held with the CAO of the Municipality of Kincardine. The first meeting was to discuss the MOU presented by the Proponent in response to requests from the Ad-Hoc Committee to develop the MOU regarding turbines in the Airport Vicinity. The focus of this meeting was to discuss the MOU and the Proponent's commitment to working with the Municipality of Kincardine in a way so as to maximize value for all parties involved. The CAO also identified the next steps for the MOU, which included legal review and advice for Council. The second meeting was a drop-in meeting after a meeting with Kincardine Planning and Public Works Department. It was attended by the CAO and the treasurer. Discussion points included the submission of REA documents and follow-up on the MOU with the Proponent's comments. A third meeting, which was also attended by the Mayor, took place to discuss events at Council meetings and the status of the MOU.

5.4 Council Meetings

Throughout November and December of 2011, after submitting the Draft Project Description Report and releasing the Notice of Proposal to Engage, the Proponent attended a number of Municipality of Kincardine Council meetings. On December 7, the Proponent met with the Mayor to discuss the Project. This meeting was followed by a formal presentation to Council at the regularly scheduled Council Meeting (Appendix F.4). The purpose of this presentation was to introduce the Project to Council and members of the public and take questions from Council regarding the Project. At this Council meeting, it was recommended that Council develop an advisory group consisting of interested Councillors and representative from the Proponent. This recommendation was implemented at the following Council meeting on December 14, 2012 through the development of an Ad-Hoc Committee. The purpose of this Ad-Hoc Committee would be to discuss the Municipality of Kincardine's Wind Development Policy. More information about the Ad-Hoc Committee meetings can be found in Section 5.5.

After the initial presentation to Council on December 7, 2011, the Proponent attended four council meetings to be available to Council and members of the public for questions about the Project. No presentations about the Project were made at these meetings. The Proponent inquired about the desire of Council to have presentations from technical experts at Council Meetings. It was advised that the Ad-Hoc Committee was the best avenue for discussion on the Project.

The Proponent made a final presentation to Council on November 21st, 2012 regarding revisions made to the Noise Impact Assessment. This presentation was carried out to specifically address concerns raised at the Second Public Meeting regarding the accuracy of the Noise Report. The Proponents provided responses to all concerns raised at the Open House and a Council meeting held on November 14th, 2012. A copy of the presentation, with responses is provided in Appendix F.4. At this Council meeting, Councillor Jacqueline Faubert proposed a motion to ban all industrial turbine development in the Municipality of Kincardine. This motion was defeated with the expectation that a revised motion would be presented the following week.



The proponent plans to continue attending regularly scheduled Council meetings and communicating through the Ad-Hoc Committee.

5.5 Ad-Hoc Committee Meetings

As identified in Section 5.4, the decision to create an Ad-Hoc Committee was proposed by Council and accepted by the Proponent. The purpose of this committee was to discuss the Municipality of Kincardine's Wind Development Policy so that the Proponent could fully understand the Policy and meet the intent of the Policy. The Ad-Hoc Committee was formed comprised the following staff:

- Anne Eadie, Deputy Mayor, Chairperson;
- Maureen Couture, Councillor;
- Jacqueline Faubert, Councillor;
- Candy Hewitt, Councillor; and
- Michele Barr, Building and Planning Manager (Staff).

The Proponent attended three meetings of the Kincardine Ad-Hoc Committee Meeting on January 31, 2012, March 19, 2012 and May 29, 2012. These meetings were public and documented by both the Council members as well as the Proponent's REA consultant. At each of these meetings it was clearly communicated to the committee that the Proponent could not meet all of the conditions of the Wind Development Policy because it would significantly restrict the Project development to approximately five turbines in within the Project area. The discussions that ensued were focused on identifying components of the Policy that the Proponent could adhere to. As well as understanding the components that could not be adhered to. It is the goal of the Proponent to meet the intent of the Policy as much as possible. The Minutes of these meetings are provided in Appendix F.5. The sections below describe the key discussions covered at each of the meetings.

5.5.1 January 31, 2012 Meeting

At the first Ad-Hoc Committee meeting, participants clearly outlined their expectations for the Committee. The Council members identified that they were mandated by Council to discuss how the Proponent would meet their Wind Development Policy, specifically in regards to the following areas:

- Airport Vicinity;
- Buffer Zones;
- Setbacks; and
- Cable location (underground compared to overhead).

The Proponent inquired whether this Committee could also be used as a forum to discuss working with Council on topics outside of their Wind Development Policy (e.g., community benefits, bringing experts to council to



present on relevant topics in the wind industry). The Council members advised that they could not discuss those topics because they were not in their mandate. Discussions then proceeded on the topics described below.

5.5.1.1 Airport Vicinity:

The Committee was seeking a written confirmation that no turbines be proposed in the airport vicinity as per 'Appendix A' of the Comprehensive Zoning By-law 2003-25 (their Wind Development Policy). This written confirmation would be detailed in a Memorandum of Understanding (M.O.U.) that could be included in a Master Agreement with the Municipality of Kincardine. The Proponent explained that the Project boundaries had been provided to Navigation Canada (NAVCan) for approval, and that they were waiting for their comments, however they would discuss the issue with their management in the interim. The Committee indicated that it is critical that no turbines be located in the airport vicinity area defined in the By-Law.

5.5.1.2 Buffer Zones:

The buffer zones identified in Wind Development Policy include Kincardine, Lakeshore, Tiverton, Armow and Glammis. These Buffer Zones are equal to approximately 6,000 ha of the Project area. The committee chair explained the approach that council took with regard to the buffer zones. The buffer zones are intended to protect the growth of areas of the Municipality. The Proponent identified that they understood the desire to protect these areas and that they would seek to minimize the limitation on potential growth.

5.5.1.3 Setbacks:

The Wind Development Policy states that all projects must have 800-metre setbacks from participating and non-participating receptors. The Council members of the Committee explained that the purpose of the 800-metre setback was to allow development in the back 200 metres of each lot. The Proponent explained the setback requirements for a Renewable Energy Approval Application and identified that if they adhered to the 800-metre setbacks, they could only build five turbines, which would render their Project unfeasible.

The Committee suggested that Samsung and Pattern engage in more public relations, to provide the public with clear visual information, showing all required setbacks by the O.Reg. 359/09. The Council members asked for proof of constraints for Project layout and why turbines could not be built in the back 200 metres of lots. The Proponent said they would bring constraints mapping with them to their next meeting.

5.5.1.4 Buried Lines:

The Committee was seeking a written confirmation that all lines within the Project will be buried. This written confirmation would be detailed in a Memorandum of Understanding (M.O.U.) that could be included in a Master Agreement with the Municipality of Kincardine.

The Proponent explained that, in some cases, it may not be physically possible to bury the lines due to road allowance widths, land control, other utilities and physical features such as rivers or ditches. Municipal staff in attendance at the meeting suggested that the Proponent submit maps, as soon as possible, of the proposed



roads for review by the Public Works Manager and that they would be willing to work with the Proponent to move the Project forward. The Proponent identified they would discuss the request for the MOU with their management.

5.5.2 March 19, 2012 Meeting

The purpose of the second meeting was to follow up on action items from the first meeting, including the status of the requested MOUs and further clarification on topics discussed during the first meeting such as buffer zones and setbacks. This meeting specifically focused on explaining setback constraints to the Councillors using detailed constraints maps. Approximately 15 members of the public attended this meeting. When the maps with specific turbine locations were presented, the meeting went into closed session. This is standard procedure when discussing confidential information such as Proponent lease agreements and participating landowners.

5.5.2.1 Setbacks:

During closed session the Proponent was prepared with ten specific locations to explain how the Proponent sites turbines and the constraints associated with siting turbines under O.Reg. 359/09, as amended. The Councillors then requested that the Proponent work through each property that the Proponent had lease agreements with to explain the siting process on each land parcel. The purpose of this was to explain how environmental constraints limit turbine placement. This process also helped the proponent describe Vacant Lot Receptors, which the Council did not incorporate in their Wind Development Policy. Through this process, the Proponent identified that they could not site turbines in the back 200-metres of most land parcels because of woodlot constraints. Additionally, rural building practices often place houses approximately 10 – 100 metres from the front of the property. Neither of these factors were included in the Wind Development Policy. At the end of the meeting, the Proponent committed to reviewing the Project layout to maximize distances between turbine and non-participating receptors.

5.5.2.2 Airport Vicinity:

The Proponent wanted to discuss the remainder of the Wind Development Policy prior to committing to any MOUs, therefore the Proponent did not provide an MOU regarding the Airport Vicinity at this meeting. The Proponent's management required further discussion and clarification on the request for the MOU. The Proponent identified that they had not yet received a response from NAVCan regarding this issue. Additionally, the Proponent indicated identified that they had not yet determined their final layout. An MOU could potentially be signed once this layout had been finalized. The Proponent also asked if an MOU was needed if the final layout did not have turbines within the Airport Vicinity. The Council members identified that an MOU would still be sought.



5.5.2.3 Buried Lines:

Although an MOU agreeing to bury all lines and cables was not presented at this meeting, the Proponent explained that they are committed to burying the lines underground unless this activity is commercially unfeasible. Feasibility of burying the lines will only be verified when the detailed engineering is complete.

5.5.2.4 Buffer Zones:

The status of the Municipal Wind Policy Buffer zones was discussed. The Proponent indicated that the Buffer Zones around the Lakeshore area and Tiverton and Kincardine will be maintained. Any turbines within these buffer zones will be dropped from the layout. However, proposed turbines will still be located in the Buffer Zones of Armow and Glamis.

5.5.3 May 29, 2012 Meeting

The focus of this meeting was to follow up on the action items from the previous meeting and present an MOU to the Council members of the Committee. The meeting was open to the Public and approximately four people from the public attended. The Council members identified that although some of their requests were met with the MOU, it contained a number of clauses that they did not ask for. The meeting closed with the Proponent identifying that they would take a request for a specific MOU regarding the Airport Vicinity back to their management. Discussion about the MOU and additional topics is summarized below. The MOU is currently undergoing final negotiations.

5.5.3.1 Project Description Report

The Proponent began the meeting by identifying that the Project Description Report, along with all associated reports may be available by the end of June.

5.5.3.2 Airport Vicinity

The Draft MOU was presented to the Committee. The memorandum incorporated a number of the clauses, including a statement confirming that turbines will not be located within the airport vicinity mapping. The Committee requested that an MOU be developed to only address the airport. The Council members of the Committee committed to reviewing the document. The Proponent provided a response on a specific MOU to the Kincardine Chief Administration Officer on June 6, 2012 and identified that they would not be submitting a specific MOU.

5.5.3.3 Buried Lines

The Proponent confirmed their intentions are to bury the lines underground unless there is interference from other authorities or is commercially feasible. This intention was included in the submitted MOU. It was also noted that the Substation will be located near the collection lines as there are no transmission lines.



5.5.3.4 Buffer Zones

Samsung/Pattern indicated the buffer zones will be met for the Primary Urban and Secondary Urban Communities, Tiverton, Lakeshore and Kincardine. As discussed at the previous meeting, staying outside the Buffer Zones of Glammis and Armow would significantly impact the development of the Project. Additionally, the Proponent explained that they had altered the layout to increase the average distance to non-participating properties to 710 metres. It was also noted that the REA setbacks for receptors applies only to non-participating receptors and there may be instances of participating receptors that are REA compliant, but located within this non-participating setback.

6.0 AGENCY CONSULTATION

In addition to Project Notifications provided to Government agencies, described in Section 2, additional consultation has been undertaken with the following relevant agencies:

- Ontario Ministry of Environment (MOE);
- Ministry of Natural Resources (MNR);
- Ontario Ministry of Culture and Sport (MTCS);
- Transport Canada;
- NavCanada; and
- Saugeen Valley Conservation Authority.

In addition, consultation regarding the potential for the Project to result in electromagnetic interference with radar and various broadcast signals was with the following agencies and organizations as outlined by the Radio Advisory Board of Canada:

- Department of National Defense;
- Environment Canada;
- Canadian Wind Energy Association;
- Industry Canada;
- Canadian Coast Guard;
- Royal Canadian Mounted Police; and
- NavCanada.

This additional consultation is described in the following sections and a record of specific communications provided in Table 15.



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Table 15: Summary of Communications with Federal and Provincial Agencies

Date	Communication
November 9, 2011	Sent Notice of Proposal to Engage and First Public Meeting.
January 4, 2012	NAV Canada email from Jeff MacDonald, Director, Operations Planning and Programs, NAV Canada, requesting to speak with Proponent regarding the Project and information on submission forms and process.
January 5, 2012	Proponent response to NAV Canada advising that final coordinates or turbines have not been determined. Proponent asked whether it would be productive to send Project boundary for comments.
January 18, 2012	Follow-up email from Christopher Csontos, Land Use Specialist Aeronautical Information Services NAV Canada to Proponent's January 5, 2012 email. NAC Canada Land Use Specialist request for a phone conversation.
January 18, 2012	Proponent response to NAV Canada's January 18, 2012 email regarding requested phone conversation.
March 8, 2012	Received letter from MTCS stating that the Stage 1 Archeological assessment Report will be entered into the Ontario Public Register of Archaeological Reports.
April 12, 2012	Proponent received response from NavCanada indicated that their assessment is inconclusive at this time as the layout has not been finalized.
May 3, 2012	Emailed Amy Cameron of MNR regarding survey methodologies for waterfowl nesting areas and marsh bird breeding habitat.
May 8, 2012	Response email from Amy Cameron of MNR deeming survey protocols for Marsh Breeding Birds and Waterfowl Nesting complete.
June 21, 2012	Emailed Amy Cameron of MNR regarding survey methodologies for common nighthawk, olive-sided flycatcher and shrub/early successional habitats.
June 21, 2012	Emailed Amy Cameron and Jodi Benvenuti of MNR regarding survey methodology for open country bird breeding and bird Species at Risk habitats.
June 25, 2012	Response email from Amy Cameron of MNR suggesting adding some point count locations to the shrub/early successional habitat polygon and the olive-sided flycatcher habitat polygon. Overall no issues with protocol.
June 25, 2012	Response email from Amy Cameron of MNR suggesting separating the protocol write-ups for Open-country breeding birds from that of Species at Risk. Open country breeding birds will use survey methods the same as those describes in the bobolink survey protocol with minor adjustments.
June 26, 2012	Email to Jodi Benvenuti of MNR regarding survey methods specific to Species at Risk.



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Date	Communication
June 28, 2012	Response from Emily Gryck of MNR regarding survey methods specific to Species at Risk. Requesting an updated map and clarification on surveys.
July 23, 2012	Email to Amy Cameron of MNR requesting review of the Natural Heritage Records Review Report for review.
July 24, 2012	Response from Amy Cameron of MNR, deemed Natural Heritage Records Review Report complete with one small correction to be made before it can be added to the MNR files.
July 26, 2012	Email to Amy Cameron of MNR requesting review of Natural Heritage Site Investigation Report.
July 26, 2012	Email to Amy Cameron of MNR requesting review of Natural Heritage Evaluation of Significance Report.
July 30, 2012	Response from Heather Riddell of MNR providing comments on the Woodlands and Valleylands sections of the Natural Heritage Site Investigation Report.
July 31, 2012	Received letter from MTCS stating that the stage 2 Archaeological Assessment will be entered into the Ontario Public Register of Archaeological Reports.
August 1, 2012	Response from Heather Riddell of MNR with comments regarding the Natural Heritage Site Investigation Report and requested meeting to discuss. Comments related to criteria for determining candidate significance of wildlife habitat and generalized candidate significant wildlife habitat.
August 10, 2012	Response from Heather Riddell of MNR providing comments on the Natural Heritage Evaluation of Significance Report, specifically the Woodlands and Valleylands sections.
August 13, 2012	Email to Heather Riddell of MNR discussing timelines for EIS submission for review.
August 13, 2012	Response from Amy Cameron of MNR asking for the EIS for high level review and comments.
August 16, 2012	Email to Amy Cameron of MNR providing Environmental Impact Study for high-level comments.
August 17, 2012	Email to Amy Cameron of MNR regarding providing GIS shape files.
August 17, 2012	Response from Amy Cameron of MNR regarding an update on review timelines.
August 20, 2012	Response Email from Joe Halloran of MNR providing comments on the woodlands portion of the Environmental Impact Study.



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Date	Communication
August 20, 2012	Response email from Erin Thompson of MNR providing comments on the Environmental Impact Study as it relates to valleylands. Most comments related to ELC codes and mapping.
August 21, 2012	Response from Erin Thompson of MNR providing comments on the Environmental Impact Study related to valleylands.
August 21, 2012	Received feedback from Transport Canada regarding the Project. Provided information regarding the Navigable Waters Protection Act and the Railway Safety Act as well as contacts regarding these two acts.
August 28, 2012	Response from Joe Halloran providing comments on Section 4 of the Environmental Impact Study.
September 4, 2012	Email to Heather Riddell of MNR requesting review of Natural Heritage Environmental Impact Study Report.
September 7, 2012	Response from Jason Webb of MNR providing comments on the Natural Heritage Site Investigation Report regarding Significant Wildlife Habitat.
September 11, 2012	Response from Jason Webb of MNR providing comments on the Natural Heritage Evaluation of Significance. All point survey locations must be provided to MNR for all habitats requiring pre-construction monitoring prior to conducting evaluation of significance surveys.
September 11, 2012	Response from Heather Riddell of MNR providing comments to all sections aside from wildlife sections of the Natural Heritage Environmental Impact Study Report.
September 12, 2012	Email to Jason Webb and Heather Riddell of MNR requesting review of the updated Natural Heritage Site Investigation.
September 14, 2012	Response from Jason Webb of MNR providing comments on the Natural Heritage Environmental Impact Study Report.
September 18, 2012	Response from Jason Webb of MNR providing comments on the Natural Heritage Site Investigation. Identified concern over the changes to Raptor Wintering Area sizes and would like to discuss.
September 18, 2012	Proponent submitted final layout to NavCanada through Land Use Application Process.
September 19, 2012	Response from Jason Webb of MNR providing comments on the Evaluation of Significance. Corrections were minor.
September 26, 2012	Received email that no objections or concerns with the proposed Project with respect to DND's radio communication systems from National Defense representative Mario Lavoie.
September 28, 2012	Received email stating that potential interference caused by the Project will not be severe and therefore there are not strong objections to the Proposed Project from Metrological Service of Canada representative Carolyn Rennie.



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Date	Communication
October 2, 2012	Received email stating that a detailed analysis has been completed for the Proposed Project and that there will likely be no interference with DND radar and flight operations. Layout will need to be re-submitted for another assessment of the layout changes. This concurrence is only valid for 24 months from the date of the email and that similar projects may not be granted concurrence as this is specific for this Project.
October 26, 2012	MNR letter of confirmation received by the Proponent, confirming that the NHA complies with REA requirements.
November 15, 2012	Proponent submitted addendum regarding the modification of the Project Locations (turbine moving 20 metres).
November 16, 2012	MNR letter of confirmation of an addendum submitted by the Proponent regarding modification to Project Location.
November 22, 2012	Proponent submits technical memorandum to MNR to confirm that Turbine 39 has been dropped from the Project layout.
November 23, 2012	MNR email confirming receipt of memo and confirmed the MNR had no concerns regarding the removal of Turbine 39 and associated cables and roads. MNR confirmed there was no need for re-confirmation

6.1 Ministry of the Environment Meetings

The Proponent met with representatives of the Ministry of the Environment (MOE) four times. The meeting topics were as follows:

- Meet the Proponent and discuss the Project and work undertaken to date;
- Various aspects of REA process requirements of the Draft Site Plan Report and Permit to Take Water; and
- Process for submitting the REA application and Project document revisions (third and fourth meeting).

6.2 Written MNR review of the Natural Heritage Assessment

In accordance with the Ministry of the Environment's (MOE's) Renewable Energy Approvals (REA) Regulation (O.Reg.359/09), the Ministry of Natural Resources (MNR) reviewed the Natural Heritage Assessment and Environmental Impact Study for the Project and in accordance with Section 28(2) and 38(2)(b) of the REA regulation, MNR provided the following confirmations:

- 1) The MNR confirms that the determination of the existence of natural features and the boundaries of natural features was made using applicable evaluation criteria or procedures established or accepted by MNR.
- 2) The MNR confirms that the site investigation and records review were conducted using applicable evaluation criteria or procedures established or accepted by MNR for all natural features identified.



- 3) The MNR confirms that the evaluation of the significance or provincial significance of the natural features was conducted using applicable evaluation criteria or procedures established or accepted by MNR.
- 4) The MNR confirms that the Project Location is not in a provincial park or conservation reserve.
- 5) The MNR confirms that the environmental impact study report has been prepared in accordance with procedures established by the MNR.

The October 26, 2012 letter in which these confirmations were provided is included in Appendix G.2.

After receipt of the October 26, 2012 MNR confirmation letter, the following minor changes to the Project were communicated to MNR on November 16, 2012:

- Modified placement of one wind turbine (T59);
- Modified access road and cabling routes to accommodate new placement of wind turbine (T59); and
- Distances from Project components to natural features.

On November 16, 2012, the Proponent received a letter from MNR confirming that the Natural Heritage Amendment submitted the MNR the same day, met the Natural Heritage Assessment Requirements of O. Reg. 359/09, as amended.

On November 22, 2012, the Proponent provided MNR as follow-up to an email discussion, a brief memo that outlined the removal of a single turbine (T39) and the access road and cabling associated with that turbine location. The memo concluded that other Project components were still present within 120m of the natural features that were within 120m of this removed infrastructure, resulting in no changes to any aspect of the already confirmed Natural Heritage Assessment or the subsequent Addendum. On November 23, 2012, email correspondence acknowledging the receipt of this memo was provided by the MNR to the Proponent. As the layout change was due to the removal of Project components (no movements or additions), MNR advised that re-confirmation was not required.

Letters of confirmation from MNR are found in Appendix G.2.

6.3 Ministry of Tourism, Culture and Sport

On March 8, 2012, the Proponent received a letter from the Ministry of Tourism, Culture and Sport (Appendix G.3) indicating that they considered that the archaeological assessment complies with the Ontario Heritage Act's licensing requirements, including the license terms and conditions and the Ministry's 1993 Archaeological Assessment Technical Guidelines or the 2011 Standards and Guidelines for Consultant Archaeologists (whichever apply).

Following receipt of the MTCS confirmation letter, minor changes were made to the layout that involved lands not previously assessed for archaeological resources. A satisfaction letter was received from MTCS on July 31, 2012 indicating that the additional assessment complies with the Ontario Heritage Act's licensing requirements, including the license terms and conditions and the Ministry's 1993 Archaeological Assessment Technical Guidelines or the 2011 Standards and Guidelines for Consultant Archaeologists (whichever apply).



On June 28, 2012, as required by s. 23(3) (a) of O. Reg. 359/09 under the Environmental Protection Act regarding heritage assessments undertaken for the Project, MTCS indicated that based on the information provided in the Heritage Assessment Report, that the Ministry was satisfied with the heritage assessment.

Letters of confirmation from MTCS are found in Appendix G.3.

6.4 Consultation with Saugeen Valley Conservation Authority

The Proponent met with the Senior Manager of Environmental Planning and Regulations and the Regulation Officer at Saugeen Valley Conservation Authority (SVCA) on October 10, 2012 to discuss the Project and how to proceed with permitting requirements under Ontario Regulation 169/06 (Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation). Golder followed-up the introduction meeting with an email to SVCA on October 18, 2012 to request SVCA's hazard land mapping shape file information. A response email was received from the SVCA on October 19, 2012 advising Golder to contact the Drinking Water Source Protection GIS staff as the SVCA GIS specialist was currently on leave. A follow-up email was received from Drinking Water Source Protection's GIS Specialist containing the requested hazard land shape files. Golder plotted the shape file information received and noted that a portion of the Project study area was not included. Golder emailed the Drinking Water Source Protection GIS staff and provided a figure outlining the Project Study Area and hazard lands mapping provided and requested additional shape file information to include the full extent of the study area. Golder followed up with the request on October 22, 2012 and was provided a response that she was coordinating with the SVCA to obtain the additional information. The shape file information was received from the Drinking Water Source Protection on October 23, 2012. Golder and NRSI are currently preparing a report to help facilitate review where proposed infrastructure may require permitting under O.Reg. 196/06.

6.5 Transport Canada

In response to the circulation of the Draft Site Plan, Transport Canada provided an email on August 21, 2012 outlining their mandate for the administration of the *Navigable Waters Protection Act (NWPA)* and the *Railway Safety Act*. This correspondence, provided in Appendix G.4, also included a NWPA application guide and a blank application form.

6.6 NavCanada

The Proponent has been in contact with NavCanada since January 2012. At this time, the layout of turbines was still under development and in a dynamic state; however, it was recommended by NavCanada for the Proponent to provide the coordinates of Project boundary and the highest elevation of the Project area. On April 12, 2012, NavCanada indicated that, because the individual turbine coordinates could not be provided, it's "assessment method consider[ed] a larger area than will be necessary for individual turbines, [that] it constitutes a 'worst-case' analysis and can reveal more Air Navigation System impacts than an assessment of individual turbine sites." Further, the assessment indicated that, "...the fact that this development is at a preliminary stage, NavCanada will not provide a conclusive opinion at this time."



Upon finalization of the turbine layout, the Proponent submitted to NavCanada individual turbine coordinates on September 18, 2012 as part of a comprehensive Land Use Application. As of the date of this report, NavCanada has not yet provided a final assessment of the layout.

6.7 Radio Advisory Board of Canada

Armow Wind is consulting with applicable stakeholders in accordance with The Radio Advisory Board of Canada (RABC) and the Canadian Wind Energy Association's (CanWEA) *Technical information and Coordination Process between Wind Turbines and Radiocommunication and Radar Systems* (2010). Stakeholders, as determined by the mandatory contact list outlined in the above noted guideline, were provided with a technical memorandum on September 25, 2012. The memorandum included in Appendix G.5, provided a description of the Project including to coordinates of turbine locations. To date there have been responses from the Department of Defence and Environment Canada stating they have no strong objections to the Project, these email responses are provided in Appendix G.5.

7.0 CONSIDERATION OF COMMENTS

Under O. Reg. 359/09, proponents of renewable energy projects are required to provide in the Consultation report a description of whether and how:

- Comments from members of the public, Aboriginal communities and municipalities were considered by the person engaging in the Project;
- The documents made available in the final Public meeting were amended after the final Public Meeting; and
- The proposal to engage in the Project was altered in response to comments received from members of the public, Aboriginal communities and municipalities.

Comments were considered on an individual basis; however they were also compiled and grouped into categories for further analysis and for reporting purposes. The following table outlines the topic categories and sub-categories identified for the Project, for purposes of this Report.

Table 16: Topic Categories and Sub-Categories Identified for the Project

Topic Category	Topic Sub-Category
Environment	Birds
	Animal Habitat
	Bats
	Environment (Non-specific)
	Water quality
	Migratory flyways
	Wetlands



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Topic Category	Topic Sub-Category
Human Health	Follow-up monitoring
	Loss of agricultural lands
	Stray Voltage
	Health Concerns
	Noise (including low frequency noise and infrasound)
	Flicker
	Wind turbine materials
Project Details	Vibrations
	Project Siting/Location/Size
	Project Construction
	Project Operations
	Project Schedule
	Complaint resolution strategy
	Regulatory Setbacks
	Municipal Setbacks
	Regulatory Processes
	Project Details
Socio-Economic	Support for Project
	Financial/Community Benefit
	Agriculture
	Property Values
	Community Consultation
	Visual
	Wind Support
	Socio-economic (general)

Considering comments by topic sub-category was intended to allow for a focussed approach and clear communication surrounding comment topics. Topics of interest raised throughout the entire consultation process related primarily to:

- Potential human health impacts related to sound generated from turbines and lights on top of the turbines;
- Potential impacts to wildlife;
- potential impacts to property values; and
- Potential impacts to visual landscapes.

Table 17 below provides representative comments for each topic category, details how the comment has been addressed, and provides a reference in the Application documents where further information can be found. Although not every comment received has been included verbatim, all issues raised through all engagement



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activities are captured and addressed within this table. The comment forms and formal letters from which this table was generated are included in Appendix B. Issues raised in emails have been captured in Table 17, however the emails themselves are not included in Appendix B to protect personal information contained within them. These emails can be made available to agency representatives upon request.



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Table 17: Consideration of Comments

Topic Category	Comment	Source of Comment	How Comment Has Been Considered	Location in the REA Application Reports Where Comment Addressed
Community Impacts	We feel the Project is dividing up neighbours.	Public	Armow Wind is committed to being a long-term partner of the community and believes the Project will have a net benefit for the Municipality of Kincardine.	Consultation Report
	I protest this Project as a threat to community life.	Public		
	What provision have you made for helicopter access for air ambulance to the Kincardine hospital	Public	The Armow Wind Project will comply with all federal aviation regulations to ensure the continued safety of the local community and flight patterns.	Site Plan Report
	Concerned about potential effects on the local Amish community.	Public	Meetings have been held with representatives of the Amish community and the concerns they identified are being addressed on an individual basis.	Consultation Report (See Appendix B.4)
	Multiple sponsorship requests.	Public/Community Groups	Individual requests were evaluated on a case by case basis.	Consultation Report
	How will nuclear plant employees benefit from this Project?	Public	The Project is intended to complement the base load of nuclear power creating a more stable and reliable electrical grid. Nuclear plant employees who live in the Kincardine community will benefit from the Project Vibrancy Fund.	Consultation Report
	Construction traffic impacts on horse-drawn vehicle traffic.	Public	The Amish community will be consulted when developing the traffic management plan in corporation with the Municipality of Kincardine and the County of Bruce that will be implemented during construction.	Construction Plan Report



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Topic Category	Comment	Source of Comment	How Comment Has Been Considered	Location in the REA Application Reports Where Comment Addressed
Compensation	Questions regarding compensation for neighbours of landowners who have turbines on their properties, or other landowners within the Project area.	Public	Decisions regarding compensation for neighbours have not yet been made. On-going discussions are held to evaluate the optimal structure.	Consultation Report
	Is Armow Wind interested in purchasing my property?	Public	Armow Wind does not have any plans to purchase properties at this point.	Consultation Report
	What insurance is carried in the case of property damage or injury to persons other than contractual employees, i.e. residents' property or person(s)?	Public	Although we do not expect to exercise it, the Project will hold robust liability coverage that covers third-party damage.	
Complaint Resolution	Do you have in place a complaint resolution protocol that allows residents to be responded to if they experience disturbance? Will the turbines will be shut down to alleviate their health distress.	Public/Municipal	A mailing address will be established for Project operations staff to receive communications from the public, Aboriginal communities, regulatory agencies, Municipality of Kincardine and Bruce County. All complainants will be provided with the actions that will be taken to remediate the cause of the complaint and proposed actions to prevent similar occurrences in the future. A formal protocol will be developed.	Design and Operations Report
	Would you please provide details of your proposed post operational complaint protocol? How will grievances be dealt with? Will there be simply	Public/Municipal		



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Topic Category	Comment	Source of Comment	How Comment Has Been Considered	Location in the REA Application Reports Where Comment Addressed
	an answering service for people who are experiencing adverse health effects or will each case be responded to immediately and the turbine shut down during investigation until the problem is resolved?			
	Will you update Section 6 of the Design and Operations Report to include sending a confirmation copy of any complaints to the complainant?	Public	Armow Wind will take this under consideration when implementing its communications protocol prior to Project construction.	Design and Operations Report
Decommissioning	Who is responsible if Suncor, Acciona and now Samsung pulls out? As a landowner I could not afford to decommission.	Public	Any financial burden associated with the decommissioning of turbines is the sole responsibility of Armow Wind. This is outlined in detail in the Decommissioning Plan Report. This report includes a decommissioning procedure for ceasing operation, as well as a fail-safe if the is abandoned during the construction phase.	Decommissioning Plan Report
	Will you be posting a bond with our council sufficient to provide for the complete costs of decommissioning the turbines in the event that they are no longer functional or your company is no longer	Public	Our decommissioning plan is outlined in the Decommissioning Plan Report. As this Plan is part of our REA Application, the Project will be held to the components outline in that Plan.	Consultation Report



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Topic Category	Comment	Source of Comment	How Comment Has Been Considered	Location in the REA Application Reports Where Comment Addressed
	involved or choses to declare bankruptcy?			
Electromagnetic Frequency (EMF)	The report states that electromagnetic interference represents a potential effect and the Project's potential impact to these services. What remedial action or steps are being taken to avoid impacts and what remedies are available for loss by residents attributable to impacts of this nature. As an example, claims have been made of loss of satellite communications. With television reception problems found have included static interference and dynamic interference. Cellular and wireless networking services may also be impacted. How will these issues be addressed?	Public	Armow Wind is consulting with applicable stakeholders in accordance with The Radio Advisory Board of Canada (RABC) and the Canadian Wind Energy Association's (CanWEA) <i>Technical information and Coordination Process Between Wind Turbines and Radiocommunication and Radar Systems</i> (2010). Stakeholders, as determined by the mandatory contact list outlined in the above noted guideline, have been consulted to determine if any radio communication or radar system concerns associated with the Project arise.	Consultation Report
	Will testing be done relative to EMF pollution on transformer/collector lines? When and how often will the testing be	Public	A 2010 Health Canada Factsheet states "You do not need to take action regarding daily exposures to electric and magnetic fields at extremely low frequencies. There is no conclusive evidence of any harm caused by exposures at levels found in	Consultation Report



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Topic Category	Comment	Source of Comment	How Comment Has Been Considered	Location in the REA Application Reports Where Comment Addressed
	done and will reports be issued to affected neighbours with underlying standards outlined?		Canadian homes and schools, including those located just outside the boundaries of power line corridors.”	
Emergency Response	<p>Systems have not been elaborated upon for emergency response, especially at high elevation. The local fire and rescue departments have no equipment available for reaching heights of 100 metres. Warnings have been issued by several communities that in the case of fire or other accident, there is not the equipment available to assist in combating a fire or to effect rescue at height.</p> <p>Will you provide our council with a valid service contract (in effect for the life of the structure with certified copies of renewals forwarded to the Municipality one month prior to their taking effect) with a high angle rescue</p>	Public	An Emergency Response and Communications Plan is provided in the Design and Operations Report as well as the Decommissioning Plan Report. These plans will be further developed as the Project progresses. The Armow Wind Project is also continually working with the Municipality of Kincardine to determine a suitable operating framework for both parties.	Design and Operations Report and the Decommissioning Plan Report



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Topic Category	Comment	Source of Comment	How Comment Has Been Considered	Location in the REA Application Reports Where Comment Addressed
	service provider (certified by a self-regulating organization formed under the direction and regulation of a federal or provincial agency according to its approved standards maintained throughout the life of the structure) who will respond to any and all emergencies that may occur at the proposed structures including high angle rescue. The contract shall state the response time for the rescue service provider to arrive at the location of the structures within the proposed industrial wind turbine development.			
	Will you provide a bond to our Municipality to cover the total cost of any response required by a Chief Fire Official to a high angle rescue response by your contracted high angle rescue service provider which may require the assistance of the local	Public		



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Topic Category	Comment	Source of Comment	How Comment Has Been Considered	Location in the REA Application Reports Where Comment Addressed
	Chief Fire Official?			
Environment	I feel the <i>Green Energy Act</i> encourages large projects by providing subsidy and the opportunity for profit, without due consideration of potential negative impacts to environment or human health. Until technology advances to the point that storage of excess wind production is viable, wind projects should remain small only.	Public	<p>Consideration of potential negative impacts to the environment must meet stringent requirements as laid out in the <i>Green Energy Act</i> and O. Reg. 359/09, and as reported in the Natural Heritage Assessment and Water Body Report documents.</p> <p>Many studies have been conducted world-wide to examine the relationship between wind turbines and possible human health effects. Overall, health and medical agencies agree that when sited properly, wind turbines are not causally related to adverse effects. We refer you to these sources as examples: Chatham-Kent Public Health Unit, 2008; Australian Government, National Health and Medical Research Council, 2010; Australian Government, 2011; Massachusetts Department of Environmental Protection (MassDEP) and Massachusetts Department of Public Health (MDPH), 2012. Saying this, reports of annoyance by some people living around wind turbines has occurred, yet this annoyance appears to be more related to variables like personal attitude and whether a person can see a turbine from their home rather than a turbine-specific variable like noise. Also please note that the Environmental Review Tribunal (ERT) in Ontario ruled in 2011 (Erickson v. Director, Ministry of the Environment) and again in 2012 (Monture v. Director, Ministry of the Environment) that wind turbine projects in Ontario, as approved under the regulation, would</p>	National Heritage Reports and Water Body



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Topic Category	Comment	Source of Comment	How Comment Has Been Considered	Location in the REA Application Reports Where Comment Addressed
			not cause serious harm to human health.	
	I feel by putting up windmills you are disrupting the aquifer.	Public	<p>The Water Assessment and Water Body Report examine the potential effects to water resources and have determined that by implementing the various mitigation measures there will be no significant impacts to the environment during the design, construction, operation or decommissioning phases.</p> <p>If groundwater should be encountered during the excavation of the foundations, some temporary water removal would be required during construction, but there is no plan to extract groundwater at a level that would require assessment under the REA process.</p> <p>A full site erosion control and drainage plan will be prepared and implemented.</p> <p>In the event of an environmental incident, emergency response and spill and waste control plans would be immediately implemented to protect groundwater and the environment. Further details about emergency communications are in the Design and Operations Report.</p>	<p>Water Body Environmental Impact Study</p> <p>Technical Memorandums attached to Design and Operations Report</p> <p>Construction Plan Report</p>
	Residents within the Project and in proximity to turbine construction rely on a clean water supply from wells. Undue disturbance, particularly in areas where ground water levels are within only feet of the surface, depending on the season of the year, can result in either adulteration of the ground water supply through sediment or possible contaminants entering the system. Unusual amounts of sedimentary disturbance could also damage pumps supplying homes in the affected areas.	Public		
	Lubricating oils have also been known to leak from wind turbine installations. Buried pcb cables eventually deteriorate releasing contamination into the surrounding soil	Public		



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Topic Category	Comment	Source of Comment	How Comment Has Been Considered	Location in the REA Application Reports Where Comment Addressed
	unless they are run through ABS pipe which does not break down. What preventative measures are you planning and what remedy is in place for such occurrences?			
	How does the loss of agricultural land compare within the Project area? What will be the cumulative loss after existing and planned Projects in the County are accounted for?	Public	<p>The loss of agricultural land during the lifespan of the project due to turbine footprints and access roads will represent less than 0.5% of all lands within the Project Study Area and associated crops.</p> <p>The temporary loss of agricultural lands associated with the construction and installation activities will represent approximately 2% of the total Project Study Area.</p>	Construction Plan
	How will wildlife in Glammis Bog and the Greenock Swamp be affected by Low Frequency Noise (LFN) which is known to travel 10 miles from an industrial wind turbine development?	Public	<p>Infrasound refers to the sound waves with a frequency below 20 Hz. Low frequency sound refers to frequency between 20 and 200 Hz. Natural sources of infrasound and low frequency sound include severe weather, waves on seashore, and wind in the trees. Like other devices such as cars and refrigerators, wind turbines also produce low frequency noise and infrasound. The level at which wind turbines produce low frequency noise and infrasound is well below the threshold and sensitivity of hearing for these frequencies. While a review of the recent scientific literature covering the health impacts of low frequency noise and infrasound</p>	Consultation Report



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Topic Category	Comment	Source of Comment	How Comment Has Been Considered	Location in the REA Application Reports Where Comment Addressed
			<p>from wind turbines supports that there is no impact on human health, GLGH is not a medical expert and therefore does not have a formal medical opinion about the health effects of infrasound or low frequency noise on humans or wildlife.</p> <p>The sound propagation was modeled over the site, at the typical industry best practice frequencies, and the Project is compliant with the noise guidelines published by the Ministry of the Environment (MOE).</p>	
	<p>Landowners are destroying wildlife habitat (such as hedgerows and trees) and are getting away with it - logging to put up lines, roads and not having to replace any damage they do and Samsung does not care - it's done under the table. Studies had to have been done before hand. I'm shocked these greenways are being destroyed without any outcry of the wildlife!</p>	Public	<p>Armow Wind has not requested or does not know of any incidents where landowners have cut down trees to provide access to their land for this Project.</p> <p>The Proponent is committed to minimizing any potential effects of the Project on the environment. Therefore significant natural heritage, water body and wildlife studies have been done on the Project Location, and are all available for public review. These reports identify all potential impacts to the environment of our construction and operations activities and further outline practices to mitigate and minimize these impacts.</p> <p>It is important to note that no woodlot will be cut down or logged to build a road or collector route for this project.</p>	Natural Heritage Reports



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Topic Category	Comment	Source of Comment	How Comment Has Been Considered	Location in the REA Application Reports Where Comment Addressed
			Roads were designed to limit the number of hedge rows crossed, and final collector routes will be selected to limit tree removal. Directional drilling will also be used to reduce tree damage/cutting.	
	What is the cause of bat mortality at turbines? Why are bats susceptible to pressure changes but not birds?	Public	Bats are killed at turbines as a result of a combination of barotraumas and/or direct impact from the turbine blades. The bats are susceptible to pressure changes due to physiological differences between birds and bats.	Natural Heritage Reports
	Scientific uncertainty regarding environmental benefits of wind power.	Public	Renewable energy, such as wind power, will help reduce dependence on other forms of electricity generation, such as coal-fired generation, that contribute to greenhouse gas emissions and poor air quality. Wind is a predictable fuel supply that can help meet the forecasted increase in electricity demand.	Consultation Report
	Cumulative effects on biodiversity of wind turbine projects sited near migratory flyways, wetlands and staging areas.	Public	Natural heritage requirements described in Sections 23 through 28 of O. Reg. 359/09 have been followed when preparing the natural heritage assessment and environmental effects monitoring plan.	Natural Heritage Reports
	What plans do you have to preserve trees on our county roads? What plans do you have to	Public	The majority of construction along county roads will occur in the road right-of-way for the construction of electrical distribution lines and will not require tree removal. Where access roads	Construction Plan Report



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	replace trees and to provide mature trees to protect the view shed of residents? Will trees that need removing be replaced with trees similar in age and size?		are proposed from county roads, Armow Wind has sought to minimize any disturbance to trees in consultation with landowners. Armow Wind is also considering a tree preservation replacement program and will develop this plan as the Project progresses.	
	What are the long term effects of this Project on Significant Wildlife Habitat?	Public	The purpose of the Armow Wind Project: Natural Heritage Environmental Impact Study (EIS) are to identify potential impacts and recommend appropriate mitigation measures as to avoid potential significant or long-term effects. The possible effects of the Project have been outlined in the EIS, and include (but are not limited to) habitat loss, disturbance, and direct mortality of birds or bats. Each of the potential impacts have been reviewed in detail and have mitigation measures and monitoring plans to assess potential impacts. In addition, contingency measures have also been provided within the EIS should the monitoring plan determine that mitigation measures are not protecting from significant impacts.	Natural Heritage Environmental Impact Study (EIS)
	Have follow-up survey's been scheduled?	Public	Follow-up monitoring is planned for the first 3 years of the Operation Phase of the Project and has not yet been scheduled.	Natural Heritage Environmental Impact Study (EIS)
	Will a report be issued on the recommended follow-up and has a plan been made for remedial action and what recommendations would	Public	The Natural Heritage Environmental Impact Statement Report details follow-up monitoring, reporting and mitigation measured to be implemented for this Project. A Post-Construction Environmental Monitoring Plan will be developed in coordination with the Ministry of	Natural Heritage Environmental Impact Study (EIS)



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	this plan include?		Natural Resources.	
	The Environmental Screening Assessment studies appear to be taking place over an insufficient time frame. The autumn migratory season in this area begins in August and the spring migration will not have concluded by March.	Public	<p>The Proponent has retained Natural Resource Solutions Inc. (NRSI), a qualified environmental firm to conduct surveys and provide Natural Heritage services. Wildlife surveys began in 2008 and continue to be conducted in accordance with MNR guidance as detailed in:</p> <ul style="list-style-type: none"> ■ The Natural Heritage Assessment Guide for Renewable Energy Projects (2010); ■ Ecological Land Classification Manuals; ■ MNR Significant Wildlife Habitat Technical Guide; ■ MNR Birds and Bird Habitats Guidelines for Wind Power Projects (December 2011); and ■ MNR Bats and Bat Habitats Guidelines for Wind Power Projects (July 2011). ■ Survey protocols have been reviewed and approved by MNR. 	Natural Heritage Reports
	What are the qualifications of those who are carrying out the field work? We require detailed information about the studies – i.e. dates, hours and locations.	Public	The name and qualifications of the biologists responsible for site investigations and for writing the NHA are included in the NHA report as required by the O. Reg. 359/09. Study details (i.e., location, timing and dates) are outlined in the NHA, the Water Assessment and Water Body Report and the Archaeological Assessment Report.	Natural Heritage Reports and Water Body Reports
Health Concerns	More research needs to be done on the health effects of wind farms.	Public/Municipal	We acknowledge that Health Canada's new proposed study has the potential to contribute to the current base of scientific literature. However, the vast majority of scientific evidence available	Consultation Report
	Without health studies	Public		



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	completed new turbines should not be put up close to people's homes. Ontario's premier, finance minister, and energy minister quit over the current energy scandal, thus no projects should be going ahead.		to date demonstrates clearly that wind turbines do not pose a significant risk to human health. Studies and literature reviews from around the world have confirmed this, including a recent study that stated that, "the scientific evidence available to date does not demonstrate a direct causal link between wind turbine noise and adverse health effects".	
	Belief that it is irresponsible to move forward with the Project until health studies (such as the Health Canada study) are completed.	Public	Health Canada has noted of their study that <i>"It is important at the outset to clearly acknowledge that this research is being conducted to provide additional insight into an emerging issue; however, the results will not provide a definitive answer on their own."</i>	
	We are very concerned as local people are getting sick and moving out.	Public	The provincial government has established clear siting requirements for wind projects in Ontario; and we are confident that the sound level from wind turbines at common residential setbacks is likely not sufficient to cause hearing impairment or other direct health effects.	
	Wind turbines make me nauseous.	Public		
	I get migraines from flickering lights.	Public	The global literature has not linked wind turbine shadow flicker or navigation lights at night to onset of migraines.	Consultation Report
	Who resolves costs if landowners/residents need more when/if their health is affected?	Public	As documented on the Ministry of the Environment's website (www.ene.gov.on.ca), Ontario's Chief Medical Officer of Health conducted a review of possible health impacts of wind turbines in a response to public concerns.	Consultation Report
	Have warnings regarding human health been offered in the contracts to	Public	This review stated that, "the scientific evidence available to date does not demonstrate a direct	Consultation Report



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	landowners signing turbine leases?		causal link between wind turbine noise and adverse health effects". The sound level from wind turbines at common residential setbacks is likely not sufficient to cause hearing impairment or other direct health effects. Proposed wind facilities within the Province of Ontario must adhere to the Regulatory requirements regarding noise which are consistent with World Health Organization noise limits.	
	If there are unresolved health or other issues will these turbines still go ahead?	Public		Consultation Report
	Is there any health risks associated with the materials in the blades?	Public	Blades are made of fibreglass, reinforced epoxy in Siemens's proprietary IntegralBlade® manufacturing process. In this process, the blades are cast in one piece to eliminate weaker areas at joints. There are no known health effects associated with turbine blades.	Consultation Report
	Concerns regarding shadow flicker.	Public	The Siemens turbines used for this Project do not spin fast enough to elicit photosensitive epileptic seizures.	Consultation Report
	In your statement under Health and Safety, you claim that electricity generation through a wind turbine facility does not emit environmental contaminants such as CO ₂ and NO _x . However, with over 20,000 wind turbines installed in Germany, CO ₂ emissions have actually increased because of the additional coal plants we were	Public	We cannot compare countries that have different policies on energy mix. The OPA has a mandated plan to reduce Ontario's reliance electricity generated by coal and therefore reliance on coal as a back-up for electricity generation is not anticipated.	Consultation Report



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	needed to maintain grid stability. This claim is misleading because it does not take into account the need for fossil-fuelled back up.			
	Reports referenced by Armow Wind regarding health effects are outdated and superseded by more up to date studies which outline effects of wind turbines on people living in close proximity to them.	Public	At our Public Meetings, we have made available a number of resources, in addition to the 2010 report released by the Chief Medical Officer of Health in Ontario. On our poster board about health concerns we reference a number of sources, including Chatham-Kent Public Health Unit, 2008; Australian Government, National Health and Medical Research Council, 2010; Australian Government, 2011; Massachusetts Department of Environmental Protection (MassDEP) and Massachusetts Department of Public Health (MDPH), 2012. Scientists and medical experts around the world continue to publish research in this area and this is one reason we have experts on hand at our open houses for people to speak with.	Consultation Report
	Requesting an accurate description of the health issues related to the Project with regards to the decisions of the Chatham-Kent Environmental Review Tribunal.	Public	Many studies have been conducted world-wide to examine the relationship between wind turbines and possible human health effects. Overall, health and medical agencies agree that when sited properly, wind turbines are not causally related to adverse effects. We refer you to these sources as examples: Chatham-Kent Public Health Unit, 2008; Australian Government, National Health and Medical Research Council, 2010; Australian Government, 2011;	Consultation Report



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			Massachusetts Department of Environmental Protection (MassDEP) and Massachusetts Department of Public Health (MDPH), 2012. Saying this, reports of annoyance by some people living around wind turbines has occurred, yet this annoyance appears to be more related to variables like personal attitude and whether a person can see a turbine from their home rather than a turbine-specific variable like noise. Also please note that the Environmental Review Tribunal (ERT) in Ontario ruled in 2011 (Erickson v. Director, Ministry of the Environment) and again in 2012 (Monture v. Director, Ministry of the Environment) that wind turbine projects in Ontario, as approved under the regulation, would not cause serious harm to human health.	
Kincardine Airport	The studies that I asked Jody Law for had not yet been completed or done.	Public	The relevant study is the NavCanada land use application study. We have engaged NavCanada on our layout and await the results of their analysis.	Consultation Report
	How may the Project affect instrument approach?	Public	The Armow Wind Project has submitted its layout to NavCanada through their Land Use Application process. Further, the Project has not sited any turbines within the Municipal Airport buffer outlined in bylaw no. 2003-25 Comprehensive Zoning Bylaw.	Consultation Report
	I am concerned with proximity to the airport.	Public/Municipal	Armow Wind has been working with the Ad Hoc Municipal Council Committee to incorporate the Kincardine Wind Generation System Development Policy, to the extent feasible, in Project planning. Further, the Project has not sited any turbines within the Municipal Airport	Site Plan Report



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			buffer outlined in bylaw no. 2003-25 Comprehensive Zoning Bylaw.	
Project Description	How many live (as their prime residence) on the land they have optioned?	Public/Municipal	Many mailing addresses in the Project area only identify Rural Routes and no house number. We do not know or ask where our landowners actually reside.	Consultation Report
	Please supply the status of your consultation regarding communications and electronic malfunctions that may be caused by the Project.	Public	<p>Armow Wind is consulting with applicable stakeholders in accordance with The Radio Advisory Board of Canada (RABC) and the Canadian Wind Energy Association's (CanWEA) <i>Technical information and Coordination Process Between Wind Turbines and Radiocommunication and Radar Systems</i> (2010). Stakeholders, as determined by the mandatory contact list outlined in the above noted guideline, have been consulted to determine if any radio communication or radar system concerns associated with the Project arise.</p> <p>On September 25, 2012 Armow Wind solicited feedback from potentially affected groups in keeping with the "Technical information and Coordination Process Between Wind Turbines and radiocommunication and Radar Systems" (2010). These groups included:</p> <ul style="list-style-type: none"> ■ Industry Canada; ■ The Department of National Defence; ■ The Royal Canadian Mounted Police; ■ The Canadian Coast Guard; ■ Environment Canada; and 	Consultation Report



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			<ul style="list-style-type: none"> NavCanada and Public Safety Agencies. To date Armow Wind has received feedback from the Department of National Defence and the National Radar Program (Environment Canada) stating they have no strong objections to the Project. 	
	How will the Project handle future development near the Project? Will you give simple written warnings or will you expect a signed release from any future hazard? Especially in the eastern portion of the Project where the number of turbines appear to restrict future developments.	Public	The Project does not restrict development on neighbouring properties, and the Proponent does not expect any hazards to the public directly associated with the operation of the turbines. There will be signage identifying where direct hazards, such as direct contact with a pad mount transformer, may exist.	Consultation Report
	What is the total land use occupied by all turbines, transformer stations, turbine roads and all access roads in total?	Public	<p>The loss of agricultural land during the lifespan of the project due to turbine footprints and access roads will represent less than 0.5% of all lands within the Project Study Area and associated crops.</p> <p>The temporary loss of agricultural lands associated with the construction and installation activities will represent approximately 2% of the total Project Study Area.</p>	Project Description Report
	What monitoring logs will be kept and will these be available on request by	Public	Monitoring logs will be kept. Raw monitoring data is not made publicly available by the Proponent; however yearly reports are submitted to the MNR.	Natural Heritage Reports



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	any resident or municipal official?			
	More energy is not needed for Ontario's electrical grid so why do we need this Project?	Public	Wind power can complement the provincial base load generation and create a more stable and reliable electrical grid. Wind power is intended to be part of the long-term energy supply plan for the Province of Ontario, which accounts for forecasted supply and demand in the years to come.	Consultation Report
	To what extent will Armow use local labour and materials?	Public/Municipal	Our intent is to source locally and to developed a local contractor list; however, this will not be known until our Engineering Procurement and Construction contractor selects their sub-contracts. Samsung and its' partners are part of the Green Energy Investment Agreement, which is committed to establishing four manufacturing facilities in Ontario. These facilities will manufacture blades and towers that will be used for this Project.	Consultation Report
	Concerned about the doubling of the Project size compared to the Acciona Project.	Public	The Siemens turbines proposed to be used for the Armow Wind Project are of newer technology and increased efficiency. As such, each machine can generate more electricity at a quieter sound level. The overall density of turbines in the Project area will be no greater than that of the existing neighbouring wind farms.	Consultation Report..
	How much does a whole turbine weigh?	Public	A turbine weighs approximately 400 tonnes – this includes tower, blades, hub and nacelle.	Consultation Report.
	What are the blades made of, are they made of stainless steel? How	Public	Blades are made of fibreglass reinforced epoxy in Siemens' proprietary IntegralBlade® manufacturing process. In this process the	Consultation Report.



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	are they controlled? How much do they weigh?		blades are cast in one piece to eliminate weaker joint areas. Turbines are connected via fiber optic cables that up-link the turbines to a 24-hr control centre. Each blade weighs approximately 10 tonnes.	
	What happens to the Project infrastructure after 20 years?	Public	A decision will be made by the Proponent whether to refurbish and extend the operation life of the Project or to decommission. If decommissioning is the chosen option it will follow the Decommissioning Plan Report.	Decommissioning Plan Report
	What is the average speed of the wind turbines?	Public	The average speed of the wind turbine is 13 rpm. This is dependent on wind resources.	Wind Turbine Specifications Report
	Question regarding leases with Conservation Authorities.	Public	The Saugeen Valley Conservation Authority (SVCA) is an agency that the Proponent is consulting with. The Proponent does not have any lease holdings with the Conservation Authority. The SVCA regulates hazard lands and waterways in this municipality.	Consultation Report
	What is the process for the <i>Municipal Drainage Act</i> and the related permits?	Public	Armow Wind is consulting with the Municipality of Kincardine and the Saugeen Valley Conservation Authority regarding municipal regulated drains. The Proponent will consult with these stakeholders through final design, construction and operations.	Consultation Report
	Concerns regarding the blades flying off of the turbines.	Public	Each turbine requires a full inspection before obtaining mechanical completion and sign-off from both the installer and the manufacturer. Various tests are then completed to fully commission each turbine. The turbines are then inspected again to ensure they are in proper	Consultation Report.



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			working order. Once operational, bolts are retorqued and turbines are place on a routine maintenance schedule for the life of Project. It is measures such as these that ensure turbines function as designed and equipment malfunctions do no occur.	
	What is the average nighttime shear?	Public	Shear is the difference in wind speed and direction over a short distance (e.g. across the diameter of a turbine). The average shear at nighttime is 0.32.	Consultation Report.
	How can one tell which turbines are de-rated and how do residents know that the proposed de-rating is actually in operation?	Public/Municipal	The turbines will be commissioned according to their permitted design. Any implementation of a non-permitted design would be outside compliance with our approved permit. Turbine output will be programmed in the commissioning stage. Only Siemen's technicians will be able to program the turbine and the Proponent's operations team will not have the capability to change the output settings.	Consultation Report.
	How was the 550 m setback chosen?	Public	The 550 m minimum setback from a non-participating receptor is set by the Provincial government in the <i>Green Energy Act</i> . Ontario is a leader in establishing clear setbacks for renewable energy projects. As stated on the Ministry of Environment's website, Ontario's setback of 550 metres is the most stringent in North America and is based on the most up-to-date science.	Project Description Report
	Will there be pile foundations?	Public	Foundation types will be decided after the completion of a geotechnical investigation. There may be a mix of piled and gravity foundations.	Design and Operations Report



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			Final foundation design and type will be confirmed after the completion of a full geotechnical investigation. A desktop geotechnical investigation has been completed for the Project area. This report is available in the Design and Operations Report. More details about foundations that are proposed for the Project are available in the Design and Operations and Construction Reports.	Construction Plan Report
	Will collection systems be installed underground or overhead? What depth are the collector lines buried?	Public/Municipal	The majority of collector lines will be underground while overhead collector lines may be used in some areas due to technical and physical limitations. The collector lines will be buried at 1.2 – 1.5 metres.	Construction Plan Report
	Do the turbines come with manufacturer safety warnings related to turbine erection?	Public	The turbines come with manufacturer safety warnings and in order to receive the manufacturer's warranty all construction and maintenance standards from the manufacturer must be followed.	Not required under O. Reg. 359/09
	Is there a <i>Canadian Standards Act</i> inspection number for this model of turbine?	Public	Yes and all design and installations will adhere to applicable CSA standards.	Not required under O. Reg. 359/09
	Inquiry regarding turbines catching fire.	Public	The manufacturer has many safety features built into the turbines to prevent them from catching fire. Armow Wind is required to submit to the IESO an Emergency Preparedness Plan which describes the emergency response activation process.	Design and Operations Report
	Will you be posting	Public	The Proponent feels that warning signs will not be	Design and



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	warning with regards to ice throw?	Public	necessary. Sensors can detect ice accumulation on the blades and the turbines will automatically shut down until the ice is cleared. Additionally, mandatory site inspections will occur prior to start-up of each turbine.	Operations Report
	Question regarding damage caused by ice throw and if 60 m is really protective for blade throw as well.			
	What type of turbines will be used and what is the blade length?	Public	The model of Turbine to be used is the Siemens SWT-2.3 - 101 Turbine. The blade length is 49 metres.	Wind Turbine Specifications Report
	Will you provide a list of any and all hazardous material(s) that may be contained within or be part of the construction of the proposed wind turbines, along with Material Safety Data Sheets for such identified hazardous materials?	Public	During construction and operation of the wind farm, all Material Safety and Data Sheets will be available as required by provincial and federal law.	
	How many turbines will the Project use?	Public/Municipal	The Project is expected to use approximately 90 wind turbines.	Site Plan Report
	What is the lifespan of the Project?	Public	It is anticipated that the Project will be in operation for 20 years.	Project Description Report
	What is the efficiency of the wind turbines (what percentage of the time do they run)?	Public	The wind turbines at the Armow Wind Project are expected to generate energy between 80-90% of the time on any average year, with the maximum production usually happening during the evening and morning.	Not required under O. Reg. 359/09
	Requests to develop the Project as a co-operative.	Public	The Proponent will consider these requests in the context of all requests and how they relate to the	Not required under O. Reg. 359/09



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			Project economics.	
	Will it take more energy to construct the wind turbines than they will ever return? Is the difference to be made in taxpayer subsidies?	Public	Once a wind project is constructed and is in operation, the fuel (wind) cost is zero. Thus, the costs to continue running are limited to maintenance of the turbines. While it will take some time to recover the costs of construction, the commercial operation duration of the wind project (20 years) will exceed this amount of time.	Not required under O. Reg. 359/09
	30% capacity factor is not profitable.	Public	There are many factors that contribute to the profitability of a project, including capacity factor. Ultimately, a project must balance these factors to create a net benefit for all stakeholders involved.	Not required under O. Reg. 359/09
Project Economics	I don't like to subsidize wind mills or solar with my tax dollars.	Public	<p>As reported by a Bridgepoint Group report, "Renewable Energy Facts; Ontarians Have a Good Deal,"</p> <p>"Results from a Pembina Institute study show that electricity prices would continue to rise from 2011 to 2020, regardless of whether the new capacity is supplied by renewable or natural gas generation. The price increase is due to a mounting need to replace and maintain ageing supply and transmission capacity, not due to renewable technology generating the supply.</p> <p>"Wind is already cheaper and solar will soon be competitive with new and refurbished nuclear, currently estimated at a range of 12-20¢/kWh by Wall Street and independent analysts. These cost estimates suggest that planned refurbishment of</p>	



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			<p>50% nuclear would cause a significant portion of the price increase projected in the Pembina Institute study over the next decade.</p> <p>“As per the 2012 OEB Market Surveillance Panel report, 45% of the global adjustment portion of the Ontario electricity bills from 2006-11 has risen due to nuclear and only 6% due to renewables.</p>	
	Concerns regarding electricity prices affected by wind turbine development.	Public	A recent study conducted by Tim Weis and P.J. Partington titled “Behind the Switch: Pricing Ontario Electricity Options” (2011) found that the <i>Green Energy Act</i> has little or no impact to Ontario ratepayers. The reasons behind this were that currently planned renewable resources would have to be replaced with other options which would likely work out to be more polluting, less sustainable and in the long-term more expensive. Another important point raised in this study is the increased cost of continuing to use coal plants, notably to the health care system. Further discussion about this study as well as a link to the study itself is available at (http://www.pembina.org/blog/556).	Not required under O. Reg. 359/09
	How much taxes are paid per turbine?	Public	Each turbine will pay approximately \$6,000 in taxes per year. This is equivalent to approximately \$540,000 per year from the Project, according MPAC.	Not required under O. Reg. 359/09
	What are the cost payback numbers for this Project?	Public	As a privately held corporation, the Proponent does not disclose this information to the public.	Not required under O. Reg. 359/09



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Project Location/Layout	Why was this location chosen? It should be closer to where the power is needed, not in rural areas.	Public	Overall, this area contains an excellent quality wind resource, it is in ideal proximity to transmission and has received great interest from local landowners. These are the primary factors that contribute to the selection of a wind farm location.	Not required under O. Reg. 359/09
	Too many windmills too fast. Why can't we wait and see what the effects are of existing windmills in Port Elgin to Goderich area? Why so many windmills for this area?	Public		
	Put the turbines in the city.	Public		
	Why put the wind mill on working [agricultural] land when there is lots of waste land with no people close by?	Public		
	It appears that sacrifices were made in allowing the airport buffer zone and the remaining turbines were wedged into the eastern portion of the Project.	Public	Turbine positions have been proposed in all possible locations within the Project area. Proposed turbines were dropped from the Airport Vicinity based on consultation with the Municipality of Kincardine, and not replaced in other areas.	Consultation Report
	Request for more evidence for the assertion that "the density of turbines for the Armow Wind Farm will be no	Public	Under the current regulations, the Proponent has fewer available positions to host turbines. More stringent sound/setback constraints for wind projects have been implemented since neighbouring have been permitted.	Not required under O. Reg. 359/09



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	greater than that of an average wind farm, including those directly adjacent to the proposed Project area.”			
	How have you taken into consideration the cumulative effect of placing so large an industrial complex adjacent to an already existing one?	Public	The Noise Impact Assessment must look at other nearby projects and take into account the cumulative effects.	Noise Impact Assessment
	Why wasn't turbine 52 located further north?	Public	Turbine placement is influenced by many factors such as setbacks as laid out in O. Reg. 359/09 as well as technical and environmental factors.	Site Plan Report
	Can Armow Wind place turbines close to property lines?	Public	The REA setbacks are the blade + 10 metres from the property line.	
Project Timelines	How has plowing started if the Project has not been approved yet?	Public	Ploughing that has started was for the purpose of archaeological assessments and it was not construction activity.	Consultation Report
	Suggestion that the government institutes a moratorium on the construction of industrial wind turbines until evidence-based, impartial, scientific research has identified issues relating to site placement, human health, environmental impacts,	Public	As documented on the Ministry of the Environment's website (www.ene.gov.on.ca), Ontario's Chief Medical Officer of Health conducted a review of possible health impacts of wind turbines in a response to public concerns. This review stated that, "the scientific evidence available to date does not demonstrate a direct causal link between wind turbine noise and adverse health effects". The sound level from wind turbines at common residential setbacks is likely not sufficient to cause hearing impairment	Consultation Report



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	economic efficiencies resulting in the development of national, uniform standards and regulations.		or other direct health effects. Proposed wind facilities within the Province of Ontario must adhere to the Regulatory requirements regarding noise which are consistent with World Health Organization noise limits.	
	When is construction expected to begin?	Public	Construction is expected to begin in late summer 2013. Geotechnical investigation activities will occur in the winter and spring of 2013.	Project Description Report.
Property Values	Turbines built near my home will decrease my property value and make it impossible to sell my home.	Public	<p>Several recent studies have demonstrated that proximity to a wind farm does not have a negative lasting impact on property values.</p> <p>These studies include:</p> <ul style="list-style-type: none"> ■ MPAC News Summer 2012 (http://www.mpac.ca/pdf/MPACNewsSummer2012.pdf) which noted that property values have continued to increase in Ontario in many areas where wind projects either exist or are proposed for development. In the County of Huron, for example, residential property values increased by an average of approximately 14.8% since 2008; farmland has increased by approximately 65.3% since 2008. ■ Canning, G., and L.J. Simmons. (February 2010). Wind Energy Study Effect of Real Estate Values In the municipality of Chatham-Kent. Canning Consultants Inc. & John Simmons Realty Services Ltd. Prepared for the Canadian Wind Energy Association. 	Consultation Report
	Try selling a property surrounded by turbines which would you prefer a nice unobstructed view of the sunset or having to keep your curtains closed day and night because of shadow flicker and red warning lights.	Public		
	What will be done about real estate prices of people's properties if they get devalued due to wind turbines nearby?	Public		
	I protest this Project as a threat to property values.	Public		
	As a realtor interested in responses to clients	Public		



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	somewhat leery about buying close to turbines.		<ul style="list-style-type: none"> Hoen,B., Wiser, R., Cappers, P., Thayer,M., and G.Sethi. (December 2009). The impact of Wind Power Projects on Residential Property Values in the United States: A Multi- Hedonic Analysis. Ernest Orlando Lawrence Berkeley National Laboratory. Prepared for the Office of Energy Efficiency and Renewable Energy 	
Public Infrastructure	Will you be posting a bond with our Municipal Council to cover the costs of repairing roads damaged during construction or during subsequent maintenance?	Public	Although we do not expect to exercise it, the Project will hold robust liability coverage that covers third party property damage.	Consultation Report
Public Participation	Who set the time for the meetings? The time was exactly at the time when dairy farmers have to do their milking.	Public	The Public Meeting materials were left set up at the Tiverton Community centre for this individual to review the day after the Public meeting. Project team members were available and spent 1.5 hours directly addressing her questions and concerns. The discussion focused on NHA procedures (NRSI staff was present and returned to Kincardine the following day), wildlife and stray voltage.	Consultation Report
	There has not been sufficient consultation with local airports.	Public	NavCanada has been engaged and is conducting a land use application study based on the Project layout. Armow Wind is awaiting the results of their analysis.	Consultation Report
	A request was made to make the REA reports available at the MPPs	Public	All reports are publically available through the municipal and county offices, the Kincardine and Tiverton Libraries, our Project website	Consultation Report



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	office.		(www.armowwind.com), and our Project Office at 322 Lambton Street in Kincardine. We cannot unfortunately provide full copies of all reports to everyone who requests them. We are happy to assist in answering questions regarding the reports through our Project Office.	
	Community Benefits section of Project Webpage lack context with regards to the Project and supporting evidence.	Public	We believe community involvement is very important, and an integral part of any project. We look forward to further developing our relationship with the community. Specifics regarding community benefits are proprietary information and can not be provided on our website.	Consultation Report
	Concerned about report revisions made before the final Public Meeting. Requesting an additional 60 days for public review and 90 days for municipal review.	Public	The revisions were minor and were general clarifications. An additional 60 and 90 days for review are not required. All maps presented at the Public Meeting were correct and accurate.	Consultation Report
	Requesting maps present at Public Meeting include scales.	Public		Consultation Report Appendix D.2
	If the turbine numbers are not correct, the sound level ratings are incorrect. This should be re-done and posted again for 90 days.	Public	Only the Project Location and natural heritage maps did not have a scale. The Project Public Meeting included a large 5 x 6 ft map of the Project layout displayed on a table.	Consultation Report
	This Public Meeting was markedly different in Armow staff demeanor. I	Public	Armow Wind had experts from every related discipline associated with the REA reports that were developed for this Project. At these	Consultation Report



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Topic Category	Comment	Source of Comment	How Comment Has Been Considered	Location in the REA Application Reports Where Comment Addressed
	was not approached by staff while reading Project material.		meeting, the Proponent tries to strike a balance between allowing attendees the opportunity to read material at their own pace and actively engaging them.	
	Now with all the inaccuracies (incorrect information) that were pointed out at tonight's meeting re: incorrect turbine location, GPS coordinates, noise study were all incorrect. This is so disappointing and discouraging. How do we know we have the "right" information?	Public	All errors in the Noise Impact Assessment have been identified and confirmed that they had no impact on the results of any analysis or assessment. All maps presented at the Public Meeting were correct and not affected by the errors. Multiple checks and quality control procedures have been implemented on the report to ensure its accuracy. Additionally, a public information session specifically focused on the errors and corrections was held on Dec 11, 2012.	Consultation Report
	Suggestion of forming a Stakeholder Advisory Committee.	Municipal	The Armow Wind Project will remain committed to the community through its local Project Office. The formation of a Stakeholder Advisory Committee, or other similar body, will be considered as the Project progresses.	Consultation Report
	The proposed December Public Meeting does not meet the requirements for community consultation because it is merely a product showcase and does not provide a public forum and a two way street for input of our concerns.	Public	An open house format was selected instead of a public forum style because the open house format allows attendees to process Project information at their own pace. This format of a public gathering also provides more opportunities for one-on-one conversations with Project team members.	All comments/questions raised at Public meetings are addressed within this Consultation Report.
	The Public Meeting	Public	Based on both Public Meeting events, we found that this approach successfully allowed attendees to hear each other's comments and also allows	



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	format does not contribute towards allowing attendees to hear each other's comments since groups are broken up preventing all attendees the benefit of replies given by a team member.		<p>Project team members to gather the maximum amount of public input.</p> <p>Additionally, the Proponent used many other forms of communication to provide information about the Project to community members including:</p> <ul style="list-style-type: none"> ■ Presentations to Council; ■ Project website; ■ Establishment of a local Project Office; and ■ Presence at local community events. 	
	The Open House format may prevent attendees from having the opportunity to present their question in the time allowed and written communications and responses are required to form part of the REA submission.	Public	Individuals who requested taking home a comment form to provide detailed responses were encouraged to do so and their comments have been incorporated into the REA reports as well as this Consultation Report. In addition some individuals brought letters of their comments with them to the Open House meeting which have been included in this Consultation Report.	Consultation Report
Setbacks	More consideration should be given to safe setbacks.	Public/Municipal	The Ministry of Environment has established guidelines to protect public health and safety which prescribe setback distances and permissible sound levels at dwellings. The Project has been designed to be in compliance with noise requirements of O. Reg. 359/09. We are currently working with Hydro One and their guidelines in the development of the Project.	Noise Impact Assessment and the Site Plan Report
	Too many turbines located too close to residents home.	Public		
	I am concerned about setbacks and the related health issues.	Public		



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Topic Category	Comment	Source of Comment	How Comment Has Been Considered	Location in the REA Application Reports Where Comment Addressed
	Turbines shown on map as 113/44/43/85/59/94/57 appear very close to Bervie side road as example.	Public		
	Turbines 90/35/32/103/60/105/106/52/51/101 appear to be closer to Ontario Hydro corridors than permitted by Ontario Hydro Networks Inc. Standard of 500 m to 500 kV corridor/250 m to 230 kV corridors. Please comment.	Public		
	Our community has already determined requirements for wind turbine siting in the Kincardine Wind Generation System Development Policy as well as other guidelines. How will you be accommodating these guidelines and policies which are the consensus of our community?	Public/Municipal	The Project Team met with a Municipal Ad-hoc committee and numerous occasions to discuss the municipal policies and understand the drivers behind them. The Project complies with a substantial portion of the guideline where commercially reasonable and Armow Wind has attempted to meet the spirit of the Policy.	Site Plan Report
	Why is the agreement with Glammis not being adhered to?	Public/Municipal		



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Topic Category	Comment	Source of Comment	How Comment Has Been Considered	Location in the REA Application Reports Where Comment Addressed
	According to a Kincardine Buffer zone map, Kingarf and Glammis would fall within the Project's setback zones. What provision have you made for future expansion buffer zones to accommodate the built-up areas along the shoreline as well as for Kincardine, Bervie, Millarton and Kinloss?	Public/Municipal	Armow Wind has been working with the Ad Hoc Municipal Council Committee to address concerns regarding wind turbine buffer zones identified in the Kincardine Wind Generation System Development Policy. Currently, all wind turbines have been removed from the Lakeshore, Kincardine and Tiverton buffer zones and the Airport Vicinity. Additionally, the final Project layout has been revised to increase average setbacks from non-participating receptors and ensure buried lines and cables where commercially feasible.	Consultation Report
Sound	Wind turbines will be noisy and will affect my quality of life.	Public	The Ministry of Environment has established guidelines to protect public health and safety which prescribe setback distances and permissible sound levels at dwellings. The Project has been designed to be in compliance with noise requirements of O. Reg. 359/09 which requires a minimum setback distance of 550 metres between a turbine and a non-participating landowners' residence with background sound levels not exceeding 40 decibels at the residence. This is the sound level one would experience in a quiet office and is only slightly louder than in a library.	Noise Impact Assessment
	Was special consideration given to schools, churches or special needs facilities other than including these with normal receptors for	Public	Schools, churches and special needs facilities were considered as Points of Reception in the Noise Impact Assessment, as specified by the noise guidelines published by the MOE. They were not given any special consideration beyond the definition outlined in the noise guidelines.	Noise Impact Assessment



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Topic Category	Comment	Source of Comment	How Comment Has Been Considered	Location in the REA Application Reports Where Comment Addressed
	the purpose of noise impact?			
	Concerned that sound levels are not being measured inside homes.	Public	<p>The World Health Organization (WHO) states the following with regard to noise levels inside dwellings: "Indoor guideline values for bedrooms are 30 dB LAeq for continuous noise and 45 dB LAmax for single sound events. At night-time, outside sound levels about 1 metre from facades of living spaces should not exceed 45 dB LAeq, so that people may sleep with bedroom windows open. This value was obtained by assuming that the noise reduction from outside to inside with the window open is 15 dB."</p> <p>The Armow Noise Impact Assessment respects the MOE limit of 40 dBA outside the dwelling which, based on the WHO guidelines, implies that sound levels inside the bedroom will be adequate for sleep.</p>	Noise Impact Assessment
	Request for a better explanation of powering down turbines from 2.3 MW to 1.8+ MW to remain within MOE noise guidelines.	Public	<p>For the Armow Project, 91 of the 98 turbines will be operated in a noise reduced mode. This is done to ensure that the Project is compliant with Ontario's guidelines. As a result of the noise reduced operation, the turbines will produce less power at certain wind speeds. Please see the NIA for a description of which turbines will operate in noise reduced mode. Please see Appendix E of the NIA for technical specifications of the noise reduced turbines.</p> <p>Turbine noise reduction is mainly a result of lower rotor speed and consequently lower aerodynamic</p>	Noise Impact Assessment



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Topic Category	Comment	Source of Comment	How Comment Has Been Considered	Location in the REA Application Reports Where Comment Addressed
			noise levels, as well as lower mechanical noise levels caused by the gearbox and generator inside the nacelle operating at less than full capacity.	
	Will you be willing to have a peer-reviewed study done of the GLGH Noise Impact Assessment?	Public/Municipal	Our Noise Impact Assessment, as with all of the reports submitted as part of the REA application, will undergo a thorough review during the technical review phase of the REA process. This phase can last up to 6 months and is preceded by a review of completeness, which can last up to 2 months.	Noise Impact Assessment
	Please explain why 3 or more turbines that appear to be within less than 100 metres of each other, combined still only produce 40 dBA of noise.	Public	The minimum distance between any two turbines is approximately 300 m. GL GH calculates sound pressure levels using CadnaA software which is an implementation of ISO 9613-1 and ISO 9613-2. ISO 9613 is internationally recognized and widely used for the modeling of wind farms and other sources of noise in the environment. The proximity of several noise sources to each other does not necessarily increase the impact they might have on their surroundings based on the ISO 9613 noise propagation model.	Noise Impact Assessment
	What baseline studies were done on background sound levels within the Project area, daytime and nighttime over what period of time?	Public	GL GH has not conducted a background sound level campaign for the Project. This is not required by the MOE. From page 6 of the Noise Guidelines for Wind Farms:	Noise Impact Assessment
	Please provide a comprehensive report on baseline noise study determination.	Public	"The measurement of wind induced background sound level is not required to establish the applicable limit. The wind induced background sound level reference curve, dashed line in	



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			<p>Figure 1, was determined by correlating the A-weighted ninetieth percentile sound level (L90) with the average wind speed measured at a particularly quiet site. The applicable Leq sound level limits at higher wind speeds are given by adding 7 dB to the wind induced background L90 sound level reference values, using the principles for establishing sound level limits described in Publication NPC-232.”</p> <p>According to the MOE, the applicable noise limit cannot be set lower than 40 dBA for Class 3 receptors, regardless of background sound levels.</p>	
	How was it determined that the Project is a Class 3 Project with 40dBA background level?	Public	<p>The MOE categorizes PoR into three classes: 1, 2, and 3. Class 1 refers to an acoustic environment typical of a major population centre where the background noise is dominated by the urban hum. These areas are highly urbanized and have moderate to high noise levels throughout the day and night. Class 2 areas have an acoustic environment characterized by low ambient sound levels between 19:00 and 07:00, whereby the evening and night time levels are defined by natural sounds, infrequent human activity and no clearly audible sounds from stationary sources (e.g. industrial and commercial facilities). Class 3 areas are typical of rural and/or small communities (i.e. with populations of less than 1000) and an acoustic environment that is dominated by natural sounds with little or no road traffic.</p>	Noise Impact Assessment



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Topic Category	Comment	Source of Comment	How Comment Has Been Considered	Location in the REA Application Reports Where Comment Addressed
			<p>Within the study area the main sources of ambient sound that currently exist include:</p> <ul style="list-style-type: none"> ■ Vehicular traffic on the local concession and side roads, some of which are gravel roads; ■ Occasional sounds due to agricultural activities; ■ Occasional sounds due to anthropogenic domestic activities; and ■ Natural sounds. <p>Based on these conditions, all PoR are considered as having a Class 3 acoustic environment.</p> <p>It is noted that Class 3 acoustic environments have the lowest possible noise limit of 40 dBA at 6 m/s.</p>	
	What consideration has been giving to cyclical noise?	Public	<p>Cyclical noise has not been explicitly considered in this analysis. GL GH has followed MOE's Noise Guidelines for Wind Farms.</p> <p>The aerodynamic noise caused by a spinning rotor is included in the overall sound power level of the wind turbine as per the IEC61400-11 Noise measurement methodology.</p> <p>There are no other specific considerations applicable to noises that are cyclical in nature.</p>	Noise Impact Assessment
	Was consideration given to the Enbridge Project of upwind and downwind variations in noise levels?	Public	<p>The impact of the nearby Enbridge Wind Farm was included in the Armow NIA.</p> <p>GL GH calculates sound pressure levels using CadnaA software which is an implementation of</p>	Noise Impact Assessment



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			<p>ISO 9613-1 and ISO 9613-2 [4]. As specified in ISO 9613-2, the noise from each source, including all wind turbines, has been modeled assuming downwind conditions from the source to the receptor. In the noise model, wind directionality conditions are defined as follows:</p> <p><i>Wind direction within an angle of + 45° of the direction connecting the centre of the dominant sound source and the centre of the specified receiver region, with the wind blowing from source to receiver.</i></p>	
	What adjustments were made to stay within MOE regulations?	Public	In collaboration with SP Armow Wind Ontario GP Inc., GL GH has made and applied several turbine location adjustments and individual turbine noise reduction changes to ensure that the Project is compliant with Ontario noise guidelines.	Noise Impact Assessment
	Suggestion that the results of the Noise Impact Assessments conducted under Ontario Guidelines could be off by 5 dB or higher.	Public	<p>GL GH calculates sound pressure levels using CadnaA software which is an implementation of ISO 9613-1 and ISO 9613-2. The accuracy of the ISO 9613-2 method is estimated to be ± 3 dB(A). However, given the conservative nature of the assumptions incorporated here, the probability of the overall noise simulation being underestimated is reduced.</p> <p>The conservative assumptions made as part of the Ontario guidelines include:</p> <ul style="list-style-type: none"> ■ Receptors are always downwind (as described in ISO 9613-2) ■ No attenuation due to foliage, trees or 	Noise Impact Assessment



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			<p>obstacles (referred to as A_{fol} in ISO 9613-2)</p> <ul style="list-style-type: none"> ■ Temperature and humidity settings are favourable to propagation ■ Propagation under a well-developed moderate ground-based temperature inversion, such as commonly occurs at night during the summer. ■ When windy, the ambient noise may be louder than the sound generated by the wind turbine ■ A 5dBA tonal penalty was applied to the transformer. <p>There is uncertainty associated with the predictions, as is the case with any engineering model. The conservative assumptions used influence the uncertainty of the approach. Considering the conservative nature of the aforementioned assumptions, it is considered to be unlikely that a value is underestimated by 5 dB(A).</p>	
	Does the noise modeling take into consideration the 500 kV line between receptors 274 and 603?	Public	Noise from transmission lines has not been considered in this analysis. GL GH has followed MOE's Noise Guidelines for Wind Farms.	Noise Impact Assessment
	What are the cumulative effects of vibration on the structure of older buildings in Armow?	Public	The effect of vibrations on buildings or structures has not been considered in this analysis. GL GH has followed MOE's Noise Guidelines for Wind Farms.	Noise Impact Assessment
	Mention is made of the Maple Grove Amish Parochial School near the	Public	All noise receptors are identified and shown in the Noise Impact Assessment as per the requirements of O. Reg. 359/09. The noise	Noise Impact Assessment



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	community of Tiverton and that the setback will be at least 550 metres. No mention or consideration has been given to the Amish School located at the corner of 30 th Sideroad and the 9 th Concession Road, also bordering the Project. No consideration has been made in identifying those residents within the Project that are home schooling. What steps are being taken to take these into consideration? What steps have been taken to identify and consider other sensitive businesses or operations, home businesses or medical home care facilities within the Project area?		emissions from turbines will also have to comply with noise limits outlined in the same Regulation. The Project is also actively meeting with the local Amish community at their request.	
	I noticed at least 2 receptors missing. The GPS coordinates do not agree with the turbine numbers on the map. There is a receptor less than 400 m from a	Public	The receptor identified as 400m from a turbine was R_67, which is a participating receptor. A revised Noise Impact assessment that corrects the distances reported in Table 7-2 of the NIA is included with REA submission. GLGH has ground truthed the receptor file used in the NIA.	Noise Impact Assessment



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	turbine.			
	So far, two instances of missing receptors have been identified on the site plan. How carefully has the plan been studied and can you assure the public your research is correct in the face of these and other errors?	Public	All errors in the REA reports have been identified and confirmed that they had no impact on the results of any analysis or assessment. Multiple checks and quality control procedures have been implemented on the reports to ensure their accuracy. Furthermore, the reports will undergo a thorough technical review through the REA process.	Site Plan Report
	I understand others identified an issue of turbine numbers not matching GPS [coordinates] and noise assessment turbine numbers.	Public		
	How does one know if the machines are set at a lower noise power rating and if they maintain that lower rating? Is Siemens able to change the rating?	Public/Municipal	<p>The turbines will be commissioned according to their permitted design. Any implementation of a non-permitted design would be outside compliance with our approved permit.</p> <p>Turbine output will be programmed in the commissioning stage. Only Siemen's technicians will be able to program the turbine and the Proponent's operations team will not have the capability to change the output settings.</p>	Consultation Report
	How do you intend to measure the low frequency noise (LFN) emanating from your turbines? Please give	Public	Health and medical agencies agree that when sited properly, wind turbines are not causally related to adverse health effects. As such, there is no requirement to measure LFN.	Consultation Report



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Topic Category	Comment	Source of Comment	How Comment Has Been Considered	Location in the REA Application Reports Where Comment Addressed
	specifics. LFN has not been considered when writing the regulations.			
	There is a missing receptor east of receptor #371 as a new house has been built there.	Public	This receptor is #444.	Noise Impact Assessment
	How do you proposed to avoid coinciding pulse trains which cause sound to increase in relation to how many turbines coincide?	Public	Coinciding pulse trains have not been considered in this analysis. GL GH has followed MOE's Noise Guidelines for Wind Farms. The noise model used does consider cumulative effects of all turbines proposed and neighbouring wind projects.	Noise Impact Assessment
	Concerns regarding effects of infrasound as it have not been considered when writing the regulations.	Public	Infrasound refers to the sound waves with a frequency below 20 Hz. Low frequency sound refers to frequency between 20 and 200 Hz. Natural sources of infrasound and low frequency sound include severe weather, waves on seashore, and wind in the trees. Like other devices such as cars and refrigerators, wind turbines also produce low frequency noise and infrasound. The level at which wind turbines produce low frequency noise and infrasound is well below the threshold and sensitivity of hearing for these frequencies. While a review of the recent scientific literature covering the health impacts of low frequency noise and infrasound from wind turbines supports that there is no impact on human health, GL GH is not a medical	Consultation Report
	What provision have you made for the measurement of low frequency noise on receptors within the Project area? How will you be measuring C weighted sound?	Public		Noise Impact Assessment



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			<p>expert and therefore does not have a formal medical opinion about the health effects of infrasound or low frequency noise on humans or wildlife.</p> <p>The sound propagation was modeled over the site, at the typical industry best practice frequencies, and the Project is compliant with the noise guidelines published by the Ministry of the Environment (MOE).</p>	
	Will you guarantee that the Project will never be out of compliance with existing provincial noise requirements?	Public	In compliance with O. Reg. 359/09, in order for a Project to be issued an REA, the Project design needs to comply with provincial noise requirements. Turbines will undergo regular maintenance to ensure that they operate as expected. Details of the wind turbine maintenance program are provided in the Design and Operations Report. Turbines will also be constantly monitored from a central location to ensure that they are operating within specified parameters. Project operations staff will be available to receive any noise complaints for turbines not operating as expected. Turbines operating outside of noise compliance will be shut down while they are being repaired.	Design and Operations Report
	Will you guarantee that the turbines in your Project will conform to the requirements of the World Health Organization?	Public	The Ministry Of Environment's Noise Guidelines for Wind Farms (2008) require that the predicted outdoor sound levels at receptors not exceed 40.0 dBA at all times of the day due to the operation of the wind turbines and substation. This requirement is consistent with the World	Noise Impact Assessment



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			Health Organization's recommendation. All noise receptors are identified and shown in the Noise Impact Assessment as per the requirements of O. Reg. 359/09. By complying with the noise limits set out in O. Reg. 359/09 nearby residents sleep is not expected to be negatively affected.	
Stray Voltage	My concern is stray voltage (dirty electricity) from variable speed motors and generators. As North America has a combined neutral and ground wire going back to a transformation station. But it is also grounded approximately every mile it will create stray voltage in wet areas like dairy barns. Will the company pay for filters on farms if this becomes a problem? If this problem becomes too much to conquer will the company pay to relocate the farmers?	Public	The Project will adhere to the appropriate electrical and distribution codes in order to minimize the risk of stray voltage. The potential for stray voltage is not unique to wind power facilities. HydroOne has procedures in place to address stray voltage for a number of off-farm and on-farm stray voltage sources. Stray voltage can be minimized or prevented by utilizing proper farm wiring practices. Operations staff will be available to receive any complaints of stray voltage that is thought to be occurring as a result of the Project.	Design and Operations Report
Visual Impact	I already can see the flashing lights from Underwood and Ripley. I don't want more.	Public	Flashing lights at night on top of the wind turbines is a safety feature required by Transport Canada. Armow Wind is working with Transport Canada to explore options to address this concern.	Consultation Report
	Why do these turbines not have anchor bolts on the inside of the turbines	Public	The turbines are a different design than the Enercon turbines used in the Ripley Project.	Consultation Report



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Topic Category	Comment	Source of Comment	How Comment Has Been Considered	Location in the REA Application Reports Where Comment Addressed
	like the Ripley Project?			
	I don't like windmills changing the look of the natural environment and scenic landscapes.	Public	While it is unfortunate that no energy supply is zero-impact, the Project is committed to providing an overall net benefit to the community and province through community involvement, land taxes and sustainable energy generation.	Consultation Report
	How will you be protecting water levels in the Glamis Bog?	Public	The Glamis Bog and other wetlands have been assessed and are reported on in the Natural Heritage Assessment Report. Water taking will be limited to dewatering, if necessary, at the foundation excavations. Also the Proponent will implement stormwater and erosion control plans.	Natural Heritage Assessment Report
Water Quality/Quantity	What are the monitoring, mitigation and contingency plans identified in Revision 5.2 of the water body EIS report? Will it include monitoring of neighbouring county wells? What remedial actions will you take if sediment appears in well water, or pump failure due to ingested sediment caused by construction or other operations? Will you monitor all wells within the Project?	Public	Mitigation is discussed in Section 6.0 of the Waterbody EIS.	Water Body EIS
	Need to review pile drivers effects on contamination of water	Public	Section 4.3.3.3. of the Construction Report states that if pile type foundations are determined to be suitable at some locations, no adverse impacts to	Construction Report



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Topic Category	Comment	Source of Comment	How Comment Has Been Considered	Location in the REA Application Reports Where Comment Addressed
	tables.		the water table are anticipated.	



7.1 REA Report Changes and Amendments

Draft Renewable Energy Approval (REA) Reports, including a revised Project Description Report were made available to the public on September 5, 2012 (at the Bruce County Offices, the Municipality of Kincardine Offices, at the Tiverton and Kincardine Branches of the Bruce County Public Library and on the Project website) and also at the final Public Meeting on November 12, 2012. Several minor changes were made to the Draft REA Report documents after the final Public Meeting as a result of feedback from the consultation process and prior to the REA submission to MOE on November 30, 2012. Details of the document changes are provided at the beginning of each REA Report and a summary of the changes (a handout from the second Public Meeting) is provided in Appendix D.1.

7.2 Changes to Project Layout

The Project evolved throughout the planning process to address opportunities and concerns from various studies, the public, Aboriginal communities, the Municipality of Kincardine and various provincial and federal agencies. A summary of alterations to the Project layout that were made is provided below in Table 18.

Table 18: Summary of Project Alterations in Response to Comments

Topic	Alteration and Rationale
Turbine Locations within the Airport Buffer Zone	All turbines within the airport buffer zone, as defined by By-Law 2003-25 Comprehensive Zoning By-law, were dropped as requested by the Municipality of Kincardine. These turbine positions were not replaced anywhere in the Project area.
Collector Lines to be Buried	The Proponent has received this comment and will undertake to bury all collector lines where technically feasible. Factors that may prevent the burying of cables includes, but is not limited to, hazard lands, and water features, wetlands, woodlots and space constraints in the road right-of-way.
Location of Access Roads	Detailed consultation was done with all Project landowners regarding the placement of access roads. In many cases, proposed road locations were changed to accommodate farming practices, access issues, or general preferences.
Discovery of Archaeological Artifacts	The locations of numerous Project components were changed during Stage II Archaeology Field Assessments in order to avoid disturbing archaeological sites that were found. The resulting layout will minimize the impact on these sites during construction of the Project. Additionally, various construction areas were altered in response to consultation with Aboriginal communities.
Kincardine, Tiverton and Lakeshore Buffer Zones	All turbines within the Kincardine, Tiverton and Lakeshore buffer zones, as defined by Policy Number PD.1.9 – Wind Generation System Development Policy, were dropped as requested by the Municipality of Kincardine. These turbine positions were not replaced anywhere in the Project area.
Residential Setbacks	During the preliminary development of the layout, the Proponent sought to maximize the distance between turbines and residences. This philosophy was exercised as much as possible during subsequent layout iterations.
Addition of Receptors	During development, certain turbine positions were changed in response to members of the community identifying seasonal residences on their property.



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Topic	Alteration and Rationale
Collector Routes	As requested by a member of the public, we will seek to design our collector route so as to avoid any impact on a hedgerow/treeline that surrounds his property.
Additional Turbine Positions	Throughout the development of the layout, numerous requests from landowners within the Project area requested that their land be considered as potential turbine positions. While we were not able to accommodate all requests because of setback limitations, we were able to successfully assess numerous positions that were then added to the layout.

7.3 Changes to REA Documents following Final Open House

At the beginning of every report a summary of report revisions is provided.

Following the final Public Meeting on November 12, 2012 the following changes were made to REA Reports before formal submission to the MOE. As a result of a turbine being removed a general update was made to all REA Reports to read, “a total of 98 turbines will be permitted to provide contingency positions”. The Proponent also added Sections 3.9 and 3.10 to the Construction Plan Report. Section 3.9 details the emergency response plan and 3.10 outlines the health and safety plan. Section 2.7 of the Decommissioning Plan Report was updated to include site restoration of water. Minor revisions were made to the Noise Impact Assessment to correct turbine locations in Appendix F and vacant lot receptors were added. Minor revisions were made to the Aboriginal Summary to reflect the final Natural Heritage Assessment Reports. There minor revisions were made as a result of correspondence with the MNR.



8.0 FUTURE CONSULTATION

8.1 Local Project Office

The Project Office, described in Section 3.2, will continue to provide a physical location where stakeholders can go with their questions comments and concerns.

8.2 Aboriginal Communication

Armow Wind will continue to engage with Aboriginal Communities throughout the approvals and permitting, development, construction and operations processes on specific topics such as: archaeology, natural heritage assessment, environmental monitoring and Project details. The Proponent will continue to build the relationships Aboriginal Communities.

Armow Wind Project is committed to the continuation of discussions and consultation with Aboriginal communities that have asserted an interest in the Project and Project area. These consultations will include, but are not limited to:

- Continuing to meet and engage with the Aboriginal communities to better understand their interests in the area, to address any material concerns and to keep them apprised of the Project's development;
- Assessing need, and where appropriate, providing capacity funding, for Aboriginal communities to effectively participate in the development process;
- Continuing attempts to determine potentially affected traditional land use and archaeological interests in the Project area. Where necessary, Armow Wind Project will formulate appropriate mitigation, approval and operation plans with affected Aboriginal communities; and,
- Identifying employment and contracting opportunities for Aboriginal communities.

8.3 Following Submission of the Renewable Energy Approval Application

Following submission of the REA to MOE, SP Armow will continue to respond to correspondence received regarding the Project, including correspondence received from the Project email or directly by the Project Team.

8.4 During Construction and Operations

8.4.1 Emergency response plan

Prior to commencing Project construction and installation activities, the Proponent will make copies of a detailed emergency response and communication plan available to the appropriate regulatory agencies, Bruce County, Municipality of Kincardine, local residents and Aboriginal communities. This emergency response and communication plan will also be utilized during the operation of the proposed Project. The purpose of the emergency response and communications plan is to establish and maintain procedures required for effectively responding to complaints, emergencies or accidents. The emergency response and communication plan will be



approved by Bruce County emergency services, Kincardine Fire and Ambulance Services, representatives on the Planning and Development Committee, and by Bruce County Council if required.

The emergency response and communication plan will also be provided to relevant provincial ministries (e.g., the MOE). The Proponent has experience in creating detailed emergency response and communications plan for operating facilities that protect its workers, the public and the environment. All personnel working on the Project will receive training on the emergency response and communications plan. The content of the emergency response and communication plan is subject to local requirements, but typically includes the following implementation phases. Armow Wind Project will provide general information:

- Designation of Project emergency coordinators;
- Process description;
- Objectives;
- Administration;
- Regulatory references;
- Training requirements;
- Project Location information and 911 addresses;
- Project emergency procedures;
- Immediate site evacuation procedure;
- Delayed site evacuation procedure;
- Response to personnel injuries/serious health conditions;
- Fire response plan;
- Chemical/oil spills, releases and reporting; and
- Weather-related emergencies.

The emergency response plan will be comprehensive enough to include procedures applicable to construction and installation, operation, and decommissioning of the Project. The emergency response and communication plan will be updated if deemed necessary by the Proponent or local emergency services representatives acting on behalf of Bruce County, the Municipality of Kincardine or the Province. As considered necessary by the Proponent, any changes to the emergency response and communications plan will be communicated to stakeholders, local to the community members, and Aboriginal communities.

8.4.2 Emergency Communications

If there is an emergency, local emergency responders (i.e., Police, Fire, Ambulance) will be contacted via the 911 Operator. Emergency responders will then be expected to take action following their established procedures and guidelines, referring to the emergency response and communications plan agreed to with the



ARMOW WIND PROJECT

Proponent. In the rare instance that the Project exceeds operational parameters and a potentially unsafe situation may if new issues arise, the person observing the situation may report the circumstance to 911, or alternatively will contact a designated or if the community has specific concerns. Company representative of the Proponent. For the purposes of the REA, questions regarding emergency response and communications should be directed to one of the following two contacts:

Brian Edwards
Manager, Project Development
Samsung Renewable Energy Inc.
55 Standish Court, 9th Floor
Mississauga, ON, L5R 4B2
Phone: (519) 396-9433
Email: info@armowwind.com

Jody Law
Project Developer
Pattern Energy
100 Simcoe Street, Suite 105
Toronto, ON M5H 3G2
Phone (519) 396-9433
Fax: (416) 979-8428
Email: info@armowwind.com

Prior to the commencement of construction and installation activities, permanent emergency contact signs will be posted at the entrance point to any of the Project components (e.g., an access road leading to a wind turbine generator). Signage will include instructions to call emergency services and the established Project phone number in the event that a passerby notices an emergency. The establishment of 911 numbers will be agreed to with Bruce County and/or the Municipality of Kincardine. Should an operational exceedance or emergency occur the following organizations will be contacted by the Proponent representative as soon as reasonably possible:

- MOE (including the Spills Action Centre, if applicable);
- Municipality of Kincardine; and
- Bruce County (including local road and service boards).

Following this preliminary contact, a hard copy incident response report will be provided within 24 hours of phone or e-mail contact noting:

- The parameter exceeded;
- The magnitude of the exceedance; and
- Mitigative measures implemented, including details of emergency responders contacted, if required.

Stakeholders, local community members, and Aboriginal communities will be notified of an operational exceedance or emergency at the discretion of the Proponent through one or a combination of the following mediums depending on the actual or perceived risk level: media advertisements, mailings, local newspapers, letters, and direct contact. Aboriginal communities will be contacted to determine a designated person or persons for the Proponent to contact in the event of an operational exceedance or emergency.

For unintended release or discharge of material to air, land or water (i.e., spills), the spills procedures outlined in the MOE "Spill Reporting – A Guide to Reporting Spills and Discharges" (May 2007) will be adhered to. The types of spills that require reporting are defined in the *Ontario Environmental Protection Act* and O. Reg. 675/98 "Classification and Exemption of Spills and Reporting of Discharges." The MOE Spills Action Centre (SAC) phone number (1-800-268-6060) will be posted at appropriate locations in the Project Study Area.



In the case of an emergency reported directly by staff of the Proponent, subcontractors, or subconsultants that requires emergency responders, the Proponent will contact the 911 Operator upon discovery of the emergency, and the emergency response and communication plan will be initiated.

8.4.3 Non-Emergency Communications

Regulatory agencies, Municipality of Kincardine, Bruce County, local residents and Aboriginal communities will be notified through mailings of updates on Project activities and changes to procedures. Examples of non-emergency communications that will be communicated through mailings include:

- Commencement of construction and installation activities for the Project;
- Maintenance activities that are considered outside of routine maintenance (e.g., wind turbine generator disassembly or replacing of collector lines);
- Changes in regulatory procedures that affect the operation of the Project;
- Commencement of decommissioning activities for the Project; and
- Any additional information about the Project that the Proponent considers to be of interest to regulatory agencies, Bruce County, local residents, or Aboriginal communities.

When advanced contact information will be available to the public to address of Project activities is feasible, letter communications will identify in detail the activity being carried out, anticipated schedule of the activity, and contact information for submitting any concerns and/or complaints. If notification is required after an unanticipated event, the letter will describe the event, mitigation strategies to prevent future occurrences, and contact information for submitting any concerns and/or complaints.

8.4.4 Receiving Communications from the Public

A mailing address will be established for Project questions during operations staff to receive communications from the public, Aboriginal communities, regulatory agencies, Municipality of Kincardine and Bruce County. A notice will be mailed to all stakeholders prior to the start of construction and installation activities for the Project, which will provide information on how they will be notified by the Proponent of the following. Planned stakeholder consultation and communications activities will include:

- How the Proponent can be contacted for information or to communicated concerns about the Project; and
 - How the Proponent will handle communications received from Web site with updates on project progress;
 - The appointment of a construction community liaison officer who shall directly address issues raised by the community during the construction phase of the Project;
 - Project update bulletin or bulletins as required, mailed or hand delivered to keep area residents apprised of the progress of construction, dates and timing of any traffic disruptions connected with the



ARMOW WIND PROJECT

Project and any other matters that may affect or be of interest to area residents and other Project stakeholders;

- Newspaper notices regarding traffic disruptions and construction timings of interest;
 - Personal consultations as requested or if warranted;
 - Meetings with municipal and other local and provincial government authorities;
 - Ongoing consultation and meetings with local Aboriginal communities and organizations; and,
 - Post-construction: public gathering to present post-construction study results.
- Armow Wind Farm will also develop a Community Response Plan that will engage and inform the public, Aboriginal communities, regulatory agencies, and the Municipality of Kincardine and Bruce County Project activities.

An electronic communications database will be used to record information from calls and/or received mailings. In the case of complaints related to Project activities, the complainant will be asked to provide the following information:

All correspondence regarding the proposed Project will be directed to the main Project site manager. Information gathered during these communications will include:

- Time and date of complaint;
- Location of problem;
- Details on the problem or complaint (including frequency); and
- Any other details considered relevant to the complaint.

Following an appropriate amount of time for the Proponent to consider the complaint, the complainants will be provided with the following information:

- Actions that will be taken to remediate the cause of the complaint;
- Proposed actions to prevent similar occurrences in the future; and/or
- Confirmation that the issue did not originate from the wind farm.

The district office of the MOE will be notified, in writing, of each complaint. This notification will include:

- All of the information recorded about the complaint (listed above);
- Wind direction at the time of the incident related to the complaint;
- Actions taken to remediate the cause of the complaint, and
- Proposed actions to prevent similar occurrences in the future.

Records of all complaints, actions taken and communications with the MOE will be kept in the communications database. The Proponent is committed to establishing an ongoing dialogue with stakeholders, of local



ARMOW WIND PROJECT

community members, and Aboriginal communities throughout all phases of the proposed Project Office telephones and email.



9.0 REFERENCES

- Ministry of Energy and Infrastructure (MEI). 2010. Provincial Approvals for Renewable Energy Projects. Queen's Printer for Ontario, PIBS 7394e. URL: http://www.ene.gov.on.ca/en/business/green-energy/docs/REP_Guide.pdf.
- Ministry of the Environment (MOE). 2009. Ontario Regulation 359/09. Renewable Energy Approvals under Part V.0.1 of the Environmental Protection Act.
- Ministry of the Environment (MOE). 2011. Technical Guide to Renewable Energy Approvals. Queen's Printer for Ontario. 2011.



Report Signature Page

GOLDER ASSOCIATES LTD.

Ian Callum, M.Sc., B.Sc.
Project Manager

Anthony D. Ciccone, Ph.D., P.Eng.
Principal

CB/IC/ADC/am

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APPENDIX A

Project Notices



1. Stakeholder List

Stakeholder Name	Job Title	Affiliation	Address Line 1	Address Line 2	City/Town	Province	Postal Code	Email
Peter Coture	President	Great Lakes Metis Council	380 9th Street East		Owen Sound	Ontario	N4K 1P1	*
Archie Indoe	President	Historic Saugeen Metis	204 High Street, Box 1492		Southampton	Ontario	N0H 2L0	saugeenmetis@bmts.com
Patsy McArthur	Secretary- Treasurer	Historic Saugeen Metis	204 High Street, Box 1492		Southampton	Ontario	N0H 2L0	*
Patrick Madahbee	Chief	Union of Ontario Indians	1 Miigizi Mikan		North Bay	Ontario	P1B 8J8	gcc@anishinabek.ca
Scott Lee	Chief	Chippewas of Nawash Unceded First Nation	135 Lakeshore Blvd	RR # 5	Wiarton	Ontario	N0H 2T0	*
Jessica Nadjiwon-Smith	Band Administrator	Chippewas of Nawash Unceded First Nation	135 Lakeshore Blvd	RR # 5	Wiarton	Ontario	N0H 2T0	
Randall Kahgee	Chief	Chippewas of Saugeen First Nation	6493 Highway 21	RR #1	Southhampton	Ontario	N0H 2L0	contactadmin@saugeenfirstnation.ca
Janet Root	Band Administrator	Chippewas of Saugeen First Nation	6493 Highway 21	RR #1	Southhampton	Ontario	N0H 2L0	contactadmin@saugeenfirstnation.ca
Alden Barty	Coordinator, lands and resources	Metis Nation of Ontario	355 Cranston Crescent		Midland	Ontario	L4R 4K6	*
Bill Wilkinson	Director of economic development	Metis Nation of Ontario	222- 75 Sherbourne Street		Toronto	Ontario	M5A 2P9	*
Gary Lipinski	President	Metis Nation of Ontario	500 Old St. Patrick St. #D		Ottawa	Ontario	K1N 9G4	garyl@metisnation.org
Joselyn Keeshig		Saugeen First Nation	6493 Highway 21		Southampton	Ontario	N0H 2L0	j.keeshig@saugeenojibwaynation.ca
Bill Fitzgerald		Saugeen Ojibway Nation	135 Lakeshore Blvd	RR # 5	Wiarton	Ontario	N0H 2T0	*
Jake Linklater	Office Coordinator - Environmental office	Saugeen Ojibway Nation	135 Lakeshore Blvd	RR # 5	Wiarton	Ontario	N0H 2T0	*
Katrina Keeshig	environmental office	Saugeen Ojibway Nation	25 Maadookii Road, R.R.#5		Wiarton	Ontario	N0H 2T0	*
William K. Montour	Chief	Six Nations of the Grand River	1695 Cheifswood Road		Ohsweken	Ontario	N0A 1M0	*
Bettyanne Cobean	Clerk-Treasurer	County of Bruce	30 Park St.	Box 70	Walkerton	Ontario	N0G 2V0	bcobean@brucecounty.on.ca
Bruce Stickney	Planner	County of Bruce	30 Park St.	Box 848	Walkerton	Ontario	N0G 2V0	bstickney@brucecounty.on.ca
Chris LaForest	Director of Planning	County of Bruce	30 Park St.	Box 70	Walkerton	Ontario	N0G 2V0	claforest@brucecounty.on.ca
Leona Cunningham		County of Bruce	30 Park St.	Box 70	Walkerton	Ontario	N0G 2V0	*
Mitch Twolan		County of Bruce	20 Blairs Trail	R.R. #8	Kincardine	Ontario	N2Z 0B3	*
Pat David	Planner technician	County of Bruce	578 Brown Street	Box 129	Wiarton	Ontario	N0H 2T0	pdavid@brucecounty.on.ca
Christopher Munn	director of operations	Grey Bruce Health Unit	101 17th Street East		Owen Sound	Ontario	N4K 0A5	*
Krista Jones	Community Health-Tiverton area	Grey Bruce Health Unit	RR #2 Tiverton		Tiverton	Ontario	N0G 2T0	*
Lorie Smith	vice president/ office management	Grey County Ag Services	206 Toronto St. S., Unit 3	Box 463	Markdale	Ontario	N0C 1H0	*
Blake Evans	Airport manager	Kincardine Airport Committee	1208 North Line RR 2		Kincardine	Ontario	N2Z 2X4	kincardineairport@bmts.com
Ontario Region Office - Toronto		Transport Canada	4900 Yonge Street	Suite 400	North York	Ontario	M2N 6A5	
Land Use Office		NAV Canada	1601 Tom Roberts Road	P.O. Box 9824, Station T	Ottawa	Ontario	K1G 6R2	landuse@navcanada.ca
Chris Bentley	Minister	Ministry of Energy and Infrastructure	900 Bay Street, 4th Floor		Toronto	Ontario	M7A 2E1	cbentley.mpp.co@liberal.ola.org
Doris Dumais	Director Environmental Approvals Access & Service Integration	Ministry of Environment	2 St. Clair Ave. W.	Floor 12A	Toronto	Ontario	M4V 1L5	doris.dumais@ontario.ca
Agatha Garcia-Wright	Director Environmental Assessment and Approvals Branch	Ministry of Environment	2 St. Clair Ave. W.	Floor 12A	Toronto	Ontario	M4V 1L5	agatha.garciawright@ontario.ca
Rick Chappell	District Manager	Ministry of Environment	101 - 17th Street East		Owen Sound	Ontario	N4K 0A5	rick.chappell@ontario.ca
Shawn Carey	Senior Environmental Officer	Ministry of Natural Resources	1450 7th Ave East		Owen Sound	Ontario	N4K 2Z1	shawn.carey@ontario.ca
Donna MacDougall	Clerk	Municipality of Kincardine	1475 Concession 5	R R 5	Kincardine	Ontario	N2Z 2X6	clerk@kincardine.net
James O'Rourke	Public Works Manager	Municipality of Kincardine	1475 Concession 5	RR6	Kincardine	Ontario	N2Z2X6	pwmgr@kincardine.net
Larry Kraemer	Mayor	Municipality of Kincardine	1475 Concession 5	R.R. 5	Kincardine	Ontario	N2Z 2X6	mayor@kincardine.net
Michele Barr	Building and Planning Manager	Municipality of Kincardine	1475 Concession 5	RR 5	Kincardine	Ontario	N2Z2X6	cbo@kincardine.net



2. Notices of Proposal to Engage and Public Meeting #1

Public Notices Public Notices Public Notices Public Notices Public Notices Public Notices Public Notices

NOTICE OF A PUBLIC MEETING AND PROPOSAL
by SP Arrow Wind Ontario LP to Engage in a Renewable Energy Project

Project Name: Arrow Wind Project (the "Project")
Project Location: The Project proposed to be situated in the Municipality of Kincardine, Bruce County, Ontario, approximately 3 kilometres from Lake Huron and approximately 2 kilometres northeast of Kincardine. The figure below identifies the proposed area within which the Project will be located.

Dated at: Bruce County this, the 8th of November, 2011.

SP Arrow Wind Ontario LP, a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC and Samsung Renewable Energy Inc. (the "Developer") is planning to engage in a renewable energy project in respect of which the issuance of a renewable energy approval ("REA") is required. The distribution of this notice of a proposal to engage in this renewable energy project and the Project itself are subject to the provisions of the *Environmental Protection Act* (the "Act") Part V.0.1 and Ontario Regulation 359/09 (the "Regulation"). This notice must be distributed in accordance with section 15 of the Regulation prior to an application being submitted and assessed for completeness by the Ministry of the Environment.

Public Meeting

Date: Tuesday, December 13, 2011

Time: 4 p.m. to 8 p.m.

Location: Best Western – Governor's Inn, 791 Durham Street, Kincardine, Ontario

Project Description

Pursuant to the Act and Regulation the facility comprising the Project is considered to be a Wind Facility, Class 4. If approved, this facility would have a total maximum name plate capacity of up to 180 megawatts. The Project is being proposed in accordance with the requirements of the Act and Regulation. The Draft Project Description Report (the "Draft PDR") describes the facility as involving namely site preparation and construction, operations and maintenance, and decommissioning of wind turbines. Site plan and layout options for the Project are currently being developed by the Developer and will be finalized during the REA process. In accordance with the Regulation, a written copy of the Draft PDR will be made available for public inspection on Friday, November 11, 2011 at the Tiverton and Kincardine branches of the Bruce County Public Library (56 King Street, Tiverton and 727 Queen Street, Kincardine) and Bruce County and Kincardine municipal offices (30 Park Street, Walkerton and 1475 Concession 5, R.R. #5, Kincardine). The Draft PDR will also be made available at a website dedicated to the Project (www.arrowwind.com).

Project Contacts and Information

To learn more about the Project or to provide feedback, please contact:

Project Email: info@arrowwind.com

Jody Law, Project Developer
Pattern Renewable Holdings Canada ULC
100 Simcoe St., Suite 105
Toronto, ON M5H 3G2
Phone: 416-263-8029

Brian Edwards, Project Developer
Samsung Renewable Energy Inc.
35 Standish Court
Mississauga, ON L5R 4B2
Phone: 905-501-5667

OR

Ian Callum, Project Manager
Golder Associates Ltd
390 Argenta Road
Mississauga, Ontario, L5N 5Z7
Phone: 905-567-4444
Fax: 905-567-6561
Email: Ian_Callum@golder.com



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Been there, got the t-shirt

I'm sleeping with a woman in Corsica.

Not from Corsica - in Corsica. What's more, her husband is in bed with us. He doesn't suspect anything.

It's complicated.

For one thing, I am not worse luck actually in Corsica myself. I am in snow-bound Canada, typing at a kitchen table with scarf around my neck. But my avatar, y Doppelganger, my other self, is down here in Corsica, enjoying the ocean breeze at its wafting through the open window and there the, er, three of

It's like this: once upon a time I had a radio show called Basic Black that ran on the CBC -- the Canadian Broadcasting Corporation. One day a slick-looking dude from the PR department buttoned me in the CBC cafeteria. "We'd like to do some advertising for your show," he rred. Swell, I said. "We were thinking of T-shirts," he said. I said, "What would you be on the T-shirt,"

he asked me. "Uh, the me of the show?" I hesitated. He shook his head sadly, as if he was dealing with a slow-witted Labrador. "You'll need more than that," he said.

We kicked it around for a while. He rejected my idea of snappy slogans, funny quotes and a staff photo. My fee was getting cold. How about I draw a cartoon of myself," I suggested. "Perfect", he said.

That's how we ended up with 147 copies of Basic Black T-shirts emblazoned with a cartoon head depicting a bald guy with a big nose and a grumpy beard grinning crookedly above a scrawled signature. The cartoon is laughy amateurish and, well, if I may say so, like any human creation.

Everybody says it's every likeness. That was my first embarrassment - everybody who saw the goyle I'd scrawled immediately knew it was me. But worse - it came (unlike any of



BASIC

BLACK

ARTHUR BLACK

my books) an immediate best-seller.

We couldn't keep it in stock. In a matter of weeks the Basic Black T-shirt was showing up on the torsos of loggers in Prince George, wheat farmers in the Prairies, secretaries on Bay Street, oyster-shuckers in Lunenburg and (I know - I saw the photo) on a co-ed quartet of skiers schussing down the side of a mountain near Invermere, BC.

Who, aside from ski boots, appear to

be wearing nothing BUT their Basic Black T-shirts.

Well, that's the thing about this garment - it only comes in one colour (black, match) and, as an extra cost-cutting measure, the PR department decided we would order it

in just one size: Extra Large.

If you're built like Arnold Schwarzenegger (or, for that matter, like an Amazon with breast implants) - it's a perfect fit. Otherwise, you've got pyjamas.

That's how I came to be sleeping with

that woman in Corsica. "I'm wearing my Basic Black T-shirt to bed tonight," she wrote on a postcard.

I suppose, technically, I'm sleeping with hundreds of women right now, when you think about it. Thousands, maybe.

Well, dozens, for sure.

But it's no bed of roses. The husband of that Corsican correspondent I mentioned? I hear that he's wearing me too.

I told you -- it's complicated.

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luxurywoodwork@wightman.ca



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All orders in the Kincardine area may be picked up at Condor Books; New, Old, Used & Rare, just like our customers.

NOTICE OF A PUBLIC MEETING AND PROPOSAL by SP Armow Wind Ontario LP to Engage in a Renewable Energy Project

Project Name: Armow Wind Project (the "Project")

Project Location: The Project proposed to be situated in the Municipality of Kincardine, Bruce County, Ontario, approximately 3 kilometres from Lake Huron and approximately 2 kilometres northeast of Kincardine. The figure below identifies the proposed area within which the Project will be located.

Notice Dated at: Bruce County this, the 7th December, 2011

SP Armow Wind Ontario LP, a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC and Samsung Renewable Energy Inc. (the "Developer") is planning to engage in a renewable energy project in respect of which the issuance of a renewable energy approval ("REA") is required. The distribution of this notice of a proposal to engage in this renewable energy project and the Project itself are subject to the provisions of the *Environmental Protection Act* (the "Act") Part V.0.1 and Ontario Regulation 359/09 (the "Regulation"). This notice must be distributed in accordance with section 15 of the Regulation prior to an application being submitted and assessed for completeness by the Ministry of the Environment.

Public Meeting

Date: Tuesday, December 13, 2011

Time: 4 p.m. to 8 p.m.

Location: Best Western – Governor's Inn, 791 Durham Street, Kincardine, Ontario

Project Description

Pursuant to the Act and Regulation the facility comprising the Project is considered to be a Wind Facility, Class 4. If approved, this facility would have a total maximum name plate capacity of up to 180 megawatts. The Project is being proposed in accordance with the requirements of the Act and Regulation. The Draft Project Description Report (the "Draft PDR") describes the facility as involving namely site preparation and construction, operations and maintenance, and decommissioning of wind turbines. Site plan and layout options for the Project are currently being developed by the Developer and will be finalized during the REA process. In accordance with the Regulation, a written copy of the Draft PDR is available for public inspection at the Tiverton and Kincardine branches of the Bruce County Public Library (56 King Street, Tiverton and 727 Queen Street, Kincardine) and Bruce County and Kincardine municipal offices (30 Park Street, Walkerton and 1475 Concession 5, R.R. #5, Kincardine). The Draft PDR is also available on the Project website (www.armowwind.com).

Project Contacts and Information

To learn more about the Project or to provide feedback, please contact:

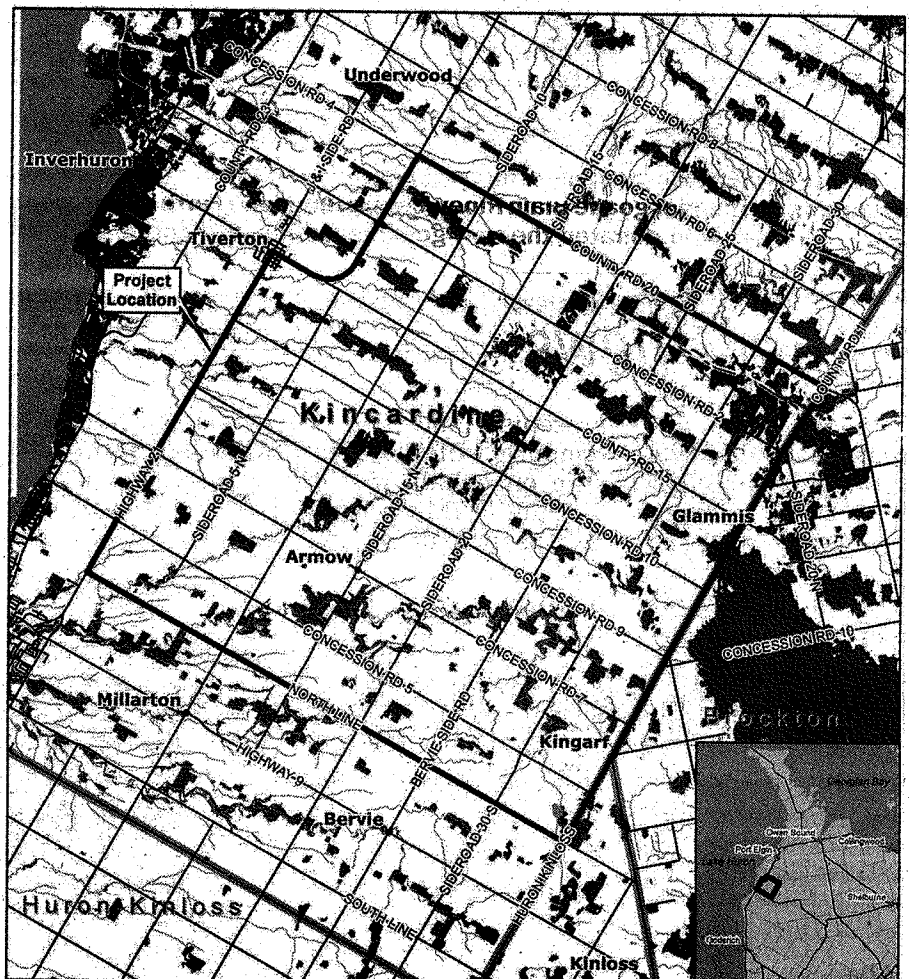
Project Email: info@armowwind.com

Jody Law, Project Developer
Pattern Renewable Holdings Canada ULC
100 Simcoe St., Suite 105
Toronto, ON M5H 3G2
Phone: 416-263-8029

Brian Edwards, Project Developer
Samsung Renewable Energy Inc.
55 Standish Court
Mississauga, ON L5R 4B2
Phone: 905-501-5667

OR

Ian Callum, Project Manager
Golder Associates Ltd
2390 Argentia Road
Mississauga, Ontario, L5N 5Z7
Phone: 905-567-4444
Fax: 905-567-6561
Email: Ian_Callum@golder.com





3. Notices of Draft Site Plan Report Distribution

NOTICE OF DRAFT SITE PLAN REPORT by SP Armow Wind Ontario LP

Project Name: Armow Wind Project (the "Project")

Project Location: The Project is proposed to be situated in the Municipality of Kincardine, Bruce County, Ontario, approximately 3 kilometres from Lake Huron and approximately 2 kilometres northeast of Kincardine. The figure below identifies the Project Location.

Notice Dated at: Bruce County this, the 7th of August, 2012

The Proponent

SP Armow Wind Ontario LP, a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC and Samsung Renewable Energy Inc. (the "Proponent") is continuing to pursue the issuance of a Renewable Energy Approval (REA).

Project Description

If approved, the Project would have a nameplate capacity of up to 180 MW and pursuant to the Act and Regulation, would be considered to be a Class 4 Wind Facility. Additional Project information is available in the Draft Project Description Report, which is posted on the Project website (www.armowwind.com).

Draft Site Plan Report

The distribution of this notice of a Draft Site Plan Report and the project itself are subject to the provisions of the *Environmental Protection Act* (the "Act") Part V.0.1 and Ontario Regulation 359/09 as amended by Ontario Regulation 195/12 (the "Regulation"). The Draft Site Plan Report depicts any of the following at the wind facility or within 300 metres of the facility: buildings; structures; roads; utility corridors; rights of way and easements; and noise receptors that may be affected by the use or operation of the facility, in accordance with section 54.1 of the Regulation. In accordance with the Regulation, the Draft Site Plan Report will fix the locations of noise receptors used to develop the Project. In accordance with the Regulation, a written copy of the Draft Site Plan Report will be available for public inspection, as of August 11, 2012, at the Tiverton and Kincardine branches of the Bruce County Public Library (56 King Street, Tiverton and 727 Queen Street, Kincardine) and Bruce County and Kincardine municipal offices (30 Park Street, Walkerton and 1475 Concession 5, R.R. #5, Kincardine). This report will also be made available at the main offices of the Métis Nation of Ontario: lands, resources and consultation office (355 Cranston Cr., Midland), The Saugeen Ojibway Nation (35 Lakeshore Rd., Wiarton), The Saugeen First Nation (6493 highway 21, R.R. #1, Southampton), the Chippewas of Nawash Unceded First Nations (R.R. #5, Wiarton), Great Lakes Métis Council (380 9th Street East, Owen Sound) and the Historic Saugeen Métis (204 High St., Box 1492, Southampton). The notice of the Draft Site Plan Report was first published in the Kincardine News on August 7, 2012.

Project Contacts and Information

To learn more about the Project or to provide feedback, please contact:

Project Email: info@armowwind.com

Jody Law, Project Developer
Pattern Renewable Holdings Canada ULC
100 Simcoe St., Suite 105
Toronto, ON M5H 3G2
Phone: 519-396-9433

Brian Edwards, Project Developer
Samsung Renewable Energy Inc.
55 Standish Court
Mississauga, ON L5R 4B2
Phone: 519-396-9433

OR

Ian Callum, Project Manager
Golder Associates Ltd
2390 Argentia Road
Mississauga, Ontario, L5N 5Z7
Phone: 905-567-4444
Fax: 905-567-6561
Email: Ian_Callum@golder.com



UPDATED: NOTICE OF DRAFT SITE PLAN REPORT
by SP Armow Wind Ontario LP

**THIS NOTICE SUPERCEDES THE PREVIOUS NOTICE DATED AUGUST 7th 2012 AND SERVES TO
CLARIFY THE LEGAL EFFECTS OF THE ISSUANCE OF THE DRAFT SITE PLAN**

Project Name: Armow Wind Project (the "Project")

Project Location: The Project is proposed to be situated in the Municipality of Kincardine, Bruce County, Ontario, approximately 3 kilometres from Lake Huron and approximately 2 kilometres northeast of Kincardine. The figure below identifies the Project Location.

Notice Dated at: Bruce County this, the 21th of August, 2012

The Proponent

SP Armow Wind Ontario LP, a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC and Samsung Renewable Energy Inc. (the "Proponent") is continuing to pursue the issuance of a Renewable Energy Approval ("REA").

Project Description

If approved, the Project would have a nameplate capacity of up to 180 MW and pursuant to the Act and Regulation, would be considered to be a Class 4 Wind Facility. Additional Project information is available in the Draft Project Description Report, which is posted on the Project website (www.armowwind.com).

Draft Site Plan Report

The distribution of this notice of a Draft Site Plan Report and the project itself are subject to the provisions of the *Environmental Protection Act* (the "Act") Part V.0.1 and Ontario Regulation 359/09 as amended by Ontario Regulation 195/12 (the "Regulation"). The Draft Site Plan Report depicts any of the following at the wind facility or within 300 metres of the facility: buildings; structures; roads; utility corridors; rights of way and easements; and noise receptors that may be affected by the use or operation of the facility, in accordance with section 54.1 of the Regulation. **A Draft Site Plan, including the proposed turbine layout, has been issued for the Project. The legal effect of this Notice is such that, pursuant to Section 54 of the Regulation, SP Armow must consider noise receptors as defined by the Act that existed only as of the day before the publication of this Notice.** In accordance with the Regulation, a written copy of the Draft Site Plan Report has been available for public inspection, as of August 11, 2012, at the Tiverton and Kincardine branches of the Bruce County Public Library (56 King Street, Tiverton and 727 Queen Street, Kincardine) and Bruce County and Kincardine municipal offices (30 Park Street, Walkerton and 1475 Concession 5, R.R. #5, Kincardine). This report will also be made available at the main offices of the Métis Nation of Ontario- lands, resources and consultation office (355 Cranston Cr., Midland), The Saugeen Ojibway Nation (35 Lakeshore Rd., Wiarton), The Saugeen First Nation (6493 highway 21, R.R.#1, Southampton), the Chippewas of Nawash unceded First Nations (R.R.#5, Wiarton), Great Lakes Métis Council (380 9th Street East, Owen Sound) and the Historic Saugeen Métis (204 High St., Box 1492, Southampton). The notice of the Draft Site Plan Report was first published in the Kincardine News on August 7, 2012.

Project Contacts and Information

To learn more about the Project or to provide feedback, please contact:

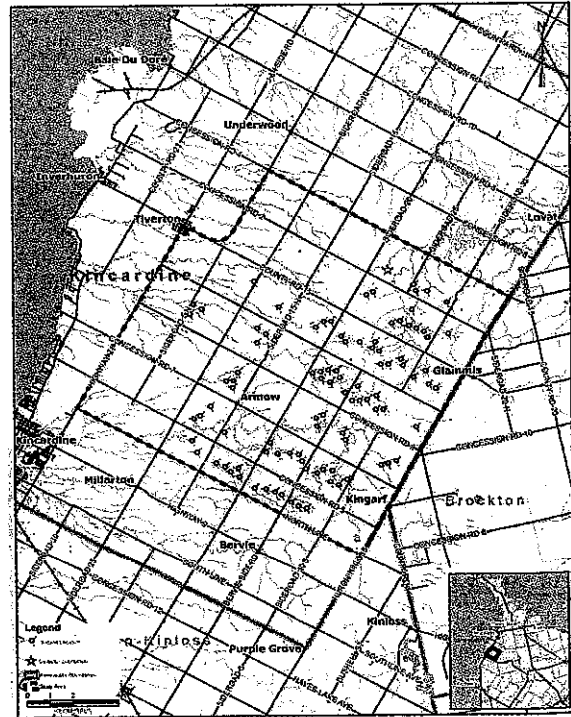
Project Email: info@armowwind.com

Jody Law, Project Developer
Pattern Renewable Holdings Canada ULC
100 Simcoe St., Suite 105
Toronto, ON M5H 3G2
Phone: 519-396-9433

Brian Edwards, Project Developer
Samsung Renewable Energy Inc.
55 Standish Court
Mississauga, ON L5R 4B2
Phone: 519-396-9433

OR

Ian Callum, Project Manager
Golder Associates Ltd
2390 Argentia Road
Mississauga, Ontario, L5N 5Z7
Phone: 905-567-4444
Fax: 905-567-6561
Email: Ian_Callum@golder.com





4. Notices of Public Meeting #2 and REA Report Distribution

FIRST NOTICE OF PUBLIC MEETING #2 AND NOTICE OF REA REPORT RELEASE by SP Armow Wind Ontario LP

Project Name: Armow Wind Project (the "Project")

Project Location: Municipality of Kincardine, Bruce County, Ontario.

Notice Dated at: Bruce County this, the 12th of September, 2012

SP Armow Wind Ontario LP, a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC and Samsung Renewable Energy Inc. (the "Proponent"), is planning to engage in a renewable energy project for which a renewable energy approval ("REA") is required. The distribution of this Notice and the Project itself are subject to the provisions of the *Environmental Protection Act* (the "Act") Part V.0.1 and Ontario Regulation 359/09, as amended by Ontario Regulation 195/12 (the "Regulation"). This Notice is provided in accordance with the provisions of Section 15 and 16 of the Regulation.

Project Description

If approved, the Project would have a nameplate capacity of up to 180 MW and pursuant to the Act and Regulation, would be considered to be a Class 4 Wind Facility. The Project is shown on the map below and additional Project information is available in the Project Description Report, which is posted on the Project website (www.armowwind.com).

Public Meeting Information

The 1st Project public meeting was held in the Municipality of Kincardine on December 11, 2011. The Proponent is hosting a 2nd public meeting, at two locations to provide additional Project information and to solicit feedback from community members, stakeholders, government agencies, and Aboriginal Groups. Details of the meeting are as follows:

Date: Monday, November 12, 2012

Time: 5:30 p.m. to 8 p.m.

Locations: Best Western – Governor's Inn, 791 Durham Street, Kincardine, Ontario and Tiverton Community Center, 6 McKay St, Tiverton, Ontario

Draft Report Distribution

The Draft Project Description Report was first made available November 11th, 2011. The Draft Site Plan Report was made available on August 10th, 2012. Pursuant to Section 16 of the Regulation, the purpose of this Notice is to communicate that the Draft REA Reports (excluding the Consultation Report) are available for public review as of September 5th, 2012 at at the Tiverton and Kincardine branches of the Bruce County Public Library (56 King Street, Tiverton and 727 Queen Street, Kincardine) and Bruce County and Kincardine municipal offices (30 Park Street, Walkerton and 1475 Concession 5, R.R. #5, Kincardine). The draft report summaries and Draft Project Description Report were made available at the following locations on August 27th, 2012. The draft reports were also made available, as of September 5th, 2012 at the main offices of the Métis Nation of Ontario- lands, resources and consultation office (355 Cranston Cr., Midland), The Saugeen Ojibway Nation Environmental Office (135 Lakeshore Blvd., RR#5 Wiarton), The Saugeen First Nation (6493 highway 21, R.R.#1, Southampton), the Chippewas of Nawash Unceded First Nations (135 Lakeshore Blvd., R.R.#5, Wiarton), Great Lakes Métis Council (380 9th Street East, Owen Sound) and the Historic Saugeen Métis (204 High St., Box 1492, Southampton) and on the Project Website (www.armowwind.com)

Project Contacts and Information

For more information or to provide feedback please contact:

Project Email: info@armowwind.com

Jody Law, Project Developer

Pattern Renewable Holdings Canada ULC

100 Simcoe St., Suite 105

Toronto, ON M5H 3G2

Phone: 519-396-9433

Brian Edwards, Manager, Project Development

Samsung Renewable Energy Inc.

55 Standish Court

Mississauga, ON L5R 4B2

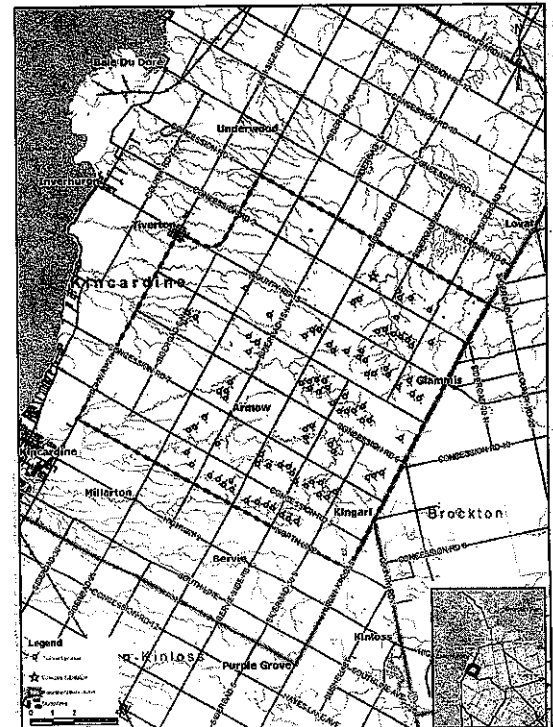
Phone: 519-396-9433

Ian Callum, Project Manager

Golder Associates Ltd

2390 Argenta Road

Mississauga, Ontario, L5N 5Z7



System gives residents and families peace of mind, says Boettcher

(continued from page 3)

had no way to get hold of anyone other than calling.”

Prior to the call system being installed, Trillium Court had one call bell in its retirement section of the residence. Residents in need of assistance in their

apartments or other areas of the building had to phone the nursing station.

“As a management team we started asking Revera management for a call bell system,” Boettcher said. “In the lodge we needed one at the bedside because we do respite stays.”

Persistence paid off and Trillium Court was awarded the pilot project.

“With this you are close to help wherever you are in the building,” Boettcher said.

The SARA system does much more than provide immediate assistance to residents through the call bell, Boettcher added. Residents who are at risk of falling can now wear pendants that are connected wirelessly to the main computer. If a resident was to suffer a fall he could simply press a button on the pendant which would notify a nurse or staff member where he is. SARA can also be connected to

the fire alarms in the building and also to the fridges and freezers in the kitchen to send a notification to the food services manager if appliance temperatures change.

Because SARA is computer-based, staff can also generate reports each time the call bell is activated to keep track of when calls occurred and how they were handled.

An added benefit, Boettcher noted, is that the system allows family members to send notifications and reminders to residents. For example, she said, a son or daughter who lives across the country could set up

ent at Trillium Court, reminding them about an appointment, to take medication or even to show up for a bingo game. SARA would call the resident and notify him or her of the appointment, then send a confirmation to the family member through

a phone call, email or text message when the message was received.

“We don’t even know the full potential of this system,” Boettcher said. “We’re starting small and once we become more comfortable with it we’ll expand its uses.”

Hospital funding cuts could impact staffing

(continued from page 4)

health care in Kincardine, Durham, Chesley and Walkerton.”

Rosebush said he took on the job recognizing that there would be significant challenges in the coming year. Changes to the province’s funding formula for hospitals will have a deep impact on rural health care. The Ontario Ministry of Health and Long-Term Care announced in April that it is abandoning lump sum allocations to health care centres in favour of patient-based funding. Hospitals now receive 40 per cent of their funding based entirely on the number of patients they see and the clinical needs of the community. A portion of funding is also allocated based on the number of patients that undergo select procedures, including dialysis, cataract surgery and hip and knee replacements.

Because of the new funding formula, SB-GHC is facing a \$400,000 deficit in 2013.

“It’s caused an impact to our budget,” Rosebush said. “Our main strategy will be to bring our expenses and budget in line with the new funding formula.”

Rosebush said he wants to assure the community that there will be no impacts to services provided by SBGHC, but wouldn’t guarantee that staffing levels would not be affected if provincial funding isn’t adjusted.

Another focus over the next year will be Kincardine’s hospital redevelopment project, Rosebush said. He has already been in contact with the Ontario Ministry of Health and Long-Term Care’s capital planning branch which has indicated that it is looking forward to receiving an update proposal for the project.

“This type of work is exciting,” Rosebush said. “I recognize the importance of the Kin-

cardine hospital project and I’m going to make it one of my priorities.”

FIRST NOTICE OF PUBLIC MEETING #2 AND NOTICE OF REA REPORT RELEASE by SP Armow Wind Ontario LP

Project Name: Armow Wind Project (the “Project”)

Project Location: Municipality of Kincardine, Bruce County, Ontario.

Notice Dated at: Bruce County this, the 12th of September, 2012

SP Armow Wind Ontario LP, a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC and Samsung Renewable Energy Inc, (the “Proponent”), is planning to engage in a renewable energy project for which a renewable energy approval (“REA”) is required. The distribution of this Notice and the Project itself are subject to the provisions of the *Environmental Protection Act* (the “Act”) Part V.0.1 and Ontario Regulation 359/09, as amended by Ontario Regulation 195/12 (the “Regulation”). This Notice is provided in accordance with the provisions of Section 15 and 16 of the Regulation.

Project Description

If approved, the Project would have a nameplate capacity of up to 180 MW and pursuant to the Act and Regulation, would be considered to be a Class 4 Wind Facility. The Project is shown on the map below and additional Project information is available in the Project Description Report, which is posted on the Project website (www.armowwind.com).

Public Meeting Information

The 1st Project public meeting was held in the Municipality of Kincardine on December 11, 2011. The Propopent is hosting a 2nd public meeting, at two locations to provide additional Project information and to solicit feedback from community members, stakeholders, government agencies, and Aboriginal Groups. Details of the meeting are as follows:

Date: Monday, November 12, 2012

Time: 5:30 p.m. to 8 p.m.

Locations: Best Western – Governor’s Inn, 791 Durham Street, Kincardine, Ontario and Tiverton Community Center, 6 McKay St, Tiverton, Ontario

Draft Report Distribution

The Draft Project Description Report was first made available November 11th, 2011. The Draft Site Plan Report was made available on August 10th, 2012. Pursuant to Section 16 of the Regulation, the purpose of this Notice is to communicate that the Draft REA Reports (excluding the Consultation Report) are available for public review as of September 5th, 2012 at at the Tiverton and Kincardine branches of the Bruce County Public Library (56 King Street, Tiverton and 727 Queen Street, Kincardine) and Bruce County and Kincardine municipal offices (30 Park Street, Walkerton and 1475 Concession 5, R.R. #5, Kincardine). The draft report summaries and Draft Project Description Report were made available at the following locations on August 27th, 2012. The draft reports were also made available, as of September 5th, 2012 at the main offices of the Métis Nation of Ontario-lands, resources and consultation office (355 Cranston Cr., Midland), The Saugeen Ojibway Nation Environmental Office (135 Lakeshore Blvd., RR#5 Wiarton), The Saugeen First Nation (6493 highway 21, R.R.#1, Southampton), the Chippewas of Nawash unceded First Nations (135 Lakeshore Blvd., R.R.#5, Wiarton), Great Lakes Métis Council (380 9th Street East, Owen Sound) and the Historic Saugeen Métis (204 High St., Box 1492, Southampton) and on the Project Website (www.armowwind.com)

Project Contacts and Information

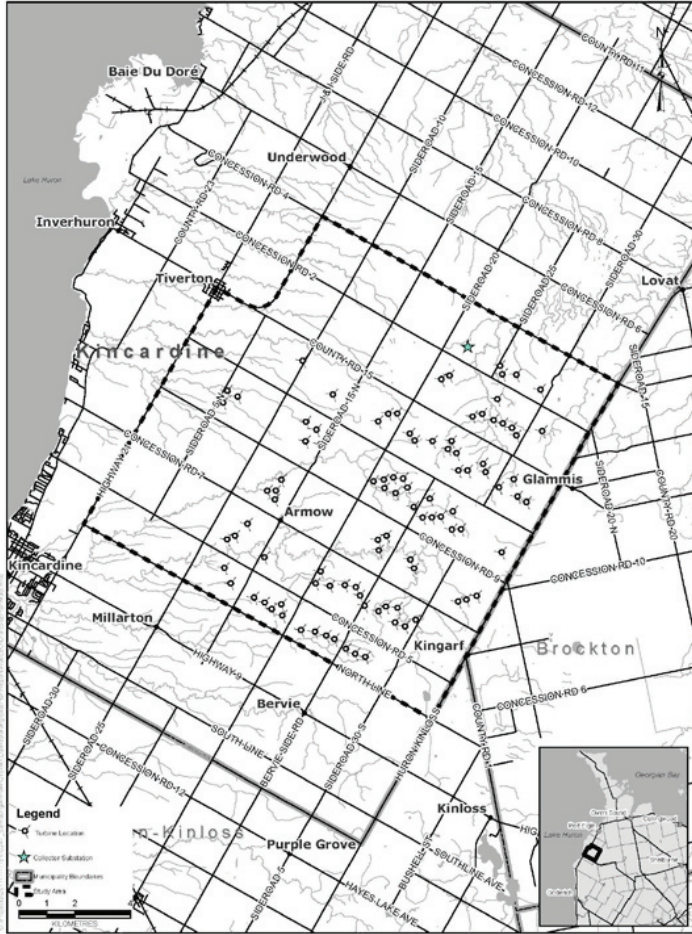
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Phone: 905-567-4444



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SECOND NOTICE OF PUBLIC MEETING #2 by SP Armow Wind Ontario LP

Project Name: Armow Wind Project (the "Project")

Project Location: Municipality of Kincardine, Bruce County, Ontario.

Notice Dated at: Bruce County this, the 16th of October, 2012.

SP Armow Wind Ontario LP, a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC and Samsung Renewable Energy Inc. (the "Proponent"), is planning to engage in a renewable energy project for which a renewable energy approval ("REA") is required. The distribution of this Notice and the Project itself are subject to the provisions of the *Environmental Protection Act* (the "Act") Part V.0.1 and Ontario Regulation 359/09, as amended by Ontario Regulation 195/12 (the "Regulation"). This Notice is provided in accordance with the provisions of Section 15 and 16 of the Regulation.

Project Description

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Public Meeting Information

The 1st Project public meeting was held in the Municipality of Kincardine on December 11, 2011. The Proponent is hosting a 2nd public meeting, at two locations to provide additional Project information and to solicit feedback from community members, stakeholders, government agencies, and Aboriginal Groups. Details of the meeting are as follows:

Date: Monday, November 12, 2012

Time: 5:30 p.m. to 8 p.m.

Locations: Best Western – Governor's Inn, 791 Durham Street, Kincardine, Ontario and Tiverton Community Center, 6 McKay St, Tiverton, Ontario

Project Contacts and Information

For more information or to provide feedback please contact:

Project Email: info@armowwind.com

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Phone: 519-396-9433

OR

Ian Callum, Project Manager
Golder Associates Ltd
2390 Argentia Road
Mississauga, Ontario, L5N 5Z7
Phone: 905-567-4444



COMMUNITY CALENDAR

GOOGLETHE SCOUGALL - A wine and cheese reception will be held to celebrate the new on-line J.H. Scougall Gallery, Thursday, Oct. 25 from 7-9 p.m. at the Walker House in Kincardine, hosted by the Heritage Kincardine committee. There will be a presentation by the Bruce County Museum and Cultural Centre. RSVP to 519-396-5764 or heritagekincardine@gmail.com.

PLAYTIME is a free, fun-filled program for pre-schoolers and kindergarten children. Runs every Saturday (Oct. 20-Dec. 9) from 2-4 p.m. at the Davidson Centre (room near the office). Call Tryntje Eisen at 519-395-2415 for more information.

At the KINCARDINE LIBRARY: Story Time & Crafts for pre-schoolers, Thursdays at 1:30 p.m.; Saturday Stories at 10:30 a.m.; LEGO Club, Tuesdays at 6 p.m.; Crafternoons Wednesdays at 1:30, but must pre-register.

All seniors, 50+ are welcome to join us for a game of cards in the seniors room at the Davidson Centre at 1 p.m. Tues. Shooter; Thurs. 6 handed Bid Euchre (pre-registering is needed). For more information call Elaine, 519-396-9209 or George, 519-396-5572.

All welcome to Bervie Women's Institute meetings, 1st Wed. of the month, 10 a.m. at the Bervie W.I. Hall, Hwy. 9 in Bervie. For information call Betty Anne, 519-396-4516.

Alzheimer caregiver information & support meetings, the 2nd Thurs. of every month, 1:30 - 3:30 p.m. at Trillium Court, 550 Philip Place, Kincardine.

Point Toastmasters, new location at K.D.S.S. 885 River Lane. Meetings every 1st & 3rd Wednesday each month. Starts promptly at 7 p.m. ends at 9 p.m. Contact Merri MacCartney 519-395-0412 or Ron Rock 519-525-1522 for more information.

Kincardine Stamp Club meets the first Wed. of each month 7 p.m. at the Davidson Centre, billiards room. Call 519-395-5817 or 519-396-8005 for more information.

Bingo at Kincardine Legion, 219 Lambton St., Kincardine, every Thurs. Doors open at 6 p.m. All welcome.

SECOND NOTICE OF PUBLIC MEETING #2
by SP Armow Wind Ontario LP

Project Name: Armow Wind Project (the “Project”)

Project Location: Municipality of Kincardine, Bruce County, Ontario.

Notice Dated at: Bruce County this, the 17th of October, 2012

SP Armow Wind Ontario LP, a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC and Samsung Renewable Energy Inc, (the “Proponent”), is planning to engage in a renewable energy project for which a renewable energy approval (“REA”) is required. The distribution of this Notice and the Project itself are subject to the provisions of the *Environmental Protection Act* (the “Act”) Part V.0.1 and Ontario Regulation 359/09, as amended by Ontario Regulation 195/12 (the “Regulation”). This Notice is provided in accordance with the provisions of Section 15 and 16 of the Regulation.

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Public Meeting Information

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Locations: Best Western – Governor’s Inn, 791 Durham Street, Kincardine, Ontario *and* Tiverton Community Center, 6 McKay St, Tiverton, Ontario

Project Contacts and Information

For more information or to provide feedback please contact:

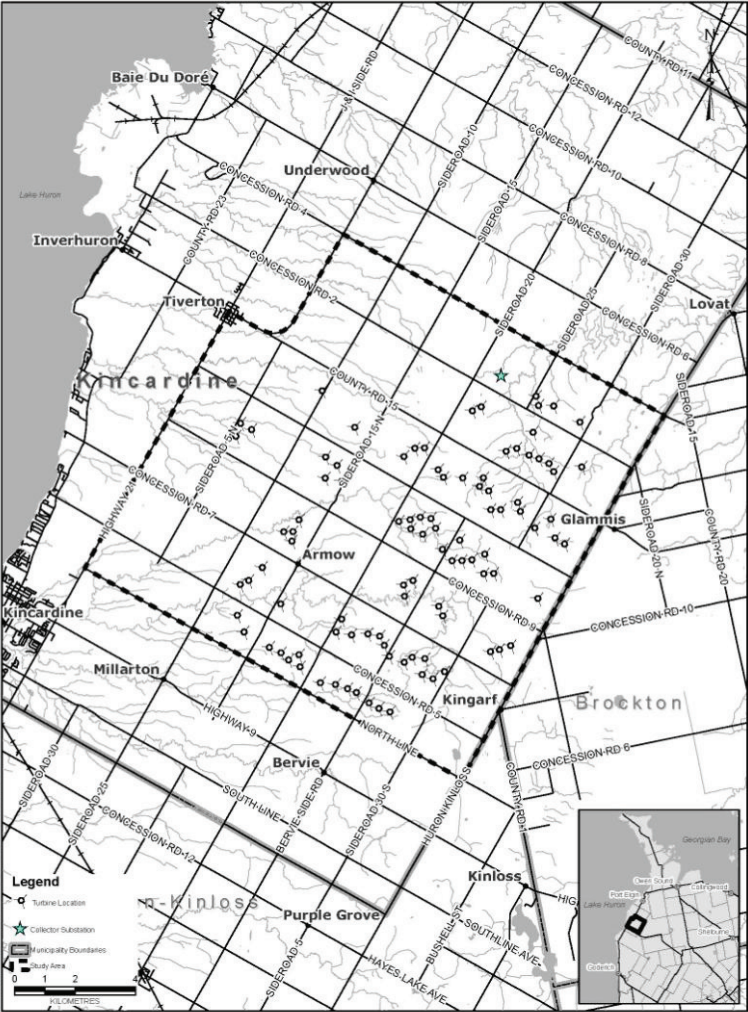
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AS SEEN ON TV - 1st, 2nd, Home Equity Loans, Bad Credit, Self-Employed, Bankrupt, Foreclosure, Power of Sale or need to Re-Finance? Let us fight for you because "We're in your corner!" CALL The Refinancing Specialists NOW Toll-Free 1-877-733-4424 (24 Hours) or click www.MMAmortgages.com (Lic#12126).	Vehicle buyers are ONLY protected by OMVIC and Ontario consumer protection laws when they buy from registered dealers. There's no protection if you buy privately and you risk becoming victim of a curb-sider. To verify dealer registration or seek help with a complaint: www.omvic.on.ca or 1-800-943-6002.	EARN EXTRA CASH! - P/T, F/T Immediate Openings for Men & Women. Easy Computer Work, Other Positions Are Available. Can Be Done From Home. No Experience Needed. www.HiringNow-Ontario.com	PART-TIME JOBS - Make your own schedule, sell chocolate bars to make \$\$\$, decide where and when you sell, start and stop when you want. Tel: 1-800-383-3589. www.chocolatdeluxe.com	FAST Approved Owner-Operators Wanted. Home throughout the week, competitive rates & benefits, fuel cap, incentive program, paid waiting time & border crossing. Toll-Free: 1-800-567-2609 ext.208. Fax: 519-644-9059. www.elginmotorfreight.com
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APPENDIX B

Communications with members of the Public



1. Comment Forms from Public Meeting #1

Armow Wind Project

Open House, December 13, 2011
Best Western Governor's Inn



Please take a moment to fill out this questionnaire and place it in the box provided, or mail it to the address below. Your input is important. Comments will become part of the public record with the exception of personal information.

1. How did you learn about this Public Open House (please check all that apply)?

- ☒ Newspaper Advertisement ☐ Website
- ☒ Personal Letter or Email
- ☐ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

I am greatly concerned about the increased size of this project and the potential for very negative impacts to an area.

3. Did this Public Open House meet your information needs?

- ☐ Yes ☐ Somewhat ☐ No

Please explain:

people were willing to talk to me, which was appreciated.

4. Please provide any other comments or questions related to the Armow Wind Project:

Although all aspects of electrical generation need to be considered in order to meet energy demand in our modern society, I believe we must think things through carefully and proceed cautiously. I feel that the green energy act encourages large projects by providing subsidy and the opportunity for profit, without due consideration of potential negative impacts to environment and human health. Until technology advances to the point that storage of excess wind production is viable, wind projects should ~~be~~ remain small only.

If you would like to be kept informed about the status of the Project, please provide your contact information below. Please note that your personal information will not be affiliated with your comments and will be kept confidential.

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Thank you for taking the time to fill out this questionnaire. If you require more time, you are welcome to take the questionnaire home and send it back to info@armowwind.com, or mail it into: Ian Callum, Project Manager

Golder Associates Ltd.
2390 Argentia Rd.
Mississauga, ON
L5N 5Z7

Armow Wind Project



Open House, December 13, 2011
Best Western Governor's Inn

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1. How did you learn about this Public Open House (please check all that apply)?

- ☐ Newspaper Advertisement ☐ Website
- ☒ Personal Letter or Email
- ☐ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

TO See about Construction Contractor's
I Have Fencing Company + did all
Enbridge work + Sub Station @ Underwood.
Want to get some contacts

3. Did this Public Open House meet your information needs?

- ☒ Yes ☐ Somewhat ☐ No

Please explain:

4. Please provide any other comments or questions related to the Armow Wind Project:

Would like to work on
project. When it goes ahead.

(Modern Fencing).

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- ☐ Newspaper Advertisement ☐ Website
- ☐ Personal Letter or Email
- ☒ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

information: I am concerned about our valuable food growing land being covered by gravel & concrete could the turbines not be located on non-farmable land?

3. Did this Public Open House meet your information needs?

- ☐ Yes ☐ Somewhat ☒ No

Please explain:

the very important issues like one above are side stepped

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

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1. How did you learn about this Public Open House (please check all that apply)?

- ☐ Newspaper Advertisement ☐ Website
- ☐ Personal Letter or Email
- ☒ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

I'm concerned about valuable farmland being
used for turbines.

3. Did this Public Open House meet your information needs?

- ☐ Yes ☐ Somewhat ☐ No

Please explain:

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1. How did you learn about this Public Open House (please check all that apply)?

- ☐ Newspaper Advertisement ☐ Website
- ☐ Personal Letter or Email
- ☒ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

to support the future of the
Community with this positive change.

3. Did this Public Open House meet your information needs?

- ☒ Yes ☐ Somewhat ☐ No

Please explain:

Many Informative people around
to answer all questions related
to the project

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper has a slight shadow on the right side, suggesting it's resting on a surface.

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Armow Wind Project



Open House, December 13, 2011

Best Western Governor's Inn

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1. How did you learn about this Public Open House (please check all that apply)?

- ☐ Newspaper Advertisement ☐ Website
- ☒ Personal Letter or Email
- ☐ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

For information regard size of
this project and the turbines themselves
also where they'll be going

3. Did this Public Open House meet your information needs?

- ☒ Yes ☐ Somewhat ☐ No

Please explain:

The size was explained but location
will be determined later. I'll be back
next time. One point I feel needs to be addressed
is finding a way to financially compensate the
owners of neighbouring land to the turbines - I think
that would ease the division of communities over
these wind projects - and don't put them
too close together

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper appears to be a standard notebook page or a sheet of stationery. There is no handwriting or other markings on the page.

Name: _____

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City/Province: _____

Postal Code: _____ Email: _____

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Armow Wind Project

Open House, December 13, 2011
Best Western Governor's Inn



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1. How did you learn about this Public Open House (please check all that apply)?

- ☐ Newspaper Advertisement ☐ Website
- ☒ Personal Letter or Email
- ☐ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

To support Armow Wind

3. Did this Public Open House meet your information needs?

- ☒ Yes ☐ Somewhat ☐ No

Please explain:

4. Please provide any other comments or questions related to the Armow Wind Project:

Hopefully they can start building sooner then
2014

If you would like to be kept informed about the status of the Project, please provide your contact information below. Please note that your personal information will not be affiliated with your comments and will be kept confidential.

A large blue rectangle with a small red rectangle in the top-left corner. The red rectangle is positioned in the upper-left area of the blue rectangle.

Thank you for taking the time to fill out this questionnaire. If you require more time, you are welcome to take the questionnaire home and send it back to info@armowwind.com, or mail it into: **Ian Callum, Project Manager**

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- ☐ Newspaper Advertisement ☐ Website
- ☒ Personal Letter or Email
- ☐ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

I HAVE BEEN MADE ILL
BY INDUSTRIAL WIND
TURBINES

3. Did this Public Open House meet your information needs?

- ☐ Yes ☐ Somewhat ☒ No

Please explain:

SAME STORY ~~REPEATED~~
REGARDING TURBINES
"UNTRUE" "FACTS" GIVEN -
PEOPLE ARE FORCED TO LEAVE

4. Please provide any other comments or questions related to the Armow Wind Project:

THEIR HOMES, BECAUSE OF
TURBINES

MORE CONSIDERATION SHOULD
BE GIVEN TO SAVE SET
BACKS.

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- ☐ Personal Letter or Email
- ☒ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

To become better informed so that
I can oppose better.

3. Did this Public Open House meet your information needs?

- ☐ Yes ☒ Somewhat ☐ No

Please explain:

- It seems the mind set is cast
to proceed, regardless of public
opinion.

4. Please provide any other comments or questions related to the Armow Wind Project:

- 30% capacity factor is not profitable.
- I already can see the flashing lights from Underwood and Ripley. I don't want more.
- If they are so good, put them near the cities where the power is needed.
- It is a shame to split neighbors.
- I get migraines from flickering lights, I do not look forward to these.
- Who is responsible if ~~Suncor~~ Accadia and now Samsung pulls out? As a land owner I could not afford to do commission.

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Armow Wind Project



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- ☐ Newspaper Advertisement ☐ Website
- ☒ Personal Letter or Email
- ☐ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

voice my opinion

3. Did this Public Open House meet your information needs?

- ☐ Yes ☐ Somewhat ☒ No

Please explain:

*I am concerned with proximity to
Airport but you could not show me
a map of setbacks*

4. Please provide any other comments or questions related to the Armow Wind Project:

- 1 I Don't like to subsidize windmills or solar with my tax dollars. How many would be built if you got market rate for the power?
- 2 I Don't like windmills changing the look of the natural environment and scenic landscapes
- 3 as previously mentioned you will be too close to the airport and airport traffic. The new GPS approach to Runway 31 goes down to 250'

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- ☐ Personal Letter or Email
- ☐ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

To get more info on the project

3. Did this Public Open House meet your information needs?

- ☒ Yes ☐ Somewhat ☐ No

Please explain:

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- ☐ Newspaper Advertisement ☒ Website
- ☐ Personal Letter or Email
- ☐ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

to show my support for this project

3. Did this Public Open House meet your information needs?

- ☒ Yes ☐ Somewhat ☐ No

Please explain:

very factual

4. Please provide any other comments or questions related to the Armow Wind Project:

*continue to put the positive benefits
of wind energy before the public
to counteract the misinformation
of its opponents.*

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- ☒ Personal Letter or Email
- ☐ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

CONCERN ABOUT KINCARDINE AIRPORT
CIRCUIT & APPROACHES

3. Did this Public Open House meet your information needs?

- ☐ Yes ☒ Somewhat ☒ No

Please explain:

NO INFORMATION ABOUT PROTECTING
THE AIRPORT DISPLAYED
- BUT ONLY OTHER CONCERNS WERE ADDRESSED

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Armow Wind Project



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- ☐ Newspaper Advertisement ☐ Website
- ☐ Personal Letter or Email
- ☒ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

I am TO speak with you about
Health Problems in the
Wind Project.

3. Did this Public Open House meet your information needs?

- ☐ Yes ☒ Somewhat ☐ No

Please explain:

I am not certain my concerns
about Health and Wind Turbines
will be addressed in the Armow Project

4. Please provide any other comments or questions related to the Armow Wind Project:

Should you proceed with the Armow Project, you ought to have in place a complaint resolution protocol which allows residents to be responded to if they experience disturbance and that the turbines will be shut down to alleviate their health distress.

I spoke with Tadi here about this:

Catharine Crayon

If you would like to be kept informed about the status of the Project, please provide your contact information below. Please note that your personal information will not be affiliated with your comments and will be kept confidential.

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Street Address: _____

City/Province: _____

Postal Code: _____

Email: _____

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- ☐ Personal Letter or Email
- ☒ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

Info

3. Did this Public Open House meet your information needs?

- ☒ Yes ☐ Somewhat ☐ No

Please explain:

Plenty of info

Good resource in form of people to answer questions

[illegible]

Name: _____

Street Address: _____

City/Province: _____

Postal Code: _____ Email: _____

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- ☐ Newspaper Advertisement ☐ Website
- ☐ Personal Letter or Email
- ☒ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

Interest in the construction of the project.

3. Did this Public Open House meet your information needs?

- ☒ Yes ☐ Somewhat ☐ No

Please explain:

Hope to see a successful project.

Name: _____

Street Address: _____

City/Province: _____

Postal Code: _____ Email: _____

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Concerning Proposed Arrow Windmill Project

The proposal is for construction of 40 to 55 windmills within an area 9 miles by 9 miles, covering most of Kincardine Township, plus part of Bruce Township, 11,500 acres of privately owned prime farmland. Some of the most productive food growing land in Ontario. Within this area are the farms and homes of almost all of Kincardine district's 35 family Amish community.

Our provincial Government is committed to preserving prime farm land for growing food. Our population is increasing. Our tillable land base is shrinking. From the point of view of saving agricultural land for agriculture, does not this project with all the gravelled access roads seem extremely wasteful? How many acres will be required?

Government of Ontario- This project surely does not seem to fit in with your professed commitment to good stewardship and preservation of irreplaceable farm land?

Are there not better places to reap the wind than in the most productive food growing areas? How about over Lake Huron's waters? When we were first attracted to this area, well meaning folks told us that we wouldn't like it here, with those strong c-o-l-d winds blowing off Lake Huron. They meant well but they were mistaken. We do like it here!

In other areas of Canada and in the USA, we've seen windmills by the hundreds on high ridges where no food could be grown, yet very productive in wind power, we assume. Come to think of it the only large windmill projects we have seen on prime farm land is in this part of Ontario. Why is this?

We are concerned. Should not this project be put off until land use and health and feasibility concerns are better addressed and more studies done? One of the Amish schools is very close to the recently built feeder line on sideroad 10. Is this not a concern? There seem yet too many unknown and unreported factors. More time will undoubtedly reveal more information. It may yet come quite clear as to the better way to go.

Joseph A. Kueffer, Menno Albright David S. Kueffer
On behalf of the Amish Community



2. Comment Forms from Public Meeting #2

Armow Wind Project



Open House, November 12, 2012

Best Western Governor's Inn

Please take a moment to fill out this questionnaire and place it in the box provided, or mail it to the address below. Your input is important. Comments will become part of the public record.

1. How did you learn about this Public Open House (please check all that apply)?

☐ Newspaper Advertisement ☐ Website

☐ Personal Letter or Email

☐ Word of Mouth

☒ Other: Mail box Flyer.

2. What was your main reason for attending this Public Open House?

To present questions for formal written responses

3. Did this Public Open House meet your information needs?

☐ Yes ☐ Somewhat ☒ No

Please explain:

Please see attached questions.

4. Please provide any other comments or questions related to the Armow Wind Project:

Please see attached questions

Additional questions noted at Public Open House

① Turbines 90 / 35 / 32 / 103 / 60 / 105 / 106 /
52 / 51 / 101

Appear to be closer to Ontario Hydro
corridors than permitted by Ontario Hydro
Networks Inc Standard of 500m to
500kv corridor / 250m to 230kv Corridor.

Please comment.

② Turbines shown on map as 113 / 44 / 43 / 85 /
59 / 94 / 57

appear very close to River Side Road as example.

If you would like to be kept informed about the status of the Project, please provide your
contact information below. Please note that your personal information will not be affiliated
with your comments and will be kept confidential.

(I understand others identify an
issue of turbine #s not matching

[Redacted contact information]

Thank you for taking the time to fill out this questionnaire. If you require more time, you are
welcome to take the questionnaire home and send it back to info@armowwind.com, or mail it
into: Ian Callum, Project Manager

Golder Associates Ltd.
2390 Argentinia Rd.
Mississauga, ON
L5N 5Z7

Questions
Armow Wind

Posed by



November 12, 2012

Section 09 – Noise Impact Assessment

1. There are 395 “receptors” within 1500 metres of a wind turbine, and 36 participants. Interesting to note that there are over 10 times as many impacted for each participant. Do you wish to comment on the justice of this?
2. The MOE Noise Guidelines for Wind Farms calls for the manufacturer’s sound levels to be adjusted by the average summer nighttime wind shear. All of the references in the tables for the sound limits for the Siemens turbines refer to a roughness of 0.05. This corresponds to a wind shear of 0.16. What is the average nighttime wind shear for the Armow Project, - please provide an example of how the wind turbine sound level was corrected for the average summer nighttime wind shear.
3. Which turbine locations are proposed for each of the 5 noise reduced modes. Can you please provide a worked example of how the noise at a typical receptor that is impacted by normal and noise reduced mode turbines was calculated?
4. Please identify how each wind turbine produces the reduced noise mode, and how evidence that each turbine claimed to be operating in noise reduced mode is actually doing so.
5. The impact of the Enbridge Wind Farm was calculated from the April 2006 noise assessment. This assessment was not corrected for average night time wind shear, and used a wind shear lower than the average night time wind shear that was identified during the OMB hearings. Can you please show how you corrected the Enbridge Wind turbine impact for average nighttime wind shear?
6. Similarly, the noise for the Enbridge Cruickshank wind turbines was not corrected for average nighttime wind shear in the submitted noise assessment. Please identify how the contribution from these has been corrected in the Armow Noise Impact Assessment.

Section 01 – Project Description:

- 1. Please identify the basis for the statement in 3.7.2.4 that a setback of blade length plus 10 metres provides a safe setback for ice throw, using examples of the distance ice is actually thrown from wind turbines – such as 100 metres for pieces of ice up to 12 inches x 12 inches x 2 inches from the 50 metre tall Tacke wind turbine with 21 metre blades, considering that the Amrow turbines have nearly twice the height, and blade length over twice as large.**
- 2. Similarly, please provide an assessment that a setback of blade length plus 10 metres is a safe setback to protect against the throw of full or parts of wind turbine blades, considering the impact on an unprotected person on a public roadway. Comment specifically given the loss of a full blade on a similar Siemens turbine in Scotland.**
- 3. Please provide an assessment of the maximum hours of shadow flicker at any receptor or any public roadway in the Amrow project.**
- 4. In Section 3.7, please identify why Noise is not considered as an environmental contaminant, as it is identified as so in the Environmental Protection Act.**

Section 10 – Wind Turbine Specifications

- 1. The specifications describe the wind turbine sound power level for a surface roughness of 0.05. Please identify the wind shear this roughness represents (I believe it is 0.16) and explain how you are correcting the sound power level for average summer sight time wind shear.**
- 2. Please provide the value of average summer nighttime wind shear you have determined to apply for the Amrow Project. Please identify the range of nighttime wind shears observed in your monitoring.**

Armow Wind Project

Open House, November 12, 2012

Best Western Governor's Inn



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- ☐ Newspaper Advertisement ☐ Website
- ☒ Personal Letter or Email
- ☐ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

Legal Process,

3. Did this Public Open House meet your information needs?

- ☐ Yes ☐ Somewhat ☒ No

Please explain:

4. Please provide any other comments or questions related to the Armow Wind Project:

Per
attached,

If you would like to be kept informed about the status of the Project, please provide your contact information below. Please note that your personal information will not be affiliated with your comments and will be kept confidential.

[Redacted contact information]

Thank you for taking the time to fill out this questionnaire. If you require more time, you are welcome to take the questionnaire home and send it back to info@armcowwind.com, or mail it into: **Ian Callum, Project Manager**

Golder Associates Ltd.
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Comments to SP for Open House by I [REDACTED]; Nov. 12/2012

The World Health Organization recommended safe noise level should not used as a target for siting Industrial Wind Turbines. Noise modeling for IWTs is not an exact science. The prediction error can be ± 3 dBA. Worst case atmospheric & site conditions are not accounted for by modeling. The ISO standard is not intended to be used for 120m tall IWTs. As IWTs age and wear, they become noisier. Wind farm sound pollution from the Enbridge project exceed the modelled values appreciably 25% of the time.

The MOE Corporatocracy

A consultant to the MOE has recommended that stricter sound pollution limits be applied to IWTs in rural areas. He also said "if the province enforced the regulations—it would have a major impact on wind farms around the province". "First implication is that the number of wind turbines in wind-farms would have to be reduced considerably and wind-farm developers would have to look for localities where they are not impacting the neighbourhood".

Memos from MOE staff released through the Freedom of Information Act state:

- the computer modelling used to determine Ontario's safe "set back distances" was flawed and inadequate.
- stricter noise limits are needed in rural areas,
- stricter noise limits are needed on account of "swooshing sounds."
- the MOE over-relies on background noise masking .
- the MOE currently does not have a method for measuring noise from multiple sources and so can't confirm compliance, and.
- "It appears compliance with the minimum setbacks and the noise study approach currently being used to approve the siting of WTGs will result or likely result in adverse effects contrary to sub-section 14(1) of the EPA."

But the MOE keeps handing out Certificates of Approval regardless of how many letters dirty little unwashed people send in.

In view of this dereliction of duty by the industry regulator, I am appealing to SP as a good corporate citizen to adopt the following recommendations.

Pre-construction noise surveys

SP should perform pre-construction noise surveys at non-participating receptors where guestimated noise intrusions exceed 35dBA. This is to provide a reference background for confirming compliance in the event of reported sound pollution exceedences after the project goes into operation. Pre-construction noise surveys are a recommended best management practice per industry association lobbyist CANWEA.

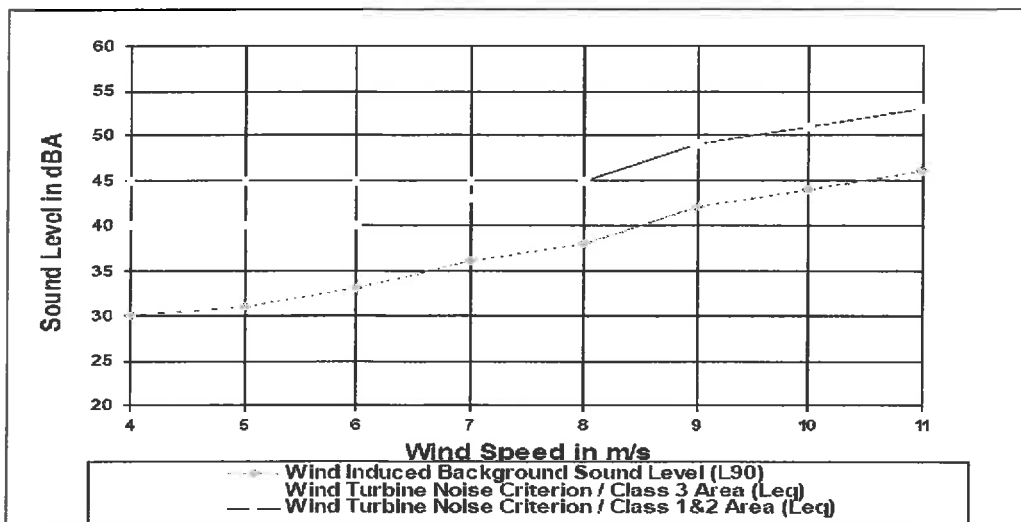
CanWEA's best practice guidelines call for ambient sound levels to be taken before start-up of operations to provide a bench mark for sound measurements.

*It is far more appropriate to deal with each application on its own merits, taking into account the topography in the area, the number and placement of the wind turbine, the **sound** power produced by the particular model of wind turbine, and the ambient **sound** levels at the receptors.*

Ambient **sound** levels should be monitored at the receptors to assist in defining criteria and to **provide a benchmark for any sound** measurements following start-up of the operations. It is important to note that, particularly in quiet rural areas, the ambient **sound** levels are influenced by wind – as the wind speed increases the ambient **sound** levels increase. Therefore, it is appropriate to correlate ambient **sound** levels to wind speed. CANWEA-WIND TURBINES AND SOUND: REVIEW AND BEST PRACTICE GUIDELINES

Where is this mythical receptor per the MOE that is deafened by 3dbAs at critical wind speed (7 m/s) where noise from IWTs is most intrusive?

A summary of the above limits is shown in figure and table below.



Wind Speed (m/s)	4	5	6	7	8	9	10	11
Wind Turbine Noise Criterion NPC-232 (dBA)	40	40	40	43	45	49	51	53
Wind Turbine Noise Criterion NPC-205 (dBA)	45	45	45	45	45	49	51	53

Why are wind speeds at a met tower many kms. distant used for guestimating the "masking" at a receptor's back deck on a calm summer evening?

Presently, without representative background ambient noise values, once the windfarm is in operation, it becomes almost impossible to prove non-compliance.

Turbulent Inflow

SP proposes to put 2 IWTs on farm lots. This will force IWTs closer to non-participating receptors who live on severed lots and have moved to the countryside for peace and enjoyment of the outdoor amenity.

On account of the closer spacing, inflow of turbulent air from nearby-up wind IWTs will increase sound emissions. See Attachment: Turbine-induced Turbulence

Central Bruce Grey Wind concerns raised this issue by letter to SP in Nov. 15/2011.

If SP is going to site IWTs closer together (<7 rotor diameters) then the noise rules should take into consideration the effect of turbulent inflows wrt. sound and vibration impacts.

IWTs efficiency and output will be reduced on account of closer spacing.

AMPLITUDE MODULATION

Wind turbines emit a characteristic modulating sound. The amplitude modulated noise from several nearby wind turbines interacts. It is this periodic noise that causes the widespread annoyance. Noise rules use Leq. in setting their noise limits and this averages out the modulation. The ear responds on a fast time scale and does not average the noise peak away. The Ontario Ministry of the Environment (NPC 104) applies a penalty of 5 dBA for this periodic variation of noise to noise emitters but NOT to IWTs. Noise limits need to include a 5 dBA penalty for amplitude modulated noise.

Tonal Noise

If the sound levels produced by the equipment exhibit tonality (meaning a pronounced audible tonal quality such as a whine, screech, buzz, or hum) then a 5 dBA penalty should be applied. This includes sound pollution from a transformer station.

Sound Emission Compliance Protocol

Since the MOE is not ensuring compliance of windfarms to the noise regs., a compliance program responsive to reporting of sound pollution exceedences by the public is in order. The protocol would ensure that reported exceedences are properly documented and followed-up in a timely and effective manner. The protocol would set standards for measuring the exceedence and comparing the sound level to the pre-operation ambient background sounds by a qualified third party. The protocol would be simple to enforce. (I had requested such a protocol in my delegation to council inviting SP to participate (with SP in attendance Dec. 2011). By letter Nov. 15/2011, Central Bruce Grey Wind concerns had requested SP provide a protocol.

Attachment:

Excerpt from:

**PRESENTATION TO THE ANNUAL CONFERENCE OF THE CANADIAN ACOUSTICS ASSOCIATION
OCTOBER 2009 – NIAGARA-ON-THE LAKE**

INADEQUACY OF WIND TURBINE NOISE REGULATIONS AND THEIR APPLICATION

John P Harrison

Physics Department, Queen's University, Kingston, ON K7L 3N6 harrisjp@physics.queensu.ca

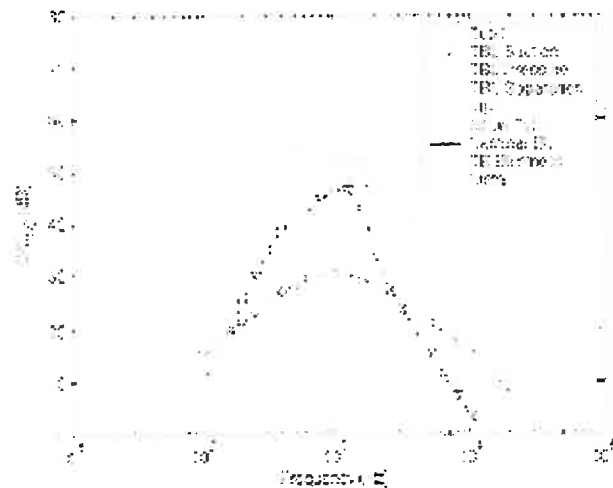
2.3 Turbulence

Many noise complaints draw attention to a component that sounds like a rumble (a dryer or a passing train that never passes!). Some victims cannot bear to put their heads down on their pillows because of the vibration. This is probably excess low frequency noise and vibration associated with turbulent inflow of air into the blades. The turbulence has two sources, turbulence in the atmosphere and the turbulent wake from neighbouring turbines. Atmospheric turbulence, like wind speed, is a variable. However, it can be measured and average values quantified as a function of time of day and/or season of the year. Turbine-induced turbulence can and has been measured. SODAR (sound equivalent of radar) measurements have shown that for $x/D \sim 5$, the turbulent intensity behind a turbine is comparable to the atmospheric turbulent intensity (x is the distance behind the blade and D is the blade diameter). They were 5% and 7% respectively. Turbulent intensity is defined as σ/v where σ is the standard deviation of the wind speed v . The SODAR measurements were made every minute and the averaging time for σ and v was 10 minutes. Low frequency noise requires a faster time scale for the calculation of σ and hence of the appropriate turbulent intensity. I note that for the Wolfe Island wind farm in Ontario about half of the turbines are within 6 blade diameters of an upwind turbine for the prevailing south-west winds. As an aside, the velocity deficit for the same half of the turbines due to the wake of the upwind neighbours will be up to 20% (Barthelmie 2003), so lowering the power output efficiency from that of the upwind turbines!

Moriarty and Migliore working at the National Renewable Energy Laboratory in Golden CO, made a study of inflow turbulence noise from turbines, with both measurements and predictions. The figure shows their results as sound pressure level as a function of sound frequency for a measuring site downwind of a test turbine. Various aerodynamic mechanisms contribute to the noise. All but the open diamonds correspond to predictions for the various mechanisms operating in a stable atmosphere. The open diamonds represent the predicted excess noise for the blades turning in turbulent air with a turbulent intensity corresponding to that measured. The red line is the sum of all these contributions. The blue diamonds are the measurements of the turbine noise. The agreement between the predicted and measured noise is compelling.

Below 1 kHz, the turbulent inflow noise can dominate the total turbine noise. For instance, with a turbulent intensity of $I = 10.6\%$, at 100 Hz this noise is 30 dBA larger than the combined noise from all other aerodynamic sources. The noise power is

proportional to I^2 , so that the sound pressure level falls by only 6 dBA as the turbulent intensity is halved. The noise measurements bear out the predictions apart from the need for an adjustment for the averaging time for the determination of σ .



It is quite clear from measurements of the turbulent wake downwind of a turbine, the close proximity of turbines to each other, particularly in Ontario, the enhancement of turbulence for on-shore winds, the predictions of turbulent inflow noise calculations and the agreement with measured noise that it is vital that this noise source be a part of noise regulation. This noise will not go away at night when the day-time atmospheric turbulence gives way to the stable night-time atmosphere. Turbulent inflow noise is predominantly in the low frequency range below 1 kHz, particularly near the lower range of hearing, and where the absorption by the atmosphere is minimal. Enough is known that prediction of turbulence noise can be made both from prior wind speed test tower measurements and from the proposed layout of the turbines. To date, no jurisdiction is requiring turbulence noise in their approval process. This must change.

Armow Wind Project

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Best Western Governor's Inn



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- ☐ Newspaper Advertisement ☐ Website
- ☐ Personal Letter or Email
- ☒ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

TO EXPLORE SOME OF THE MANY ERRORS
WHICH APPEAR IN YOUR NOISE IMPACT ASSESSMENT
IN REGARDS TO LOCATIONS AND SOUND LEVEL
RATING.

3. Did this Public Open House meet your information needs?

- ☐ Yes ☐ Somewhat ☒ No

Please explain:

IF THE INFORMATION YOU ARE PRESENTING HAS SEVERAL
ERRORS, HOW IS THE COMMUNITY TO PROCEED IN
MAKING AN INFORMED DECISION ABOUT THE
IMPACT OF THE PROJECT ON OUR LIVES?

4. Please provide any other comments or questions related to the Armow Wind Project:

PLEASE REFER TO ATTACHED DOCUMENTS.

If you would like to be kept informed about the status of the Project, please provide your contact information below. Please note that your personal information will not be affiliated with your comments and will be kept confidential.

A large rectangular area of the form is redacted with a solid blue color, covering the contact information section.

Thank you for taking the time to fill out this questionnaire. If you require more time, you are welcome to take the questionnaire home and send it back to info@armowwind.com, or mail it into: **Ian Callum, Project Manager**

Golder Associates Ltd.

2390 Argentia Rd.

Mississauga, ON

LSN 5Z7

Comments
on the
Noise Impact Assessment for the Armow Wind Project
(Document #: 800235-CAOT-R-01, Issue C, Final)

1. According to page 5 of the Noise Impact Assessment, the turbines being used for this project are the Siemens SWT-2.3-101 and they have a Rated Power output of 2.3 MW. The acoustic emission at the rated output for these turbines is stated to be 106dB(A) on page 7 of the report.
The MOE Noise Guidelines for Wind Turbines (PIBS 4709e) Section 6.4 states "The noise assessment must represent the maximum rated output of the Wind Farm". This means that the noise calculations should be based on the "rated" capacity of the turbines and not on values that the turbines are limited to.
Therefore the noise calculations should be based on a noise emission of 106dB(A) for each turbine. This would increase the calculated noise levels for most of the receptors above MOE Noise Guidelines.
2. The MOE Noise Guidelines for Wind Turbines (PIBS 4709e) Section 6.4 states "The noise assessment must represent ... and reflect the principle of "predictable worst case", Publications NPC-205 and NPC-232, ..."
 - a. According to ISO 9613 and Section 6 of the Noise Impact Assessment, the accuracy of the noise calculations is estimated to be +-3dB(A). If you follow the principle of "predictable worst case" then you must add 3dB(A) to the noise calculations for each receptor due to the fact that the calculated values could be 3dB(A) too low. This would again increase the calculated noise levels for most of the receptors above the MOE Noise Guidelines.
 - b. According to ISO 9613 the accuracy of +-3dB(A) for the noise calculations is only an estimate and therefore could be even be higher. The least that should be done is to add 3dB(A) to the noise calculations as in 2a above. Does this mean that the noise levels could exceed the MOE Noise Guidelines for all receptors?
 - c. The Ground Attenuation Factor used in the Noise Calculations is stated in Section 6 of the Noise Impact Assessment to be 0.7 which assumes a porous ground with vegetation. In the Spring, Fall and especially Winter the ground is frozen, covered with snow and ice and there are no leaves on trees to absorb the noise. The Ground Attenuation Factor should therefore be set closer to 0.0 in order to comply with principle of "predictable worst case" as required in the MOE Noise Guidelines.
This could again increase the calculated noise levels for most of the receptors above the MOE Noise Guidelines.
3. The Turbine locations on the maps in the Noise Impact Assessment for the Armow Wind Project do not agree with GPS Coordinates listed in Appendix F of the same report. The noise calculations could therefore be inaccurate and exceed the MOE Noise Guidelines for a number of Receptors.
4. There is one Receptor in the Armow Wind Project with a turbine closer than 400M but in the Noise Impact Assessment table it's listed as having the nearest turbine more than 800M away. Also, the nearest Turbine number listed does not match the number of the actual nearest Turbine. Are there any more Receptors with the same problem?

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- ☐ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

3. Did this Public Open House meet your information needs?

- ☐ Yes ☐ Somewhat ☐ No

Please explain:

4. Please provide any other comments or questions related to the Armow Wind Project:

The time set up for that meeting was exactly at the time when dairy farmers have to do their milking. Who ~~does~~ sets the time for those meetings?
I can Therefore I couldn't attend the field meeting only for 5 minutes. I am a part of that community and like to be involved.

If you would like to be kept informed about the status of the Project, please provide your contact information below. Please note that your personal information will not be affiliated with your comments and will be kept confidential.



Thank you for taking the time to fill out this questionnaire. If you require more time, you are welcome to take the questionnaire home and send it back to info@armowwind.com, or mail it into: Ian Callum, Project Manager

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1. How did you learn about this Public Open House (please check all that apply)?



Newspaper Advertisement



Website



Personal Letter or Email



Word of Mouth



Other:

2. What was your main reason for attending this Public Open House?

Information gathering

3. Did this Public Open House meet your information needs?



Yes



Somewhat



No

Please explain:

4. Please provide any other comments or questions related to the Armow Wind Project:

*I noticed at least 2 receptors missing.
The GPS Co-ordinates do not agree with
the turbine numbers on the map.
There is a receptor less than 400 m from
a turbine
If the turbine numbers are not correct, the
sound level ratings are incorrect.
This noise study should be re-done and
posted again for 90 days.*

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Name: _____
Street Address: _____
City/Province: _____
Postal Code: _____ Email: _____

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- ☐ Personal Letter or Email
- ☒ Word of Mouth
- ☒ Other:

2. What was your main reason for attending this Public Open House?

To hear those whose life will be impacted
by turbine location close to their homes
To hear those whom have opted land
for this current project - motives, desires, perspective.

3. Did this Public Open House meet your information needs?

- ☐ Yes ☒ Somewhat ☐ No

Please explain:

As requested in Dec. 2011 ~ a few questions
remain unanswered by S/P citing inability to
obtain answers

1) how many live (prim. residence) on land they opted?

2) to what extent will Armow use local labour + materials?

→ but now - more importantly - first + foremost

4. Please provide any other comments or questions related to the Armow Wind Project:

This upheavement markedly different in Armow staff
demeanour. I was not approached by staff while
reading project material.

A project layout provided - still so many questions
about noise

and now all the inaccuracies (incorrect information)
that were pointed out at tonight's
meeting.

re: incorrect turbine
location, GPS coordinates
noise study all incorrect.

→ This is so disappointing &
discouraging. How do we know
we have the "right" information?

If you would like to be kept informed about the status of the Project, please provide your contact information below. Please note that your personal information will not be affiliated with your comments and will be kept confidential.

[Redacted contact information area]

Thank you for taking the time to fill out this questionnaire. If you require more time, you are welcome to take the questionnaire home and send it back to info@armowwind.com, or mail it into: Ian Callum, Project Manager

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- ☐ Newspaper Advertisement ☐ Website
- ☐ Personal Letter or Email
- ☒ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

To listen & read lies - the people that are affected by these monsters - windmills & wired motors from Queens Park should be responsible & imprisoned

3. Did this Public Open House meet your information needs?

- ☐ Yes ☐ Somewhat ☒ No

Please explain:

It's all about \$ & taking advantage of innocent country folk - put the god-damn things along the 401 within a 2 mile distance of Toronto all 2500 of them!

The meal was cheap also it's all 3 days old!

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Name: _____

Street Address: _____

City/Province: _____

Postal Code: _____ Email: _____

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- ☐ Newspaper Advertisement ☐ Website
- ☒ Personal Letter or Email
- ☐ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

Concern with airport & aviation
safety

3. Did this Public Open House meet your information needs?

- ☐ Yes ☐ Somewhat ☒ No

Please explain:

Studies that I asked Jody Law for
had not yet been completed or done

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- ☒ Newspaper Advertisement ☐ Website
- ☐ Personal Letter or Email
- ☒ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

Specific turbine location

3. Did this Public Open House meet your information needs?

- ☒ Yes ☐ Somewhat ☐ No

Please explain:

location available

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- ☒ Personal Letter or Email
- ☐ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

*To get more information to stay Electrical
Bonds & Bonds*

3. Did this Public Open House meet your information needs?

- ☒ Yes ☐ Somewhat ☐ No

Please explain:

*Each person to each project explained more
information, if a problem call Armow
Winds to help with the information*

4. Please provide any other comments or questions related to the Armow Wind Project:

It is a very good information note.
Everything is well covered. Note
if people have questions they should
be covered. Note Good ideas

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- ☒ Personal Letter or Email
- ☐ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

3. Did this Public Open House meet your information needs?

- ☒ Yes ☐ Somewhat ☐ No

Please explain:

[illegible]

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- ☐ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

3. Did this Public Open House meet your information needs?

- ☒ Yes ☐ Somewhat ☐ No

Please explain:

Very informative!

Name: _____

Street Address: _____

City/Province: _____

Postal Code: _____ Email: _____

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- ☐ Newspaper Advertisement ☐ Website
- ☐ Personal Letter or Email
- ☒ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

Part of KDSS Robotics team wanted to
see what was going on

3. Did this Public Open House meet your information needs?

and above

- ☒ Yes ☐ Somewhat ☐ No

Please explain:

It had more Information than I thought that could
be at an open house - very informative

4. Please provide any other comments or questions related to the Armow Wind Project:

we support it

If you would like to be kept informed about the status of the Project, please provide your contact information below. Please note that your personal information will not be affiliated with your comments and will be kept confidential.

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Postal Code: _____ Email: _____

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- ☐ Newspaper Advertisement ☐ Website
- ☐ Personal Letter or Email
- ☒ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

Support Project

3. Did this Public Open House meet your information needs?

- ☒ Yes ☐ Somewhat ☐ No

Please explain:

Very informative on stray voltage & health effects

[illegible]

Name: _____

Street Address: _____

City/Province: _____

Postal Code: _____ Email: _____

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1. How did you learn about this Public Open House (please check all that apply)?



Newspaper Advertisement

☐

Website

☐

Personal Letter or Email

☐

Word of Mouth

☐

Other:

2. What was your main reason for attending this Public Open House?

Get information

3. Did this Public Open House meet your information needs?



Yes

☐

Somewhat

☐

No

Please explain:

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- ☒ Personal Letter or Email
- ☐ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

Research

3. Did this Public Open House meet your information needs?

- ☐ Yes ☒ Somewhat ☐ No

Please explain:

*Need review of pile driving effects
on water tables, contamination etc*

[illegible]

Name: _____

Street Address: _____

City/Province: _____

Postal Code: _____ Email: _____

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- ☐ Newspaper Advertisement ☐ Website
- ☒ Personal Letter or Email
- ☐ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

→ To ask questions regarding health effects and wildlife riches being destroyed via roads, lines, etc.

→ To see if people come first for this project.

3. Did this Public Open House meet your information needs?

- ☐ Yes ☒ Somewhat ☐ No

Please explain:

The answers were not as forthright as I would like. They seemed to respond to make the project look great not really caring what the people of this municipality have to say, or following the policies set out by local gov't.

4. Please provide any other comments or questions related to the Armow Wind Project:

- Without health studies completed new turbines should not be put up close to peoples homes.
- Ontario's premier, Finance minister, and energy minister quit over the current energy scandal thus no projects should be going ahead.
- Land owners are destroying wildlife habitat and are getting away with it - logging to put up lines, roads and not having to replace any damage they do and Sarnsung does not care - it's done under the table studies had to have been done beforehand I'm shocked these green ways are being destroyed without any outcry for the wildlife!

If you would like to be kept informed about the status of the Project, please provide your contact information below. Please note that your personal information will not be affiliated with your comments and will be kept confidential.



Thank you for taking the time to fill out this questionnaire. If you require more time, you are welcome to take the questionnaire home and send it back to info@armowwind.com, or mail it into: Ian Callum, Project Manager

Golder Associates Ltd.
2390 Argenta Rd.
Mississauga, ON
L5N 5Z7

Armow Wind Project

Open House, November 12, 2012
Best Western Governor's Inn



Please take a moment to fill out this questionnaire and place it in the box provided, or mail it to the address below. Your input is important. Comments will become part of the public record.

1. How did you learn about this Public Open House (please check all that apply)?

- ☐ Newspaper Advertisement ☐ Website
- ☐ Personal Letter or Email
- ☒ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

LOOKING FOR CLEAR, CORRECT INFO ON THE
PROPOSED PROJECT AND ITS EFFECT ON THE
COMMUNITY.

3. Did this Public Open House meet your information needs?

- ☐ Yes ☐ Somewhat ☒ No

Please explain:

SEVERAL QUESTIONS WERE POSED. AS USUAL,
WE WERE TOLD "WE'LL HAVE TO GET BACK TO YOU."

4. Please provide any other comments or questions related to the Armow Wind Project:

SO FAR, TWO INSTANCES OF MISSING RECEPTORS
HAVE BEEN IDENTIFIED ON THE SITE PLAN.
HOW CAREFULLY HAS THE PLAN BEEN STUDIED,
AND CAN YOU ASSURE THE PUBLIC YOUR RESEARCH
IS CORRECT IN THE FACE OF THESE AND OTHER
ERRORS.

If you would like to be kept informed about the status of the Project, please provide your contact information below. Please note that your personal information will not be affiliated with your comments and will be kept confidential.

Thank you for taking the time to fill out this questionnaire. If you require more time, you are welcome to take the questionnaire home and send it back to info@armowwind.com, or mail it into: Ian Callum, Project Manager

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Armow Wind Project



Open House, November 12, 2012

Best Western Governor's Inn

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1. How did you learn about this Public Open House (please check all that apply)?

- ☒ Newspaper Advertisement ☐ Website
- ☒ Personal Letter or Email
- ☐ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

Land Owner - Info + Support

3. Did this Public Open House meet your information needs?

- ☒ Yes ☐ Somewhat ☐ No

Please explain:

Personnel answered questions well.
lots of time to talk with other
area neighbours.

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper has a slight shadow on the right side, suggesting it's resting on a surface.

Golder Associates Ltd.
2390 Argentia Rd.
Mississauga, ON
L5N 5Z7

Armow Wind Project

Open House, November 12, 2012
Best Western Governor's Inn



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1. How did you learn about this Public Open House (please check all that apply)?

- ☐ Newspaper Advertisement ☐ Website
- ☐ Personal Letter or Email
- ☐ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

Support the project

3. Did this Public Open House meet your information needs?

- ☒ Yes ☐ Somewhat ☐ No

Please explain:

Just wanted to learn more

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper appears to be a standard notebook page.

Under the *Freedom of Information and Protection of Privacy Act* and the *Environmental Assessment Act*, unless otherwise stated in the submission, any personal information such as name, address, telephone number and property location included in a submission will become part of the public record files for this matter and will be released, if requested, to any person.

Armow Wind Project



Open House, November 12, 2012
Best Western Governor's Inn

Please take a moment to fill out this questionnaire and place it in the box provided, or mail it to the address below. Your input is important. Comments will become part of the public record.

1. How did you learn about this Public Open House (please check all that apply)?

- ☐ Newspaper Advertisement ☐ Website
- ☒ Personal Letter or Email
- ☐ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

see what is going on
what stage are we at.

3. Did this Public Open House meet your information needs?

- ☐ Yes ☒ Somewhat ☐ No

Please explain:

4. Please provide any other comments or questions related to the Armow Wind Project:

- Too many windmills too fast
- why can't we wait and see what the effects are of existing windmills in Port Elgin to Godwin area?
- why so many windmills for this area?
- if there are unresolved health or other issues will these turbines still go ahead.
- what will be done about real estate prices of peoples properties if they get devalued due to wind turbines nearby?
- who resolves costs if landowners/residents need to move when/if their health is affected?

If you would like to be kept informed about the status of the Project, please provide your contact information below. Please note that your personal information will not be affiliated with your comments and will be kept confidential.

Thank you for taking the time to fill out this questionnaire. If you require more time, you are welcome to take the questionnaire home and send it back to info@armowwind.com, or mail it into: **Ian Callum, Project Manager**

**Golder Associates Ltd.
2390 Argenta Rd.
Mississauga, ON
L5N 5Z7**

Armow Wind Project

Open House, November 12, 2012

Best Western Governor's Inn



Please take a moment to fill out this questionnaire and place it in the box provided, or mail it to the address below. Your input is important. Comments will become part of the public record.

1. How did you learn about this Public Open House (please check all that apply)?

- ☐ Newspaper Advertisement ☐ Website
- ☐ Personal Letter or Email
- ☐ Word of Mouth
- ☐ Other: *Notoriety*

2. What was your main reason for attending this Public Open House?

To listen to lies

3. Did this Public Open House meet your information needs?

- ☐ Yes ☐ Somewhat ☒ No

Please explain:

OPEN HOUSES

4. Please provide any other comments or questions related to the Armow Wind Project:

A travesty

I protest this project as a
threat to health, property
values and community
life.

Go back to Korea!

If you would like to be kept informed about the status of the Project, please provide your contact information below. Please note that your personal information will not be affiliated with your comments and will be kept confidential.

[Redacted contact information]

Thank you for taking the time to fill out this questionnaire. If you require more time, you are welcome to take the questionnaire home and send it back to info@armowwind.com, or mail it into: **Ian Callum, Project Manager**

**Golder Associates Ltd.
2390 Argenta Rd.
Mississauga, ON
L5N 5Z7**

Armow Wind Project

Open House, November 12, 2012
Best Western Governor's Inn



Please take a moment to fill out this questionnaire and place it in the box provided, or mail it to the address below. Your input is important. Comments will become part of the public record.

1. How did you learn about this Public Open House (please check all that apply)?

- ☐ Newspaper Advertisement ☐ Website
- ☒ Personal Letter or Email
- ☐ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

Welcome new Corporate citizens
Gather information on property values

3. Did this Public Open House meet your information needs?

- ☒ Yes ☐ Somewhat ☐ No

Please explain:

Well laid out

4. Please provide any other comments or questions related to the Armow Wind Project:

As a realtor interested in responses
to clients some that leave about buyers
close to turbines

If you would like to be kept informed about the status of the Project, please provide your contact information below. Please note that your personal information will not be affiliated with your comments and will be kept confidential.

Thank you for taking the time to fill out this questionnaire. If you require more time, you are welcome to take the questionnaire home and send it back to info@armowwind.com, or mail it into: **Ian Callum, Project Manager**

Golder Associates Ltd.
2390 Argentia Rd.
Mississauga, ON
L5N 5Z7

Armow Wind Project

Open House, November 12, 2012
Tiverton Community Centre



Please take a moment to fill out this questionnaire and place it in the box provided, or mail it to the address below. Your input is important. Comments will become part of the public record.

1. How did you learn about this Public Open House (please check all that apply)?

- ☒ Newspaper Advertisement ☐ Website
- ☐ Personal Letter or Email
- ☐ Word of Mouth
- ☐ Other:

2. What was your main reason for attending this Public Open House?

- information - stray voltage
- sound
- construction schedule

3. Did this Public Open House meet your information needs?

- ☒ Yes ☐ Somewhat ☐ No

Please explain:

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Golder Associates Ltd.
2390 Argentia Rd.
Mississauga, ON
L5N 5Z7



3. Armow Citizens Group: Letter and Response

ARMOW CITIZENS GROUP



November 15, 2011

Mr. Jody Law
Pattern Energy
100 Simcoe Street, Suite 105
Toronto, ON M5H 3G2

Dear Jody:

Thank you for the copy of Draft Project Description Report covering the Armow Project.

As mentioned previously I do have questions and concerns, but had wanted to wait to see if these perhaps would be answered within the report. Sadly, the report has raised more questions than answers and a lot of concerns.

CONSULTATION

Under Section 2 of the Green Energy Act 2009, you are required to consult with our community. The proposed December Open House does not meet the requirements for community consultation because it is merely a product showcase and does not provide a public forum and a two way street for input of our concerns.

We note that Pattern anticipates Environmental Studies and Reporting to take place during the period of September 2011 through March 2012. It seems then these will not be completed and available for public scrutiny at the time of the December Open House #1. As stated in the REA application requirements under the section "Engaging Community Members" there should be at least two community consultation public meetings in order to facilitate informed public discussion. Project documents must be made available to the public **in advance** of these meetings.

Doris Dumais, Director of the Environmental Assessment and Approvals Branch for the Ministry of the Environment has defined the consultation process in a letter to us dated August 18, 2010:

"In accordance with O.Reg. 359/09, an applicant . . . must notify and consult with the public, aboriginal communities and municipalities. As part of the consultation requirements, the proponent is required to hold a minimum of two **public meetings to discuss** the project and its potential local impact."

A public meeting is a meeting in which members of the public **participate to exchange their ideas** on a particular issue and **where members of the public are allowed to attend and listen**. Anyone who attends is allowed to participate in the discussion.

Further, the "Guide: Provincial approvals for Renewable Energy Projects (2010) stipulates that the applicant must "Engage the public, municipalities and Aboriginal communities in **discussions** about the project".

According to the Guideline on consultation in the environmental process published by the Ontario Ministry of the Environment in December 2000, consultation in the

Environmental Assessment process comprises “the activities carried out by a proponent to provide a two-way communication process to involved interested stakeholders in the planning, implementation and monitoring of an undertaking”.

The Guide to EA Requirements for Electricity Projects Part A – Overview of EA Requirements is very specific about what constitutes consultation and its purpose:

“A.6.2. Consultation

A.6.2.1. Public Consultation

The purpose of public consultation in the Environmental Screening Process is to allow the proponent to identify and address public concerns and issues and to provide the public with an opportunity to receive information about and make meaningful input into the project review and development. Public consultation is required for all projects that are subject to the Environmental Screening Process. Consultation is necessary for the proponent to:

- Properly notify potentially interested and affected stakeholders;
- Identify and assess the range of environmental and socio-economic effects of the project; and
- Address the concerns of adjacent property owners, interest groups and members of the public that may be directly affected by some aspect of the project.

It is the proponent's responsibility to design and implement an appropriate consultation program for the project. The consultation program must provide appropriate opportunities and forums for the public to participate in the screening process. Failure to carry out adequate public consultation or to address public issues or concerns may result in requests to elevate the project.

Public consultation should be commenced early in the screening process and continue throughout the process as necessary. The proponent is required to maintain a record and mailing lists of all participants in the consultation process, a record of public concerns and issues, and a record of how any concerns and issues have been addressed during the Screening or Environmental Review stages”.

An open house does not provide an appropriate opportunity or forum for the public to participate in the screening process.

ADVERSE HEALTH ISSUES

One of our greatest concerns about the project is how it will affect the health of rural residents living nearby. We are herewith requesting from you an accurate description of the health issues related to the project.

We also wish to put you on notice of the important decisions of the Chatham-Kent Environmental Review Tribunal which hear peer-reviewed evidence on the adverse health effects of industrial wind turbines. That evidence is catalogued in the attached letter from one of the Wind Concerns Ontario lawyers, Eric Gillespie, to the developer WPD. Similarly, as his letter concludes, now that you are in possession of this information, as part of your organization's responsibility to fully and accurately describe health issues related to the project and we trust that the foregoing information will be provided whenever you are communicating with members of the public, the media, or regulatory authorities on health matters during the Renewable Energy Approvals process. As Mr. Gillespie has stated in his letter: “In our respectful view, amongst other things, (your) failure to include such information could be viewed as negligent misrepresentation and

be actionable. In addition, a failure to disclose such information may provide grounds for a landowner to void any agreement purportedly reached with (your organization).

You have been advised.

ADVERSE ENVIRONMENTAL EFFECTS

In the absence of access to your completed environmental assessment, we are attaching also a recent document from Dr. Scott Petrie of the University of Western Ontario. Dr. Petrie is Executive Director of Long Point Waterfowl and a biologist of noted authority on migratory species around the Great Lakes. The document lists the concerns of international biologists regarding the cumulative effect on biodiversity of wind turbine projects sited near migratory flyways, wetlands, and staging areas. In view of this information we required a detailed explanation of how your project will respect our natural heritage features.

On this issue also you have now been advised.

In addition to these concerns, however, we are attaching a list of further specific concerns about the project. They are contained in Appendix A. Please be advised that we require answers to all of these concerns and an explanation of how you plan to accommodate them in your project plans. This information should reach us within the next ten days so that we can prepare for meaningful consultation in good faith on December 13. Failure to accommodate our concerns will certainly be communicated to the Ministry of the Environment Approvals Branch.

I look forward to your prompt and complete response.

Sincerely,



On Behalf of
ARMOW CITIZENS GROUP

Copies:

Doris Dumais, Environmental Assessment and Approvals Branch,
Ministry of the Environment
Lisa Thompson, MPP, Huron Bruce
Bill Walker, MPP, Grey Bruce Owen Sound
Hon. Jim Bradley, Minister of the Environment
Adam Orfanakos, Office of the Ombudsman of Ontario
Ron Cristine, Councillor, Municipality of Kincardine
Randy Roppel, Councillor, Municipality of Kincardine
Anne Eadie, Deputy Mayor, Municipality of Kincardine
Jacqueline Faubert, Councillor, Municipality of Kincardine
Scott Duncan, Multi Municipal Wind Turbine Working Group for Bruce, Grey, Dufferin
and Huron Counties
Brian Edwards, Project Developer, Samsung Renewable Energy Inc
Ian Callum, Project Manager, Golder Associates Ltd.

Attachments:

Eric K. Gillespie letter to WPD (pdf file)
Threats from Industrial Wind Turbines to Ontario's Wildlife and Biodiversity (pdf file)

APPENDIX A

CONCERNS ARISING FROM DRAFT PROJECT REPORT ARMOW WIND PROJECT

General Comments

The extremely general description of the project at this stage suggests that the projected date for the "public meeting" for community consultation is premature. Since site locations and land leases on which the turbines would be located are not provided. However, pending the required reports and full plan details, the following questions and concerns need to be addressed on the basis of the sparse information so far provided:

1. Energy Source

The Siemens SWT-2.3 turbine is listed as the energy source to be used in this Project. It is not stated whether this will be a 93, 101, or 113 diameter rotor. Please specify since the blade length will make a difference when questioning siting of turbines in regard to possible hazard concerns.

2. Intensification of Project Size

This entirely new project is listed as anticipating a nameplate capacity of up to 180MW, an increase from the original 80MW capacity rating of the previous Acciona project. Please explain how you plan to site so many more turbines and still avoid the problems of sympathetic resonance when turbines are placed close together due to space limitation within a project area.

3. How do you propose to avoid coinciding pulse trains which cause sound to increase in relation to how many turbines coincide?

4. Since the number of turbines now planned within the project area has doubled, how have you considered the cumulative effect on migratory and threatened wildlife?

5. How have you taken into consideration the cumulative effect of placing so large an industrial complex adjacent to an already existing one?

Setbacks

6. Our community has already determined requirements for wind turbine siting in the Kincardine Wind Generation System Development Policy as well as other guidelines. How will you be accommodating these guidelines and policies which are the consensus of our community?

7. How will you be providing for a buffer zone from the Kincardine Airport?

8. What provision have you made for helicopter access for air ambulance to the Kincardine hospital?

9. Your project draft mentions only Tiverton and Armow as identifiable hamlets. Tiverton is a secondary urban area, not a hamlet. Actually according to a Kincardine Buffer zone map, Kingarf and Glammis would fall within the project's setback zones.

10. What provision have you made for future expansion buffer zones to accommodate the built-up areas along the shoreline as well as for Kincardine, Bervie, Millarton, and Kinloss?

Current Land Uses & Environmental

11. The draft report states that the loss of agricultural land due to turbines, access roads and other project infrastructure is small relative to the size of the agricultural land in Bruce County. No numbers are given. How does this loss of agricultural land compare within the project area?

Once again, what will be the cumulative loss after existing and planned projects in the county are accounted for?

12. Figure 1. outlines the section of the Glammis Bog and the Greenock Swamp. Mention is made in the report of a portion of the Saugeen Valley Conservation Authority near the NE corner of the Project area, but not identified as such in Figure 1. How will be wildlife in these sensitive ecosystems be affected by Low Frequency Noise (LFN) which is known to travel 10 miles from an industrial wind turbine development?

There is no mention of the hazard areas identified on the Bruce County Planning Map which is the spring and river system of the North Penetangore River running approximately from the 30th Side Road just south of the 9th Concession Road diagonally SW to Kincardine, emptying into Lake Huron. The second smaller hazard area would be following the flow of the Kincardine River. All of these areas serve as Significant Wildlife Habitat and wildlife movement corridors, migratory staging areas and habitat of significant fish stock. We need to know the details of your environmental screening of these areas and how it has been taken into account in your plans. How do you propose to avoid the disruption of ecological links and habitat fragmentation? Will you be shutting down turbines during the migratory seasons?

13. What will be the long term effects of this project on Significant Wildlife Habitat?

14. The Environmental Screening Assessment studies appear to be taking place over an insufficient time frame. As your consultants are well aware, the autumn migratory season in this area begins in August and the spring migration will not have concluded by March. This will mean that you have not even made observations for a single complete year. Dr. Petrie's report indicates the need to multi-seasonal and multi-year studies. How will you be incorporating his recommendations into your Environmental Assessment now that you have been informed of the shortcomings of your plans?

15. What are the qualifications of those who are carrying out the field work? We require detailed information about the studies – i.e. dates, hours and locations.

Noise

16. What provision have you made for the measurement of low frequency noise on receptors within the project area? How will you be measuring C weighted sound?

17. Will you guarantee that the project will never be out of compliance with existing provincial noise requirements?

18. Will you guarantee that the turbines in your project will conform to the requirements of the World Health Organization?

Guidelines for community noise recommend less than 30 A-weighted decibels (dB(A)) in the bedrooms during the night for a sleep of good quality. In this respect we draw your attention to the Gillespie document. If turbines prove to cause a noise nuisance either with A weighted or C weighted infrasound so that they prevent nearby residents from sleeping at night, will you be shutting them down from 9 pm to 7 am?

Provincial and Local Infrastructure

19. Will you be posting a bond with our Municipal Council to cover the costs of repairing roads damaged during construction or during subsequent maintenance?

20. Will you be posting a bond with our council sufficient to provide for the complete costs of decommissioning the turbines in the event that they are no longer functional or your company is no longer involved or chooses to declare bankruptcy?

Local Businesses and Facilities

21. Mention is made of the Maple Grove Amish Parochial School near the community of Tiverton and that the setback will be at least 550 metres. No mention or consideration has been given to the Amish School located at the corner of 30th Sideroad and the 9th Concession Road, also bordering the Project. No consideration has been made in identifying those residents within the project that are home schooling. What steps are being taken to take these into consideration? What steps have been taken to identify and consider other sensitive businesses or operations, home businesses or medical home care facilities within the Project area?

Telecommunications

22. The report states that electromagnetic interference represents a potential effect and the Project's potential impact to these services. What remedial action or steps are being taken to avoid impacts and what remedies are available for loss by residents attributable to impacts of this nature. As an example, claims have been made of loss of satellite communications.

With television reception, the problems found have been:

1. Static interference of "ghosting" which occurs when the signals are reflected off the turbine towers.
2. Dynamic interference caused by the production of a secondary or interference signal reflected from the rotating turbine blades, seen as a periodic variation in picture brightness or color. Based on previous studies with the NTSC, signals theory suggests that interference may occur with HDTV. It is expected that HDTV would be less likely to suffer the static (tower related) effects but more likely to suffer dynamic (blade spinning) interference which would take the form of frozen frames and pixilation.

Research papers suggest that other wireless and/or broadcast consumer services would suffer similarly, including cellular and wireless networking services [A:E.2].

Preventative measure can reduce or even eliminate these issues, but they must be taken during CWECS project planning stages. Wind energy companies need to factor in the location of all local radio communications towers, over-the-air RF links and areas of served populations. Mitigation measures, when signal degradation results from wind

turbines, include: 1) replacing off-air reception with cable or satellite (but satellite pickup may also be affected), 2) relocating television transmitters and 3) relocating or eliminating wind turbines.

How will this be addressed by Patten/Samsung?

Stray Voltage

23. This has been an issue in various Industrial Wind Farm projects. Aside from substation and distribution points commonly problems have occurred with either faulty insulated underground lines or at points where lines cross intersections above ground and near a residence. Witness the problems with the Ripley Project where stray voltage problems occurred at road crossing points with overhead lines and in some cases faulty line burial procedures. Attempted remedial action has largely been unsuccessful resulting in abandonment of homes and eventual purchase of these residences. The draft gives minimal information and no location maps for the various electrical installations, substation, etc. Minimizing risk of stray voltage is not an option in the case of dairy farmers' loss of milk production or other negative harmful effects on animals and humans. Will you provide financial compensation to those who require devices which ameliorate electrical pollution, such as filters, in their homes, to assist with the related health effects of this problem? What are plans for prevention and remedial action?

Public Health and Safety

24. In your statement under Health and Safety, you claim that electricity generation through a wind turbine facility does not emit environmental contaminants such as CO₂ and NO_x. However, with over 20,000 wind turbines installed in Germany, CO₂ emissions have actually increased because of the additional coal plants we were needed to maintain grid stability. This claim is misleading because it does not take into account the need for fossil-fuelled back up.

25. How will you guarantee that your project will not increase CO₂ and other GHG emissions when new gas plants are added to the grid to support them?

Ground Water-Water Taking Activities

26. As you are aware, a Permit to Take Water or Certificate of Approval from the Ministry of Environment is necessary. In this connection we are asking that our concern be addressed in regard to Ground Water disturbance. Residents within the project and in proximity to turbine construction rely on a clean water supply from wells. Undue disturbance, particularly in areas where ground water levels are within only feet of the surface, depending on the season of the year, can result in either adulteration of the ground water supply through sediment or possible contaminants entering the system. Unusual amounts of sedimentary disturbance could also damage pumps supplying homes in the affected areas. Lubricating oils have also been known to leak from wind turbine installations. Buried pcb cables eventually deteriorate releasing contamination into the surrounding soil unless they are run through ABS pipe which does not break down. What preventative measures are you planning and what remedy is in place for such occurrences?

27. How will you be protecting water levels in the Glammis Bog?

Tree Preservation

28. What plans do you have to preserve trees on our county roads? What plans do you have to replace trees and to provide mature trees to protect the view shed of residents?

Emergency Response

29. Systems have not been elaborated upon for emergency response, especially at high elevation. The local fire and rescue departments have no equipment available for reaching heights of 100 metres. Warnings have been issued by several communities that in the case of fire or other accident, there is not the equipment available to assist in combating a fire or to effect rescue at height.

Will you provide our council with a valid service contract (in effect for the life of the structure with certified copies of renewals forwarded to the Municipality one month prior to their taking effect) with a high angle rescue service provider (certified by a self-regulating organization formed under the direction and regulation of a federal or provincial agency according to its approved standards maintained throughout the life of the structure) who will respond to any and all emergencies that may occur at the proposed structures including high angle rescue. The contract shall state the response time for the rescue service provider to arrive at the location of the structures within the proposed industrial wind turbine development.

30. What insurance is carried in the case of property damage or injury to persons other than contractual employees, i.e. residents' property or person(s)?

OPERATIONS AND OTHER POTENTIAL HEALTH AND SAFETY HAZARDS

31. Will you provide us with a list of any and all hazardous material(s) that may be contained within or be part of the construction of the proposed wind turbines, along with Material Safety Data Sheets for such identified hazardous materials?

32. Will you provide a bond to our Municipality to cover the total cost of any response required by a Chief Fire Official to a high angle rescue response by your contracted high angle rescue service provider which may require the assistance of the local Chief Fire Official?

Complaint Protocol

33. Would you please provide details of your proposed post operational complaint protocol. How will grievances be dealt with? Will there be simply an answering service for people who are experiencing adverse health effects or will each case be responded to immediately and the turbine shut down during investigation until the problem is resolved?

34. How do you intend to measure the low frequency noise (LFN) emanating from your turbines? Please give specifics.

CONSUMER PROTECTION

35. In conclusion, how do you explain the apparent shortcoming in the information (to the consumer) provided within the literature in regard to specific health and environmental risks posed by these industrial projects?

As we stated at the outset of this letter, your incomplete project plan means that these concerns are by no means the extent of the concerns of this community. We will further more of our concerns to you as they emerge. In the meantime we would appreciate an expeditious response to this letter.



SP Armow Wind Ontario LP
9th Floor, 55 Standish Court
Mississauga, Ontario L5R 4B2
Canada

August 10, 2012

RE: Armow Citizens Group

Dear [REDACTED] (On behalf of Armow Citizens Group),

Thank you for your letter of November 15, 2011 outlining your concerns and questions regarding information provided in the Draft Project Description Report (PDR) for the Armow Wind Project (the Project). Please be informed that a second Open House for the Project is tentatively scheduled for fall 2012. We welcome an opportunity to discuss any questions or concerns that you may have regarding the Project.

The release of the Draft PDR for public review is one of the first milestones required under Ontario Regulation 359/09 (O. Reg. 359/09) for a project requiring a Renewable Energy Approval (REA). The PDR is the central summary document for an REA and is an important consultation tool as it provides an overview of the project and of potential adverse environmental effects that could result from the Project. Many of these potential effects are assessed further and in much greater detail in subsequent reports, including the Construction Plan Report, Design and Operations Report, Decommissioning Plan Report, Wind Turbine Specifications Report, Natural Heritage Assessment, Water Assessment and Water Body Report, Archaeological Assessment and Cultural Heritage Assessment Reports and a Noise Impact Assessment. These reports will be made publically available for review at least 60 days in advance of the second public Open House, in accordance with the consultation requirements for REA as outlined in O. Reg. 359/09. Our objective is that, following completion of these reports, the questions and concerns you raised in your letter will be adequately addressed.

Below, please find responses to your questions and concerns outlined in your letter (November 15, 2011). In an attempt to address all of the concerns and questions in your letter, the following responses are organized by sub-headings and numbered according to the comments provided in your letter.

Consultation

SP Armow Wind Ontario LP (SPAWO) selected an Open House format instead of a public forum style because the Open House format allows attendees to process Project information at their own pace. This format of a public gathering also provides more opportunities for one-on-one conversations with Project team members. Based on our experience we find that this approach allows attendees to hear each other's comments and allows Project team members to gather the maximum amount of public input.

In accordance with O. Reg. 359/09, subsection 16(1) SPAWO is required to hold two public meetings. The first of the required meetings (the first Public Open House) was held on December 13, 2011. The second public Open House is tentatively scheduled for fall 2012. In accordance with O. Reg. 359/09 subsection 16(5) the Proponent is required to make available drafts of all reports and technical studies to be submitted as part of their REA application to the public prior to hosting the second public meeting. These reports must be provided for public review for a minimum of 60 days prior to the second public meeting. Notices will be issued throughout the community, to landowners abutting Project land and to every land owner within 550 metres of the Project location. Notices will also be placed in local newspapers and sent to the REA Director at the Ontario Ministry of the Environment (MOE) detailing when and where the public meeting will be held.

Adverse Health Issues

As documented on the MOE's website (www.ene.gov.on.ca), Ontario's Chief Medical Officer of Health conducted a review of possible health impacts of wind turbines in a response to public concerns. This review stated that, "the

scientific evidence available to date does not demonstrate a direct causal link between wind turbine noise and adverse health effects". The sound level from wind turbines at common residential setbacks is not sufficient to cause hearing impairment or other direct health effects. Proposed wind facilities within the Province of Ontario must adhere to the Regulatory requirements regarding noise. The Regulatory requirements are consistent with the 2009 World Health Organization outdoor night noise limit of 40.0 dBA.

Adverse Environmental Effects

Section 23 through Section 28 of O. Reg. 359/09 provides the natural heritage requirements for renewable energy projects. In accordance with these requirements, SPAWO is preparing a Natural Heritage Assessment report, which will be available for public review along with all the aforementioned REA reports. The Ministry of Natural Resources will review and approve these reports prior to REA application submission to the Ministry of Environment.

Appendix A

The following section provides our responses to comments expressed in Appendix A of your letter. The following responses are provided in numerical order:

Comment #1: Energy Source

Response: The model of Turbine to be used is the Siemens SWT-2.3 Turbine with a 101m rotor diameter. Full specifications will be made publically available in the Wind Turbine Specifications Report at least 60 in advance of the second public open house.

Comment #2: Intensification of Project Size

Response: The placement of the turbines will adhere to O. Reg 359/09. Further, turbine separation distances are largely governed by wake effects and mechanical characteristics; therefore, the density of turbines for the Armow Wind Farm will be no greater than that of an average wind farm, including those directly adjacent to the proposed project area.

Comment #3: Pulse Train

Response: A Noise Impact Assessment (NIA) is being prepared by our consultant, GLGH. The NIA will address the cumulative effects of the turbines, including those that are a part of existing wind farms. The Report will be available for public review at least 60 days in advance of the second public open house.

Comment #4: Cumulative Effects – Wildlife

Response: Issues regarding effects on migratory patterns and threatened wildlife will be assessed by biologists through a detailed Records Review and supplemented by Site Investigations. Biologists will also follow the Ministry of Natural Resources' prescribed methods for identifying significant wildlife, including birds. The facility layout design will be developed to avoid adverse effects on significant wildlife habitat. A Natural Heritage Assessment (NHA) will be prepared to determine if any adverse effects are anticipated and will outline mitigation measures, if required. The (NHA) Report, which includes a Records Review Report, a Site Investigation Report, an Evaluation of Significance Report and an Environmental Impact Study, will be made available for public review at least 60 days in advance of the second public open house.

Comment #5: Cumulative Effects – Land use

Response: As mentioned in Response #3, and in accordance with O. Reg. 359/09, the Armow Wind Project REA application is required to include a Noise Impact Assessment that complies with the Noise Guidelines for Wind (MOE, 2008). These guidelines require that the Noise Study Report assess turbines from "any Wind Farms, and Wind Farms that are in the process of being planned, that are within 5 km of any wind turbine generators of the proposed Wind Farm". Accordingly, the Noise Impact Assessment will address the cumulative effect of all projects within this 5 km area. Potential cumulative effects on wildlife will be assessed as described in the Response to Comment #4.

Comment #6: Setbacks

Response: SPAWO is working with the Ad Hoc Municipal Council Committee to incorporate the Kincardine Wind Generation System Development Policy, to the extent feasible, in Project planning.

Comment #7: Buffer Zone – Kincardine Airport

Response: SPAWO is working with the Ad Hoc Municipal Council Committee in order to address concerns regarding wind turbines being located in the Kincardine Airport buffer zone as defined in the Kincardine Wind Generation System Development Policy. Currently, there are no wind turbines proposed for the buffer zone outlined in the Policy.

Comment #8: Helicopter access

Response: Please refer to the response provided for Comment #7.

Comment #9: Setbacks and Hamlets

Response: SPAWO is working with the Ad Hoc Municipal Council Committee to address concerns regarding proposed wind turbines located in the four hamlets (Glammis, Lakeshore, Tiverton, and Armow) identified in the Kincardine Wind Generation System Development Policy. Currently, all wind turbines have been removed from the Lakeshore and Tiverton hamlets to address the Kincardine Wind Generation System Development Policy.

Comment # 10: Expansion of Buffer Zones

Response: Please refer to response provided for Comment # 9

Comment # 11: Loss of Agricultural Land

Response: The anticipated amount of land occupied by wind turbines, access roads and Project infrastructure cannot be confirmed at this time as the layout is still under development. The typical footprint of a wind turbine, with associated infrastructure (access roads and collection lines) is approximately 0.25 acres (0.10 hectares) according to National Renewable Energy Laboratory¹ or less than 1% of the total project area. The final disturbance area, referred to as the Project Location, will be provided in the final Project Description Report.

Comment #12: Glammis Bog and the Greenock Swamp

Response: As part of the Natural Heritage Assessment (NHA), wildlife habitat and its significance will be assessed based on an extensive Records Review, Site Investigations Report, an Evaluation of Significance and an Environmental Impact Study, in accordance with methods outlined by the Ministry of Natural Resources in the Natural Heritage Assessment Guide for Renewable Energy Projects (MNR, 2011). These reports will address any potential effects on natural heritage, and will identify any mitigation measures, if required. The results will be documented in the NHA, which will be reviewed and approved by the Ministry of Natural Resources.

Comment # 13: Long Term Effects on Significant Wildlife Habitat

Response: A significant amount of bird survey work was undertaken in the same Project Area by Acciona (former owner of Armow Wind Project) since 2009. This information is being used in the assessment of this Project. Field crews are currently conducting seasonal surveys to ensure that a complete assessment is conducted. Details of the field work and assessment will be reported in the Natural Heritage Assessment (NHA). The assessment will meet all requirements outlined by the Ministry of Natural Resources and will require their sign-off by the Ministry before a Renewable Energy Application Approval is issued.

Comment #14: Timeline for Environmental Screening Assessment

Response: A significant amount of bird survey work was undertaken in the same Project Area by Acciona (former owner of Armow Wind Project) since 2009. This information is being used in the assessment of this Project. Further, SPAWO has retained two environmental firms to conduct field studies for the Project. Golder Associates is providing specialized consultation services such as expertise in archaeological assessments and environmental assessments, including renewable energy projects. Natural Resource Solutions Inc. (NRSI) is providing Natural Heritage services, including expertise in aquatic, terrestrial and wetland biology. Wildlife surveys will be conducted in accordance with MNR guidance as detailed in the Natural Heritage Assessment Guide for Renewable Energy

¹ National Renewable Energy Laboratory, *Wind Farm Area Calculator* (http://www.nrel.gov/analysis/power_databook/calc_wind.php)

² http://www.canwea.ca/images/uploads/File/NRCan_-_Fact_Sheets/8_land_use.pdf

Projects (2010), Ecological Land Classification Manuals, MNR Significant Wildlife Habitat Technical Guide, MNR Birds and Bird Habitats Guidelines for Wind Power Projects (December 2011) and MNR Bats and Bat Habitats Guidelines for Wind Power Projects (July 2011).

Comment #15: Qualifications

Response: The name and qualifications of the biologists responsible for conducting site investigations and for writing the Natural Heritage Assessments (NHA) will be included in the NHA report as required by the O. Reg. 359/09. Study details (i.e., location, timing and dates) will be outlined in the NHA, the Water Assessment and Water Body Reports, as well as the Archaeological Assessment Report. These reports will be available for public review at least 60 days in advance of the second public Open House.

Comment #16: Noise – low frequency and C weighted sound

Response: A Noise Impact Assessment is being prepared by our sound consultant, GLGH, that will address the requirements outlined in O. Reg. 359/09. The report will be available for public review at least 60 days in advance of the second public open house.

Comment #17: Compliance with Noise Requirements

Response: In compliance with O. Reg. 359/09, in order for a Project to be issued an REA, the Project design needs to comply with provincial noise requirements. Turbines will undergo regular maintenance to ensure that they operate as expected. Details of the wind turbine maintenance program will be provided in the Design and Operations Report. Turbines will also be constantly monitored from a central location to ensure that they are operating within specified parameters. Project operations staff will be available to receive any noise complaints for turbines not operating as expected.

Comment #18: World Health Organization noise requirements

Response: The Ministry Of Environment's Noise Guidelines for Wind Farms (2008) require that the predicted outdoor sound levels at receptors not exceed 40.0 dBA at all times of the day due to the operation of the wind turbines and substation. This requirement is consistent with the World Health Organization's recommendation. All noise receptors will be identified and shown in the Noise Impact Assessment as per the requirements of O. Reg. 359/09. By complying with the noise limits set out in O. Reg. 359/09 nearby residents sleep is not expected to be negatively affected.

Comment #19: Cost for Repairing Roads

Response: SPAWO will be working with the municipality towards an agreement that will address municipal road use and restoration.

Comment #20: Cost for Decommissioning

Response: Any financial burden associated with the decommissioning of turbines is the sole responsibility of SPAWO. This will be outlined in detail in the Decommissioning Plan Report, which will be available for public review at least 60 days in advance of the second public open house. This report will include a decommissioning procedure for ceasing operation, as well as a fail-safe if the project is abandoned during the construction phase.

Comment #21: Local Business and Facilities

Response: All noise receptors will be identified and shown in the Noise Impact Assessment, as per the requirements of O. Reg. 359/09. The noise emissions from turbines will also have to comply with noise limits outlined in the same Regulation.

Comment #22: Telecommunications

Response: SPAWO is consulting with applicable stakeholders in accordance with The Radio Advisory Board of Canada (RABC) and the Canadian Wind Energy Association's (CanWEA) *Technical Information and Coordination Process Between Wind Turbines and Radiocommunication and Radar Systems* (2010). Stakeholders, as determined by the mandatory contact list outlined in the above noted guideline, will be consulted to identify any potential implications .

Comment # 23: Stray Voltage

Response: The Project will adhere to the appropriate electrical, distribution and safety codes in order to minimize the risk of stray voltage. The potential for stray voltage is not unique to wind power facilities. Hydro One has procedures in place to address stray voltage complaints for off-farm and on-farm stray voltage sources. Stray voltage will be minimized or prevented through proper electrical design and farm wiring practices.

Comment #24: Public Health and Safety

Response: The statement you refer to relates specifically to the operation of this Project and was not intended to reflect the Province of Ontario's overall energy supply mix. SPAWO is proposing to develop, construct and operate the Project in response to the Government of Ontario's plan to integrate more renewable energy into the province's power grid and to shut down coal-powered generation. The balancing of priorities related to the planning of provincial energy generation (i.e. cost, environmental, reliability, and job creation) is the responsibility of the Government of Ontario through the Ontario Power Authority.

Comment # 25: Increases in CO₂ and other GHG emissions

Response: Please refer to the response given to Comment #24.

Comment #26: Groundwater Taking Activities

Response: The Permit to Take Water requirements will be met by the Project and will be documented in the Water Body and Water Assessment Report, which will be approved by the Ministry of the Environment and will be publically available for review at least 60 days in advance of the second public Open House. Any required mitigation measures related to water quantity and quality will be documented in this report.

Comment #27: Water – Glammis Bog

Response: The Glammis Bog and other wetlands will be assessed and reported in the Natural Heritage Report.

Comment # 28: Tree preservation

Response: The majority of construction along county roads will occur in the road right-of-way for the construction of electrical distribution lines and will not require tree removal. Where access roads are proposed near existing trees, SPAWO has sought to minimize any disturbance to trees through layout design and consultation with landowners.

Comment #29: Emergency Response

Response: A mailing address will be established for Project operations staff to receive communications from Aboriginal communities, the public, regulatory agencies and Bruce County. Additional Emergency Response and Communication Plan information will be provided in the Project's Operations and Decommissioning Plan Report, which will be publically available for review at least 60 days in advance of the second public open house.

Comment #30: Property Damage and Insurance

Response: Any property damage or injury to persons originating from the negligence of SPAWO will be at the sole responsibility of SPAWO.

Comment #31: Operations and Other Potential Health and Safety Hazards – Hazardous Materials

Response: Identification of and hazardous materials and copies of associated data sheets will be available in accordance with standard Workplace Health and Safety regulations during both construction and operation.

Comment # 32: Operations and Other Potential Health and Safety Hazards – High Angle Rescue Response

Response: The Design and Operations Report will outline emergency response and communications plans. The Report will be available for public review at least 60 days in advance of the second public open house.

Comment # 33: Complaint Protocol

Response: Please refer to the response provided Comment # 32.

Comment # 34: Low Frequency Noise

Response: Because the project will adhere to the Ministry Of Environment's Noise Guidelines for Wind Farms (2008), and because we expect the wind turbines to operate in accordance to their design specifications, we do not anticipate any problems associated with low frequency noise. If an issue arises during the operation of the wind

farm, it will be addressed through the complaint protocol outlined in the Design and Operations Report. The report will be available for public review at least 60 days in advance of the second public open house.

Comment # 35: Consumer Protection

Response: The Draft Project Description is a draft summary document intended to provide an early and high-level overview of the Project. Additional detail regarding the Project will be provided in several additional reports, all of which will be made available to the public at least 60 days in advance of the second public open house, as required by O. Reg. 359/09.

We thank you for your interest in the Armow Wind Project and appreciate your questions and discussion.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Brian Edwards'.

Brian Edwards, Project Developer
Samsung Renewable Energy Inc.
55 Standish Court
Mississauga, ON L5R 4B2

A handwritten signature in blue ink, appearing to read 'Jody Law'.

Jody Law, Project Developer
Pattern Renewable Holdings Canada ULC
100 Simcoe St. Suite 105
Toronto, ON M5H 3T4

ARMOW CITIZENS GROUP



November 10, 2012

Mr. Jody Law
Pattern Energy
100 Simcoe Street, Suite 105
Toronto, ON M5H 3G2
Sent via email to: jody.law@patternenergy.com

and

Mr. Brian Edwards
Samsung Renewable Energy Inc.
55 Standish Court
Mississauga, ON L5R 4B2
sent via email to: b.edwards@samsungrenewableenergy.ca

Gentlemen:

Since I am personally not able to attend the November 12th Open House, I submit my further comments and questions via this communication and wish it placed with documentation as received in response to your 2nd Open House.

I appreciate your August 10, 2012 response to my November 15, 2011 letter. Unfortunately most of your answers refer to the upcoming reports to be issued and available for examination 60 days prior to the 2nd Open House on November 12th 2012, therefore preceding more complete information by one month.

The timing of your report studies issued in September has been unfortunate for me in that I had travelled much of September and moved from my farm for the winter in October, leaving little time to properly study the information in more detail. This is particularly so in attempting to compare various reports solely on your website.

The first page I accessed on your website was a complete page listing Community Benefits. I must say, this information was a poor introduction to the ethics practiced by Pattern and Samsung.

Your website claims the following Environmental Benefits of 180 MW Wind Energy Compared to Coal-Fired Generation

- Carbon Dioxide Emissions Reduced - 656,638 tonnes/year
- Sulfur Dioxide - 2,949 tonnes/year
- Nitrogen Oxides - 997 tonnes/year
- Water Conserved 1,356,239,212 liters/year 3,715,724 liters/day 10,907 people each day

Where is the analysis back up for these claims? What sort of community benefit is that? How do those numbers relate to the Armow Project which the pages of this website claim to cover?

Many of the answers I received to concerns and questions I posed in my original letter were simply abrogated to O.Reg. 359/09. The sheer volume of reportage issued to justify O.Reg.359/09 certainly accounts for a few of the jobs the wind industry and the Ontario government has been promising.

I am still in the hope that Samsung and Pattern combined might show some extraordinary corporate governance and responsibility to go beyond regulations issued in 2009 that had not been reviewed or updated in the light of emerging flaws ensconced in O.Reg. 359/09.

Does your statement, “The balancing of priorities related to the planning of provincial energy generation (i.e. cost, environmental, reliability, and job creation) is the responsibility of the Government of Ontario through the Ontario Power Authority” then absolve you of any responsibility associated with these matters?

It seems that Samsung signed a specific contract with the Ontario government. Therefore Samsung became a partner in creating certain conditions – Do you now state that SPAWO is not a party to these priorities willingly agreed to and solely the responsibility of the Ontario Government? Where is the balance of cost? On the environment? On the reliability? Where are the jobs? Is none of this your responsibility also? So far there has been no balance shown.

The Open House format you have chosen, while perhaps providing more additional opportunities for one-on-one conversation with Project team members, this approach does not in our experience contribute towards allowing attendees to hear each other’s comments since groups are broken up preventing all attendees the benefit of replies given by a team member. It also adds to valuable time wasted in repeating the same questions and answers. Perhaps that is your objective during this open house.

Since you insist in maintaining the one-on-one format for the 2nd Open House to be held November 12 of 2012 and many attendees may due to this format not have the opportunity to present their question in the time allowed, it would follow as a matter of course, that all written communications with questions and concerns, along with written responses are required to form part of your REA submission.

At this point I would like to return to my previous concerns and your responses with further comments and questions awaiting answers from you. The following under headings are in part replies to your August 10th letter of response to mine of November 15th.

ADVERSE HEALTH ISSUES

Your response is incomplete and gives absolutely no assurance that there will be no detrimental health effects to residents within the Armow Project arising from operations of wind turbines. Since Dr. King has admitted that there are gaps in the knowledge and since subsequently new scientific reports are rapidly filling these gaps and Health Canada feels that there is sufficient reason for further investigation into the relationship between health effects and wind turbines, why does your response fail to give assurance that the health of residents within the project will not in some manner be negatively affected due to wind turbine operations. Furthermore your reply that “The regulatory requirements are consistent with the 2009 World Health Organization outdoor night noise limit of 40.0 dBA.” is incomplete and misleading. The fact is that the following is the WHO recommendation:

<http://www.euro.who.int/en/what-we-do/health-topics/environment-and-health/noise>

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

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

Why are you offering only Dr. King’s now outdated literature review and Ontario’s regulatory requirement as assurance that turbine operations will not negatively affect the health of people within this project? Your reliance on Dr. King’s out of context comment as well as relying on what is appearing to be seriously flawed in many ways, the GEA’s Regulatory requirements, as your rationale to stand behind in justifying that your project’s operations will not cause harm to humans living within setbacks as outlined in your documents, places your company in denial of evidence emerging to the contrary.

Dr. King’s report in which even she admits there are gaps, and which now has been superseded by several peer reviewed published articles that outline effects of wind turbines on people living in close proximity to them¹. Let us be clear. Your statement reiterating that “The sound level from wind turbines at common residential setbacks is not sufficient to cause hearing impairment or other direct

¹ Effects of Industrial Wind Turbine Noise on sleep & health

Michael A. Nissenbaum, Jeffrey J. Arami, Christopher D. Hanning

Bulletin of Science, Technology & Society 32(2) 108–127

“Wind Turbine Infra and Low-Frequency Sound: Warning Signs That Were Not Heard”

by James Richard

James Richard who concludes:

A review of the work of acoustical experts such as Swinbanks, Ebbing, Blazier, Hubbard, and Shepherd and others mentioned in this article shows that these problems were reported at professional conferences and in research papers.

There is sufficient research and history to link the sensitivity of some people to inaudible amplitude-modulated infra and low-frequency noise to the type of symptoms described by those living near industrial wind turbines. This information should have served as a warning sign.

health effects.” Has no scientific basis. It does not even make any sense. What are common residential setbacks? Your turbines are not located in residential areas. They are located on rural farmland. There are no “common” denominator setbacks. No one is claiming hearing impairment. The only direct impacts might be getting hit with a piece of ice falling off a blade, or the blade or other object. I do believe that causal effects can be linked to turbines, as research is indicating, in the same manner as second hand smoke is linked to cancer.

The warnings that should be heeded are the mounting evidence of vibration and inaudible sound not previously taken into account when writing standards of safe operation. Low frequency and infrasound are proving to be far reaching in causing sleep disturbance and nausea similar to sea sickness, seemingly creating inner ear disturbance leaving persons with a feeling similar to sea sickness and pressure. Sleep disturbance leads to a host of more serious detrimental physical health issues.

Dr. Hazel Lynn, during a Bruce County Board of Health Meeting, expressed concerns that the standards set by the Province were insufficient to protect the health of the residents of Grey-Bruce. After the meeting, Dr. Lynn told a reporter from the Owen Sound Sun Times that she believes their (health affected residents) are absolutely legitimate. She further stated, “I’ve been concerned about wind turbines for a long time, and I do know people who have been affected by them. I think it is a direct effect and not an indirect effect.” The Board instructed Dr. Hazel Lynn, the Medical Officer of Health, to prepare recommendations to deal with this matter.

Health Canada also believes there is sufficient reason to launch a study into the relationship between health complaints associated with wind turbines when placed in proximity of peoples’ homes, along with a study underway at the University of Waterloo. The MOE realizes there are shortcomings and flaws in current regulations and is working on standard to address these. Unfortunately none of these initiatives will be concluded within the next 2-3 years.

Nevertheless, your failure to take pre-emptive action in the knowledge that there are problems that need to be addressed should not absolve you from liability and in being found negligent in proceeding with the construction of a product believed to cause harm. This is particularly so, since this product is being placed within the reach of unwilling participants without warning of possible consequences.

LOW FREQUENCY NOISE

Your August 10th response states, “, we do not anticipate any problems associated with low frequency noise.”

Low frequency noise and infrasound have not been considered when writing the regulations under which you are preparing to operate. Admitted by your own staff in a meeting before witnesses was the fact that it has become a concern.

Numerous reports since the McPherson² report was published, authored by Rand and Ambrose and the move by Canada Health to study health impacts due to the large number of health complaints related to Turbine operation startups certainly are warning signs that every responsible corporation should be heeding.

As well effects of infrasound on the inner ear have been studied by Dr. Alec Salt of the Department of Otolaryngology, Washington University School of Medicine. Salt and Lichtenhan³ conclude that infrasound and low-frequency noise can result in “localized endolymphatic hydrops,” which is swelling of the inner ear — a condition that can result in dizziness and loss of equilibrium. Those symptoms are common among people who complain about the noise generated by wind turbines. They also presented this paper at the 2012 Inter-Noise Conference in NYC.

ADVERSE ENVIRONMENTAL EFFECTS

Noted there are 253 pages of Environmental Impact Assessments including maps and sub-maps divided into areas which describe important wildlife, bird migration and breeding areas, wetland and other sensitive areas. Possible negative impacts and mitigation measures are listed. Some pre-assessment reports appear to be still in process to be submitted and post construction and follow-up surveys are recommended. Have you made specific appointment of personnel to conduct the follow-up surveys and the timing of same?

Will a report be issued on the recommended follow-up and has a plan been made for remedial action been made and what recommendations would this plan include?

ENERGY SOURCE AND INTENSIFICATION OF PROJECT

Your assertion that “the density of turbines for the Armow Wind Farm will be no greater than that of an average wind farm, including those directly adjacent to the proposed project area.” This has no basis in fact and contradicts the Noise Impact Assessment purported to be unique to the Armow Project.

The Noise Impact Assessment prepared by GL Garrad Hassan mentioned it has considered the Cruickshank and Enbridge projects in their study. What baseline studies were done on background sound levels within the project area, daytime and nighttime over what period of time? The GL report refers to considering the Armow Project a Class 3 with 40dBa background level? How was this determined? Please supply a comprehensive report on baseline noise study determination or why you would not be willing to do so? What consideration was given to cyclical noise?

² The Bruce McPherson Infrasound and Low Frequency Noise Study
Adverse Health Effects Produced by Large Industrial Wind Turbines Confirmed
December 14, 2011 – Stephen L. Ambrose, INCE (Brd.Cert.) & Robert W. Rand INCE Member

³ Responses to the Inner Ear of Infrasound
by Alec N. Salt and Jeffery T. Kichtenhan
Presented at the Fourth International Meeting on Wind Turbine Noise, Rome, Italy 12-14 April 2011

Consideration was given in the Enbridge project of upwind and downwind variations in noise levels? Was any of this done in the Armow project and what adjustments were made to stay within MOE regulations?

ENVIRONMENTAL IMPACT STUDY

I note that many of the turbine locations are marked as requiring EIS. It is quite difficult from a computer image to compare all turbine locations with the comment diagram. On the whole and in a general overview, it appears that in order to maintain placement of the increase from 50 to 90+ turbines within the same project area, sacrifices were made in allowing for the airport buffer zone (#7 Comment) to be turbine-free and wedging in the remaining turbines into the eastern portion of the project.

Although setbacks to a closest turbine of a non-participating “receptor” was maintain at the GEA proscribed minimum distance of 550 metres I would like you to explain why when one turbine’s alone-standing noise falls within the 40 dBA limit, why 3 or more (in one case 8 and in another case 7) that appear to be within less than 100 metres of each other, combined still only produce 40dBA of noise?

In extremely simplistic terms, relying only on my ears for hearing, if I have one tree with leaves buffeted by the wind it makes some sound. If I have 8 or more trees close together blowing in the same wind, I hear a lot more noise.

In computer generated engineering terms it mentioned that the turbines are powered down from 2.3MW to 1.8+/- as the case might be to achieve this result. I await a better explanation.

At this point I am unable to verify distances as mapped. I note tables are generated under Noise Impact Assessment, but these give only 1 distance from a receptor to the nearest turbines. Please provide the exact distance from receptor #223 to the following turbines:

Turbine Closer #1	Distance from Receptor #223	
Turbine # 30		
Turbine # 31		
Turbine #28		
Turbine #29		
Turbine #27		
Turbine #26		
Turbine #85		
Turbine #96		
Turbine Cluster #2	Distance from receptor #223	
Turbine #89		
Turbine #65		
Turbine #70		
Turbine #84		
Turbine #83		
Turbine Cluster #3	Distance from receptor #223	

Turbine #21		
Turbine #22		
Turbine #23		
Turbine #24		
Turbine #25		
Turbine #88		
Turbine #95		

Additionally please describe the distance of #107, #60 and #103 from respective sensitive areas, as well as #32 which on the map appears to sit in a very boggy area near a stream.

SETBACKS AND HAMLETS

I note consideration as suggested by the Kincardine Wind Generation System Development Policy has not been given to the hamlet areas and it would seem any expansion of the hamlet areas will be proscribed as a result. The vacant lots were given a receptor location, simply as being by the roadside, according to maps posted, again proscribing future planning on the part of the landowner, unless he is willing to locate closer to possible negative noise impacts from turbines. In this regard, how will you handle this type of situation? Will you give simple written warning, or will you expect a signed release from any future hazard?

It seems a trade-off was made in that considerable buffer zone was maintained around the airport area, thus subjecting the eastern portion of the project to extreme densification of turbines. As mentioned in the foregoing this appears like a sacrifice zone now and certainly restricts all landowners for future development as they might deem appropriate, amounting to an expropriation to parts of their land. It is one matter of participating landowners who have agreed to this under their contracts, but another for landowners who have had essentially no voice in determining setbacks they might require for future development of their property.

At the time of my first writing and your response in August 10th, you still have not completed mapping. Now that your planning has advanced to the 2nd Open House, and wind turbine placements have been mapped, please state the total land use occupied by all turbines and include transformer stations, turbine pads, and all access roads in total.

NOISE IMPACT STUDY

Will you be willing to have a peer-reviewed study done of the GL GH Noise impact Assessment as outlined by the following?

In the matter of Compliance with noise requirements you stated: Details of the wind turbine maintenance program will be provided in the Design and Operations Report. Turbines will also be constantly monitored from a central location to ensure that they are operating within specified parameters. Project operations staff will be available to receive any noise complaints for turbines not operating as expected.

Please explain what monitoring logs will be kept and will these be available on request by any resident or municipal official? Have you formalized a complaint protocol since your last meeting with Duncan's et al at which time you had not one available?

The GL GH noise impact assessment lists locations for receptors, other buildings and cemeteries twice. It must be assumed, therefore, that no special consideration is given to schools, churches, or special needs facilities other than including these with normal receptors for the purpose of noise impact

TELECOMMUNICATIONS

The problem of communication and other electronic malfunctions has occurred in the Enbridge and is well documented. -- Please supply the status of your consultation as outlined in August 10th letter, Comment #22. Please provide a report of remedial action you will undertake in case of such interference.

A resident within the Enbridge project had considerable problems with a GPS unit. His research indicated that indeed radiation was emitted from communication towers and that red lights at towers were emitting radio signals and could have cumulative effects. Radio Canada reports high tension wires emit interference. All of these factors could combine in specific areas to cause the problems he was having with his GPS unit.

Certainly there is evidence of interference likely to arise within the Armow Project as well with a high risk as well to an emergency communication, particularly due to some rather tight clusters of as many as 8 turbines in relative proximity.

FLASHING LIGHTS

This night distraction seems not to have been previously addressed. From a recent meeting the following information emerged:

② The flashing red lights disturbing night skies issue was researched by with the results that solutions for shading red lights are available. A Canadian Company in Quebec has this capability. OCAS is currently operational in the US, Canada, and Europe A bulletin issued by OCAS describes the approvals and information is available at: <http://69.63.138.17/AnnTicker.cfm?do=main.textpost&id=30a7c1e0-2d9e-4587-8cb1-e495cb4af5cd>

And: <http://www.ocasinc.com/>

☐ Transport Canada is the responsible agency. Industry Canada has a different protocol dealing mainly with telecommunication towers. A shielding for glare is actually energy efficient.

The only project that uses a type of light shielding is the Talbot Project in Ridgetown. In a recent meeting, it was stated Enbridge would be interested in participating in some form of shielding if the Armow Project developers would join for increased economics of scale. Usman Bhatti will look into the possibilities and Ian MacRobbie is to follow up with Jody Law. Please let me know if Enbridge personnel have been in touch with SPAWO and/or if SPAWO will take steps to offer the mitigation available to counter this major annoyance.

☐ **NOTE: Transport Canada urged residents to launch complaints.**

STRAY VOLTAGE

Your August 10th letter responded with the assurance that stray voltage will be minimized through proper electrical design and farm wiring practices. Please explain what you refer to as “farm wiring practices”.

This answer is a poor guarantee of responsibility for this issue by Samsung/Pattern. Experience with Hydro One, has proven otherwise. Is the owner/developer of the Armow Project not responsible for ensuring safe electrical installations, be they performed by Hydro One or any other contractor?

A review of the actions of Hydro One and the developer does not inspire confidence in their performance capabilities. To wit:

Electrical problems have been ongoing and no remedial action has been taken for 3 years now with people suffering harm while Enbridge and Hydro One, each claim the responsibility rests with the other. If such a case of electrical pollution in a home or of stray voltage causing harm to animal or human will you employ a qualified outside consultant to undertake corrective action?

It appears that Hydro One will be responsible for the electrical installations. As this is part of a project construction cost, will Hydro One act as a sub-contractor to SPAWO and will SPAWO include these costs within their project budget. If not, will Hydro One provide the work at no charge to SPAWO, therefore relying on the Ontario taxpayer to foot the bill? Who is ultimately responsible for the work to be done in a qualified manner – SPAWO as the contractor or HYDRO ONE, thus making the Ontario citizens the contractor? Who will oversee this work?

As part of the electrical system, substation(s) are to be constructed. Who will be the contractor responsible for this part of the construction?

Will testing be done relative to EMF pollution? Transformer/collecting lines? When and how often will this be done? Will reports be issued to affected neighbours with underlying standards outlined?

EFFECTS ON GROUNDWATER AND WELLS

The Reports relating to Water bodies and assessments appear still to be in draft form on your website. It is noted that pilings may need to be driven in support of concrete bases depending on soil sub-structure, but you anticipate going no deeper than 2.5 metres.

In this regard I reference the following and question what arrangements you have made in this regard. You will note that the Enbridge project adjacent and just north of the Armow Project required 40 wind turbines to be supported and over 1000 piles were driven more than 30m deep. What happens to REA approval or your final Open House should your assessment drastically change?

I note Revision 4.4 states this amount of water is not necessary and therefore no permit need be applied for.

My concern is that the Enbridge project area is not that different from that in the Armow Project and some turbine locations appear to be rather close to unstable ground. I reference the following report:

EXPERIENCE IN DRIVING OVER 1000 PILES IN BRUCE COUNTY, ONTARIO

Prapote Boonsinsuk

AMEC Earth and Environmental, a Division of AMEC Americas Limited, Scarborough, Ontario, Canada

Trudy Laidlaw, Scott Eidt

AMEC Americas Limited, Oakville, Ontario, Canada

Siva Nadarajah

AMEC Earth and Environmental, a Division of AMEC Americas Limited, Scarborough, Ontario, Canada



ABSTRACT

As part of a wind farm project developed by Enbridge in Bruce County in Ontario, over 40 wind turbines had to be supported by piled foundations due to the presence of thick soft soil strata. Over 1000 steel H 310 piles were driven, some more than 30 m deep, to achieve the design pile axial capacity in both compression and tension. For design, the pile capacity was evaluated by static pile capacity analysis using the borehole data obtained at each wind turbine location. The subsurface soil conditions were investigated by the Standard Penetration Test and dynamic cone penetration. The minimum pile embedment depth at each wind turbine location was established in order to achieve the design pile compression and tension capacity. Pile driving criteria based on Hiley formula were then developed.

A few pile driving hammers were used in driving the piles from the fall of 2007 into 2008. A Pile Driving Analyzer (PDA) was utilized to evaluate the performance of each pile driving hammer, confirm pile driving criteria, and verify design pile capacity. The experience gained in interpreting borehole data, analyzing pile capacity and specifying pile driving criteria, will provide a good basis for similar projects in the future.

Revision 5.2 EIS states monitoring, mitigation, and contingency plans are necessary. What are they?

Will they include some type of monitoring of neighbouring country wells? What remedial actions will you take if sediment appears in well water, or pump failure due to ingested sediment caused by construction or other operations? Will you monitor ALL wells within the project?

TREE PRESERVATION

Even though you have stated you have "sought to minimize any disturbance to trees through layout design and consultation with landowners," from past experience in other projects, the promises of

minimizing the disturbance of trees have nevertheless resulted in 100 year old maples being cut down. Since we all know that trees take in carbon dioxide and exude oxygen the fact remains that cutting down trees thus increases CO² emissions. Will you replace trees that necessitate removal? Will you consider replacing trees that have been removed with like in age and size? Will you consider planting these replacement trees in another suitable location – perhaps even make some arrangement with a neighbouring landowner? A policy of mature tree planting could be a positive step in harbouring improved community relations.

EMERGENCY RESPONSE/PROTOCOLS/ACCIDENTS

Beyond emergency response and communications, it has taken Enbridge 3 years to finally distribute a sheet with emergency and other complaint contact numbers. It is strongly suggested that a 24/7 appropriate contact number(s) be issued in the form of a reference card to each and every household within the Armow Project. If an answering service is used, replies must be received within the next hour or within minutes of an emergency. I trust a detailed protocol and response will be developed between SPAWO and the Kincardine Municipality with full communication and transparency to every household in the form of an emergency reference type card to be placed by their telephone.

Will you, aside from keeping a record of complaints in your database, send a confirmation copy to the complainant? Will you include this with section 6. as part of your REA approval documentation?

Since you accept full responsibility as stated, “Any property damage or injury to persons originating from the negligence of SPAWO will be at the sole responsibility of SPAWO.” The name of your insurer and the policy would be included with emergency response information.

Will you supply, along with emergency response protocol information during construction and operations the, “Identification of and hazardous materials and copies of associated data sheets” to all households for their information and reference?

Even though you are aware with emerging experience and peer reviewed scientific literature, I fail to see warnings issued to any human living within the influence of turbine operations in regard to possible health effects. Are these warnings offered in contracts to landowners signing turbine leases?

Will you also be posting warnings in regard to ice throw? Could some of the distances where falling ice might pose a danger be within the property line of non-participating residents?

I apologize for answers I may have overlooked within the reports so far issued. I understand that perhaps some revisions are still in order prior to final submission for REA approval. It is indeed unfortunate that larger versions showing more detail available at the Open House are not available to me at this writing.

I do believe this project will negatively impact many of the residents living within its influence and to date the volume of reports and assessments fail to demonstrate a benefit to this community. Overall as far as electricity produced by the turbines, this also is not an added benefit to Ontario due to the simple economic fact that when wind is blowing and the turbines produce electricity, it is produced at time

when it is not required and actually sold at a loss. The high cost of electricity has actually contributed towards industry leaving Ontario. Recent studies of property diminution coupled with increased reports of impacts on health of residents living within wind projects as well as bird mortalities due to wind turbine operations seem to indicate some serious revisions in regulations and siting of these projects close to human and wildlife habitats is in order not least to mention the economic viability of relying on wind for our energy needs.

Since Samsung/Pattern has undoubtedly invested considerable expense, time and energy in getting the Armow Project to this stage, it would obviously be naïve of me to expect voluntary cancellation of the Project on grounds of a social corporate sense of responsibility. The Ontario Government's largesse under the FIT subsidization program no doubt provides the expectation of commensurate earnings on the Project's investment.

I do believe, however, that concerns need to be addressed, hopefully by you and finally by the Ministries prior to issuing REA approval.

I await your reply given with due consideration.

Sincerely,



on behalf also of residents within the
Armow Citizens Group

Copies to:

Doris Dumais, Environmental Assessment and Approvals Branch, Ministry of the Environment

Agatha Garcia-Wright, Director, Environmental Assessment (Acting), Ontario Ministry of the Environment – Environmental Assessment

Hon Deborah Mathews, Minister of Health and Long Term Care

Lisa Thompson, MPP, Huron Bruce

Bill Walker, MPP, Grey Bruce Owen Sound

Hon. Jim Bradley, Minister of the Environment

Adam Orfanakos, Office of the Ombudsman of Ontario

Ron Coristine, Councillor, Municipality of Kincardine

Randy Roppel, Councillor, Municipality of Kincardine

Anne Eadie, Deputy Mayor, Municipality of Kincardine

Jacqueline Faubert, Councillor, Municipality of Kincardine

Scott Duncan, Multi Municipal Wind Turbine Working Group for Bruce, Grey, Dufferin and Huron Counties

Ian Callum, Project Manager, Golder Associates Ltd.



SP Armow Wind Ontario LP
322 Lambton Street
Kincardine, Ontario N2Z 1Z1
Canada

November 29, 2012

RE: Response to Armow Citizen's Group Letter dated November 10, 2012

Dear Karen Breitbach,

Thank you for your response letter dated November 10, 2012. In an attempt to address your questions, we have numbered your specific questions and provided responses below. We appreciate your continued interest in the Armow Wind Project (the Project) and look forward to discussing any further questions you may have regarding the Project. We have structured our responses according to the headings provided in your letter.

GENERAL

Question/comment #1 – Request for wind energy compared to coal-fired generation analysis, and explanation of community benefit and how numbers related to the Project

The sources for the website analysis were provided on our website.

"Sources: Based on information from the Energy Information Administration, National Energy Technology Laboratory, and U.S. Geological Survey. Annual emission offsets based on 180 MW wind project offsetting coal-fired generation, using capacity factor for the Armow Wind project area and accounting for regular turbine maintenance. Water conserved compared to coal-fired generation (541 gallon/MWh), source American Wind Energy Association. People supplied figure based on USGS estimation of 80-100 gallons/day per capita water consumption, US Geological Survey, "Water Q&A: Water use at home," <http://ga.water.usgs.gov/edu/qahome.html>."

The reduction in emissions when switching from coal to a renewable resource represents an improvement to regional air quality, in local and regional communities.

The numbers on the website related directly to the Project which is proposed to generate up to 180 MW.

Question/comment #1 – Regarding our role in balancing priorities such as cost, environment, reliability and jobs.

The balance that we described in our letter referred to the overall energy strategy of the Province of Ontario, and how it relates to other socio-economic issues. As these issues (cost, environment, reliability, job creation etc.) are very complex and inter-related, the Province is tasked with determining how to move forward given these relationships and how to manage the supply and demand of its resources. The Province is also responsible for the overall cost of the production, delivery and the reliability of the supply of electricity in the Province.

Although we are not responsible for determining the energy supply mix for the Province, this does not absolve us of our responsibility toward the environment and toward job creation in the Province. Our commitment to the environment starts with a commitment to developing wind power, which lifecycle studies have shown to have a smaller environmental consequence than several other forms of energy generation. We then work through the permitting process in consultation with the Ministry of Natural Resources to ensure that the Project does not impact significant wildlife habitat.

As you mention, Samsung signed a specific contract with the Ontario government to tie the progress of its projects to job creation. As we move further through the permitting process, the manufacturing facilities will begin to ramp up production to create more jobs. At this point, we are still in the early stages of the agreement, and once various project development milestones are met, the facilities will continue to increase production and create more jobs.

OPEN HOUSE FORMAT

Question/comment #2 – Comment that our Open House format does not provide an opportunity to hear each other's comments and that time is wasted repeating the same questions and answers

We understand your position on this topic and considered this type of public meeting format when planning our meetings. There are pros and cons to both approaches and, in our experience, we have not found the town hall style meeting to be

the best method of disseminating the most information to the most people and to hear the most feedback from stakeholders. During town hall style meetings, there is only enough time to answer so many questions; if an individual has a specific question, he or she may not be able to have it addressed due to the number of other questions. During an open house style meeting, an individual can be relatively sure that he or she will have an opportunity to ask a specific question. Also, town hall style meetings can result in intimidating environments, where not all stakeholders feel comfortable asking questions or voicing their opinions.

Question/comment #3 – Comment that our Open House format does not allow time for all questions to be answered and that accordingly that “all written communications with questions and concerns, along with written responses are required to form part of the REA submission.”

In our experience, the style of open house we have chosen has not limited the ability to ask questions in the time provided. In fact, our staff and subject matter experts typically stay past the official meeting duration to ensure that all stakeholder questions have been answered. Our consultation report comprises a section dedicated to comments received through the public comment period and at our public meeting. This includes written responses to all the comment forms received, as well as submitted letters and questions, such as yours. This consultation report will be included as part of our REA submission. As stated in our response to your previous comment, we feel that a town hall meeting is a more limiting meeting format.

ADVERSE HEALTH ISSUES

Question/comment #4 – Why does your response fail to give assurance that the health of residents within the project will not in some manner be negatively affected due to wind turbine operations.

Many studies have been conducted world-wide to examine the relationship between wind turbines and possible human health effects. Overall, health and medical agencies agree that when sited properly, wind turbines are not causally related to adverse effects. We refer you to these sources as examples: Chatham-Kent Public Health Unit, 2008; Australian Government, National Health and Medical Research Council, 2010; Australian Government, 2011; Massachusetts Department of Environmental Protection (MassDEP) and Massachusetts Department of Public Health (MDPH), 2012. Saying this, reports of annoyance by some people living around wind turbines has occurred, yet this annoyance appears to be more related to variables like personal attitude and whether a person can see a turbine from their home rather than a turbine-specific variable like noise. Also please note that the Environmental Review Tribunal (ERT) in Ontario ruled in 2011 (Erickson v. Director, Ministry of the Environment) and again in 2012 (Monture v. Director, Ministry of the Environment) that wind turbine projects in Ontario, as approved under the regulation, would not cause serious harm to human health.

Question/comment #5 – You state that our response about regulatory requirements (in terms of noise) being consistent with the 2009 World Health Organization outdoor night noise limit of 40.0 dBA is incomplete and misleading.

For potential noise receptor locations in Ontario the total predicted noise levels from all wind farms must not exceed 40.0 dB(A). This value is the same as WHO (Europe) night-noise guidelines, which is a health-based limit “necessary to protect the public, including most of the vulnerable groups such as children, the chronically ill and the elderly, from the adverse health effects of night noise” (WHO, 2009). You are correct in pointing out that the WHO guidelines for “community noise recommend less than 30 A-weighted decibels (dB(A)) in bedrooms during the night for a sleep of good quality and less than 35 dB(A) in classrooms to allow good teaching and learning conditions”. An important difference between these WHO guidelines and the WHO (Europe) night-noise guidelines is where the noise is measured: the 30 dBA value is meant inside and the 40 dBA value is outside. The MOE noise level limit of 40.0 dBA is for outside a dwelling. The WHO guidelines also indicate that a partially open window will provide a reduction in noise level of 15 dB (greater reduction would be experienced if the window remains closed). This would result in an indoor noise level of 25 dB(A) within the bedroom based on the MOE noise level limit of 40.0 dBA outdoors.

Question/comment #6 – You ask “Why are you offering only Dr. King’s now outdated literature review and Ontario’s regulatory requirement as assurance that turbine operations will not negatively affect the health of people within this project?”

At our Public Meetings, we have made available a number of resources, in addition to the 2010 report released by the Chief Medical Officer of Health in Ontario. On our poster board about health concerns we reference a number of sources, including Chatham-Kent Public Health Unit, 2008; Australian Government, National Health and Medical Research Council, 2010; Australian Government, 2011; Massachusetts Department of Environmental Protection (MassDEP) and Massachusetts Department of Public Health (MDPH), 2012. Scientists and medical experts around the world continue to publish research in this area and this is one reason we have experts on hand at our open houses for people to speak with.

Question/comment #7 – You suggest that “Your statement reiterating that “The sound level from wind turbines at common residential setbacks is not sufficient to cause hearing impairment or other direct health effects.” Has no scientific basis. It does not even make any sense. What are common residential setbacks?”

Overall, health and medical agencies agree that when sited properly, wind turbines are not causally related to adverse effects. Around the world a number of jurisdictions have implemented wind turbine siting regulations for residential and rural locations based on distance and/or noise. A review of global setbacks was recently written by Haugen (2011). The full reference is: International Review of Policies and Recommendations for Wind Turbine Setbacks from Residences: Setbacks, Noise, Shadow Flicker, and Other Concerns (Minnesota Department of Commerce, St. Paul, MN). In terms of noise, Haugen found that outdoor noise limits ranged from 30 to 65 dB(A) (for a total of 19 jurisdictions), with the majority set between 30 and 50 dB(A).

Question/comment #8 – You also ask about infrasound and low frequency noise:

O’Neal et al. (2010) conducted a study to measure wind turbine noise outside and within nearby residences of two wind farms in Texas. Infrasound and low frequency noise data were collected from General Electric (GE) 1.5sle (1.5 MW) and Siemens SWT-2.3-93 (2.3 MW) wind turbines. These are very similar to the turbines proposed for our project. Data were collected at two distances from the nearest wind turbines: 305 meters and 457 meters (both closer than any home in our project area). O’Neal et al. found that the measured infrasound and low frequency sound at both distances (from both turbine types at maximum noise conditions) were less than the standards and criteria published by the UK Department for Environment, Food, and Rural Affairs, the American National Standards Institute and the Japan Ministry of Environment. The authors concluded that results of their study suggest that there should be no adverse public health effects from infrasound or low frequency noise at distances greater than 305 meters from the two wind turbine types measured. Another recent article you may like to read is by Turnbull et al. (2012) called “Measurement and Level of Infrasound From Wind Farms and Other Sources”. The authors measured infrasound at two Australian wind farms, in the vicinity of a beach, a coastal cliff, the city of Adelaide and a power station. The authors reported that the measured level of infrasound within the wind farms was well below the audibility threshold and is similar to that of urban and coastal environments and near other engineered noise sources. Important to note from their work was that the level of infrasound 25m from ocean waves was 75 dB(G) and between 61 and 72 dB(G) from wind farms at 360m and 85m, respectively.

You also mention the work of Dr. Alec Salt. While it is true that Salt and Lichtenhan concluded that infrasound and low-frequency noise can result in “localized endolymphatic hydrops,” which is swelling of the inner ear — a condition that can result in dizziness and loss of equilibrium, it needs to be pointed out that Salt’s work was conducted with anesthetized guinea pigs and not people. Moreover, the researchers have only theorized that this could be the case for people living around wind turbines and have not actually measured low frequency noise or infrasound surrounding wind turbines.

Question/comment #9 – Comment that SP Armow is failing to take pre-emptive action given that we are aware that “there are problems that need to be addressed” and that this “ should not absolve you from liability and in being found negligent in proceeding with the construction of a product believed to cause harm.” You also suggest we are doing so without adequately warning “unwilling participants”.

We respectfully disagree with your contention that we are aware of “problems that need to be addressed” and that we are doing so “without adequately warning unwilling participants”. Overall, health and medical agencies agree that when sited properly, wind turbines are not causally related to adverse effects

ADVERSE ENVIRONMENTAL EFFECTS

Question/comment #10 – Have you made specific appointment of personnel to conduct the follow-up surveys and the timing of same? Will a report be issued on the recommended follow-up and has a plan been made for remedial action been made and what recommendations would this plan include?

We have not yet appointed personnel to conduct our post-construction surveys and monitoring. A post-construction Environmental Effects Monitoring Plan is currently under development and will be reviewed by the Ministry of Natural Resources to ensure its completeness and suitability. The basis for this plan is the monitoring commitments summarized in Table 7 of our Design and Operations Plan Report.

ENERGY SOURCE INTENSIFICATION

Question/comment #11 – You suggest that the Armow Wind Farm will have a higher density than an average wind farm

There are 98 turbines in the Armow Project within an area measuring approximately 12 km by 12 km. By way of comparison, there are 110 built turbines in the Enbridge project, which has approximately the same footprint of 12 km by 12 km.

Question/comment #12 – What baseline studies were done, how was the Project determined to be a Class 3 with 40 dBA background level, and what consideration was given go cyclical noise?

No baseline noise studies have been performed at this stage of the development. Background sound levels do not affect the determination of the applicable noise limits for Class 3 receptors. The MOE has three designations for receptors based on representative locations (i.e., urban, suburban and rural). A Class 3 area is described as rural and therefore, the applicable noise level limits are the most restrictive. According to the Guidelines, the noise limit for a Class 3 receptor cannot be set lower than 40.0 dB(A) regardless of background sound levels. As mentioned in the Noise Impact Assessment [2]: The lowest sound level limit expressed in terms of Leq is: i) 40.0 dB(A); or ii) the minimum hourly background sound level established in accordance with Publications NPC-232/NPC-233 and the MOE's Noise Guidelines for Windfarms (MOE, 2008), whichever is higher.

Question/comment #13 – Was consideration given in the Enbridge and Armow Projects for whether a receptor was located upwind or downwind?

We can't speak for the Enbridge project, but we can confirm that, for the Armow project, the Noise Impact Assessment conservatively assumed, as part of the Guidelines, [1] that receptors are always downwind from every turbine at the same time (as described in ISO 9613-2). There is no benefit (i.e., reduction in noise level) for receptors that are upwind from a turbine.

ENVIRONMENTAL IMPACT STUDY

Question/comment #14 – Request to explain how multiple turbines can still meet the 40 dBA limit.

GLGH calculates sound pressure levels using CadnaA software which is an implementation of ISO9613-1 and ISO9613-2. ISO9613 is internationally recognized and widely used for the modelling of wind farms and other sources of noise in the environment. The proximity of several noise sources to each other does not necessarily increase the impact that they might have on their surroundings based on the ISO9613 noise propagation model

Question/comment #15 – Request to have distance from receptor #223 to several turbines.

Turbine Cluster #1	Distance from Receptor #223 (m)
Turbine #30	3433.9
Turbine #31	3366.6
Turbine #28	3119.2
Turbine #29	2801.8
Turbine #27	3281.4
Turbine #26	3449.1
Turbine #85	3330.0
Turbine #96	2740.0
Turbine Cluster #2	Distance from Receptor #223 (m)
Turbine #89	4972.7
Turbine #65	5193.2
Turbine #70	5061.3
Turbine #84	5322.9
Turbine #83	4747.2
Turbine Cluster #3	Distance from Receptor #223 (m)
Turbine #21	3951.3
Turbine #22	3585.5
Turbine #23	3249.0
Turbine #24	3475.4
Turbine #25	3016.4

Turbine #88	3713.1
Turbine #95	2962.3

SETBACKS AND HAMLETS

Question/comment #16 – You indicated that the hamlet areas outlined in the Kincardine Wind Generation System Policy were not considered and that the placement of vacant lots will affect future planning by landowners.

Consideration was made of the Kincardine Wind Generation System in its entirety. We worked closely with the Municipal Ad-Hoc Committee that was assigned to us to address concerns regarding the stated buffer zones. Overall, we were able to meet the Kincardine, Tiverton and Lakeshore buffer zones, as well as a substantial portion of the rest of the policy document. Vacant lot receptors were placed in accordance with the Ministry of Environment Noise Guidelines for Wind Farms (2008).

Question/comment #17 – Request for the total land use occupied by the Project.

The Construction Plan Report documents that the temporary loss of agricultural lands associated with the construction and installation activities will represent approximately 2% of the total Project Study Area. Furthermore, the loss of agricultural land during the lifespan of the project due to turbine footprints and access roads will represent less than 0.5% of all lands within the Project Study Area and associated crops. The collector substation will be approximately 200 m by 150 m.

NOISE IMPACT STUDY

Question/comment #18 – Request to have the Noise Impact Study peer reviewed.

Our Noise Impact Assessment, as with all of the reports submitted as part of the REA application, will undergo a thorough review during the technical review phase of the REA process. This phase can last up to 6 months and is preceded by a review of completeness, which can last up to 2 months.

Question/comment #19 – Explain what monitoring logs will be kept and comment on their availability to the public and the Municipality. Is there a formalized a complaint protocol?

We will be developing our complaint monitoring and resolution protocol as the project progresses. Section 6 of our Design and Operations report outlines a framework that will be used to develop an emergency and non-emergency response and communication plan, which will begin to take shape as we move further along in the development of the project.

Question/comment #20 – Comment that the Noise Impact Assessment gives no special consideration to schools, churches, or special needs facilities

Wind turbines for the Project meet, at a minimum, the setback distance of 550 m from receptors as outlined in O. Reg. 359/09, as amended. The schools, churches and special needs facilities included in the noise model were considered as receptors. The setbacks are defined by the province to be protective of human health and safety.

TELECOMMUNICATIONS

Question/comment # 21 – Concern based experience of a landowner within the Enbridge Project that aviation safety lighting on turbines and transmission wires could result in electromagnetic interference.

Armow Wind is consulting with applicable stakeholders in accordance with The Radio Advisory Board of Canada (RABC) and the Canadian Wind Energy Association's (CanWEA) *Technical information and Coordination Process between Wind Turbines and Radiocommunication and Radar Systems* (2010). Stakeholders, as determined by the mandatory contact list outlined in the above noted guideline have been consulted to determine if any radio communication or radar system concerns associated with the Project arise. To date, no concerns have been raised.

FLASHING LIGHTS

Question/comment # 22 – You would like to know if SP Armow has been in discussion with Enbridge regarding shielding of aviation safety lighting required on some turbines.

Yes, we have been in contact with Enbridge and look forward to continued discussions regarding potential mitigation options available.

STRAY VOLTAGE

Question/comment # 23 – Please explain what SP Armow refers to as “farm wiring practices”.

Farm wiring practices refers to the manner in which barn equipment is connected to the Hydro One distribution network and how it is grounded. These connections can have an influence on the occurrence of stray voltage.

Question/comment # 24 – Is the owner/developer of the Armow Project not responsible for ensuring safe electrical installations, be they performed by Hydro One or any other contractor?

It is ultimately the responsibility of Hydro One to address stray voltage issues that arise from their network. Currently, we are not anticipating any pole sharing at the distribution level with Hydro One and so do not expect any stray voltage issues to arise as a result of the construction of this Project.

Question/comment # 25 – Concern that stray voltage is not being adequately addressed by Hydro One or Enbridge for the Enbridge Wind Farm and will SP Armow employ a qualified consultant if a case of stray voltage is alleged.

The electrical design of the Project will comply with all applicable electrical design and safety codes. If there is an instance in which a component of the Project does not perform as designed, we will undertake an investigation to determine the cause and severity. Investigations will be undertaken by a qualified professional.

Question/comment # 26 – Will Hydro One act as a sub-contractor to SP Armow and SP Armow include these costs within their project budget. If not, will Hydro One provide the work at no charge to SPAWO, therefore relying on the Ontario taxpayer to foot the bill? Who is ultimately responsible for the work to be done in a qualified manner. Who will oversee this work?

Interconnection to the Hydro One network at the 230kV transmission line will be at the cost of the Project. Hydro One will be responsible for interconnection engineering; however, the project will bear the costs of this engineering and ensuing installation.

Question/comment # 27 – Who will be the contractor responsible for substation construction?

We have not yet selected our construction contractor for the substation, or any other portion of the Project. Selection of the construction contractor will commence over the next few months.

Question/comment # 28 – Describe the testing that will be done relative to EMF pollution and subsequent reporting.

EMF testing is not typical of wind farms or transmission line projects that employ high voltage transmission lines with higher levels of associated EMF than will be generated by this Project. In Canada there are no compliance levels established for EMF levels against which to assess any measurement.

EFFECTS ON GROUNDWATER AND WELLS

Question/comment # 29 – Concern regarding adjacent wells from sedimentation, particularly if piles are required during construction.

As wells are typically located near a residence, the minimum 550 m setback from a non-participating receptor typically means that wells are not located close to turbines. In the unlikely event that a landowner experiences sedimentation in their well during construction, SP Armow will have the well investigated by a qualified professional to determine if the sediment is a result of Project construction.

TREE PRESERVATION

Question/comment # 30 – Will you replace trees that necessitate removal with similar aged trees?

The majority of construction along county roads will occur in the road right-of-way for the construction of electrical distribution lines and will not require tree removal. Where access roads are proposed from county roads, Armow Wind has sought to minimize any disturbance to trees in consultation with landowners. Armow Wind is also considering a tree

preservation and replacement program and will develop this plan as the Project progresses. Armow Wind has also sponsored the Penetangore Watershed Group which is involved in tree planting activities with local schools.

EMERGENCY RESPONSE/PROTOCOLS/ACCIDENTS

Question/comment # 31 – Suggestion that a 24/7 contact number(s) be issued in the form of a reference card to each and every household within the Armow Project and that replies must be received within the next hour or within minutes of an emergency.

The communication plans are in progress and will be finalized as the Project progresses. The Proponent is committed to establishing an ongoing dialogue with stakeholders, local community members, and Aboriginal communities throughout all phases of the proposed Project. For more information on proposed emergency and communication plans please see section 6.0 of the Design and Operations Report.

Question/comment # 32 – “Will you, aside from keeping a record of complaints in your database, send a confirmation copy to the complainant? Will you include this with section 6. as part of your REA approval documentation?”

As outlined in the Design and Operations Report, records of all complaints, actions taken and communications with the MOE will be kept in the communications database. Records of all complaints received during the consultation process of the Project are included in the Consultation Report that will be submitted to the MOE as part of the REA application.

Question/comment # 33 – “Will you supply, along with emergency response protocol information during construction and operations the, “Identification of and hazardous materials and copies of associated data sheets” to all households for their information and reference?”

The Project will comply with all Provincial and Federal regulations and if required will make material information data sheets.

Question/comment # 34 – Suggestion that warnings, including to participating landowners, are inadequate with regards to health effects with “emerging experience and peer reviewed scientific literature”.

Please see previous answers to question #4 and #6.

Question/comment # 35 – “Will you also be posting warnings in regard to ice throw? Could some of the distances where falling ice might pose a danger be within the property line of non-participating residents?”

During the operation of the Project, sensors located on the turbines can detect ice formation and turbines will be shut down if this occurs. Additionally, the Project will be monitored on-site and by a remote operations center 24/7. With these mitigation measures in place, ice throw is not anticipated to pose a danger to human health.

Question/comment # 36 – Concern that the Project will negatively impact residents with no demonstrated benefit to the community or Ontario.

We respectfully disagree based on previous answers that the Project will negatively impact residents. We also disagree that the Project will not benefit the community. In addition to tax revenues generated by the Project, SP Armow has already demonstrated a willingness to be a partner in the community and has sponsored several community events. Furthermore, increased tax revenues and the injection of additional income for participating landowners, will not only assist participating landowners, but has potential for spin-off benefits in the local community.

There are many facets to the benefits of including renewable energy, specifically wind, in the Province's (or any jurisdiction's) energy supply portfolio. Existing power sources provide strong base load generation, more intermittent sources, such as wind, can complement the base load by supplying variable generation to meet the ups and downs of demand. This creates a more stable and reliable electrical grid for the province. Further, because wind is an inexhaustible resource, wind turbines do not use any scarce resource as a fuel and, if properly maintained, take advantage of free energy that is generated by the wind anyway.

Question/comment # 37 and the Ministry of Tourism, Culture and Sport on the Project. The Project has received confirmation letters that the Natural Heritage Assessment, Archaeological Assessment, and Heritage Assessment fulfill Ministry standards and guidelines. All reports submitted as part of the REA application will undergo a thorough technical review by the Ministry of Environment. Your comments and our response will be included as part of the Consultation Report which will also be reviewed by the Ministry of the Environment.

We hope that the above responses have answered your specific questions. We appreciate your interest in the Project.

Sincerely,

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4. Canadian Federation of University Women: Letter and Response

MORATORIUM, RESEARCH AND NATIONAL REGULATIONS NEEDED FOR THE SITE PLACEMENT OF INDUSTRIAL WIND TURBINE DEVELOPMENTS

Proposed by CFUW Kincardine

RESOLVED, That the Canadian Federation of University Women (CFUW), Kincardine chapter, strongly urges all levels of government to institute a *moratorium* on the construction of industrial wind turbine developments until such time that evidence-based, impartial, *scientific research* has identified issues relating to site placement, human health, the environment and economic efficiencies, resulting in the development of national, uniform *standards and regulations*.

BACKGROUND

As residents of a thriving agricultural community located along the shoreline of the Great Lakes ecosystems, we are concerned about the rapid and uncontrolled growth of the industrial wind turbine developments. The locations of the industrial wind turbine industry in prime farmland and fresh water lakes have raised concerns about health, environmental and economic consequences. These issues have implications throughout Canada and the world.

Industrial Wind Turbines and Human Health

Numerous side effects have been reported after the development of industrial wind turbines with setbacks that are too close to residences. The term “setback” is defined as the plan distance separating the center of a dwelling (receptor) and the base of the closest wind turbine (Environmental Protection Act Ontario 2009, p.1, 2). The provincial government has determined that minimum setbacks are 550 metres. In her report (May, 2010, p.10) Dr. Arlene King, Chief Medical Officer of Health of Ontario, identifies that “sound measurements at residential areas around wind turbines...is a key gap that could be addressed.” Presently there is a dearth of scientific research regarding health impacts of people living close to industrial wind turbine projects.

Dr. Robert McMurtry (former assistant deputy minister of Population and Public Health Branch of Health Canada) believes that wind energy may offer a cleaner way to generate electricity, but some people who live near the giant wind turbines are suffering through serious health problems such as headaches, heart palpitations, hearing problems, stress, anxiety, depression, acute hypertensive episodes and atrial fibrillation (abnormal heart rhythm). He informed a government committee that until rigorous epidemiological studies of the health effects of wind turbines, Ontario should not go ahead with any further construction of wind turbines. (McMurtry, 2010). In addition, there are no health studies on the effects of low frequency noise and stray voltage on infants, babies, pregnant women and livestock living in proximity to industrial wind turbines.

The Grey-Bruce Medical Officer of Health, Dr. Hazel Lynn, believes the setbacks for wind turbines should be longer and that within buildings, Low Frequency Noise (LFN) which comes from wind turbines, could cause health effects. She contends the effects would be less if the setbacks were longer than the provincial setback of 550 metres. Dr. Lynn adds that symptoms are the same around the world but the problem is that little is known about wind turbines. European research is ahead of that being done in Canada and minimum setbacks there are between 1.2 and 1.5 km. (Jankowski *et al*, 2010).

Responding to public concerns about health effects caused by industrial wind turbines, The Board of Health for the Grey-Bruce Health Unit (2010, p.1), passed a resolution “that the Medical Officer of Health investigate initiating a study to examine the effects the installation of Industrial Wind Turbines in close proximity to residential homes, or residential areas, has had on residents in Grey-Bruce Counties.”

In her report (Jan. 21, 2011, p. 2, 3) Dr. Hazel Lynn, stated that “to dismiss all these people as eccentric, unusual or as hyper-sensitive social outliers, does a disservice to constructive public discourse...We cannot pretend this affected minority does not exist.”

As industrial wind turbines become taller and larger, the old setbacks of 550 metres from a receptor are not appropriate. Larger turbines require longer setbacks. The Ontario Ministry of the Environment has determined that there is no single setback that can accommodate all the variables of a wind turbine project design as well as the compliance with noise limits. (Environmental Protection Act, 2009, Section 47.3 (1) p.2). Scientific research is needed to determine more appropriate setbacks and geographic locations for industrial wind turbine developments in Ontario and across Canada.

Due to public concerns about health related issues from industrial wind turbines forcing people to leave their homes because of stray electrical voltage and low frequency noise, Mayor Twolan and the municipal government in Huron-Kinloss, Ontario have taken the lead to request the local health unit to initiate a study and make recommendations (Huron-Kinloss, Resolution 318, 2010).

Dr. Nina Pierpont, MD, PhD, New York has been studying Wind Turbine Syndrome (WTS) for the past five years and has discovered a list of symptoms experienced by many people living near industrial wind turbines: sleep disturbance, headache, tinnitus, ear pressure, dizziness, fainting sensation, vertigo (sensation of spinning or room moving), nausea, visual blurring, rapid heart rate, irritability, problems with memory or concentration and panic episodes (Martin, 2010).

Professor Mariana Alves-Pereira, Dept. of Environmental Sciences and Engineering, New University of Lisbon, Caparica, Portugal has been studying the pathophysiology of low-frequency noise and infrasound to conclude that whole-body vibroacoustic disease (VAD) can occur over years of exposure to low frequency (LF) noise resulting in stroke, epilepsy, suicide and rage reactions (Alves-Pereira, 1999). Wind farm noise emission criteria or standards are not consistent and may vary even within a particular country (Kamperman *et al*, 2009). The National Academy of Medicine in France has recommended halting wind turbine construction closer than 1.5 km. from residences due to harmful effects on human health (Gueniot, 2006). The problem is that noise affects the whole body and not just the auditory system. Unbiased scientific research is needed to determine appropriate setbacks.

Dr. Sarah Laurie MD, medical Director of the Waubra Foundation, Australia believes that there is mounting evidence across the world that wind turbines cause major health problems forcing some people to leave their homes, farms and livelihoods as they can no longer work their land. Others are unable to leave, as their main asset, their house and land becomes unsaleable (Wind-Watch, 2010).

In the beginning, asbestos products, cigarettes, second hand smoke and lead paint were considered to be safe however, through scientific research and human illness, they were proven detrimental.

Lessons Learned About the Economic Realities of Wind Turbines

Information about the high cost of wind turbine generated power was initially brought to public attention by special interest groups and the media. However, concerns about the costs associated with the operation of industrial wind turbines are gradually becoming validated by scientific studies (Fox and Gallant, 2011; Vandenberg, 2011). Although much of the information about power costs relates to the current situation in Ontario, it is important to note that similar issues have been identified in Europe. For example, in Holland, the government recently announced that it cannot afford to continue producing wind powered electricity (Sekularac, 2011).

The building and operation of wind turbines create immense financial liabilities for consumers and these are reflected in significantly higher electricity bills (Gallant, 2010; Corcoran, 2011) and debt retirement charges (Trebilcock, 2010). It is estimated that the cost of electricity in Ontario has risen 65% since 1999 and it is expected to rise another 46% by 2015 (Corcoran, 2011). Jim McCarter, the Auditor General of Ontario, in his Annual Report (December 2011), indicated that “green electricity” (including wind turbines) would add \$220 million to hydro bills. The cost of building additional transmission lines to transport electricity from rural wind turbines to urban areas is expected to be in excess of \$5 billion (Stelling, 2010). Further scientific research would result in uniform and standard policies for electricity production and more effective use of tax dollars.

Wind power is more expensive to produce than other forms of power. Based on present 10-20 year contracts, the wind power producers are guaranteed fixed rates of payment between 13-19 cents per kilowatt hour, whether the power is needed or not. Since excess power cannot be stored, it is sold to other areas (usually the United States) at discounted rates, meaning consumers are actually subsidizing power that is sold elsewhere (Gallant, 2010; Trebilcock, 2010). Alternatively, nuclear energy costs the consumers 5-6 cents per kilowatt hour and hydro generated power costs 4.5 cents per kilowatt hour (Trebilcock, 2010).

The disposal of wind turbines can be problematic when the contracts end. The extrication and disposal of wind turbines is expensive and creates significant waste in landfill sites. In Denmark, wind turbines that were expected to last 20 years are only lasting 10 years, meaning that each tower is dismantled, scrapped, replaced and re-subsidized sooner than anticipated. In comparison, conventional power plants have working lives of 40-60 years (Stelling, 2010).

The operating efficiency of wind turbines is seldom above 30% and more often is closer to 20% of capacity (Wakefield, 2010). Industrial wind turbines are particularly inefficient during hot summer weather when power is needed for air conditioning. Conversely in cold climates, ice build up accelerates deterioration.

Some emerging evidence indicates that the location of wind turbines adjacent to residential or agricultural property significantly depresses property values. Research would further identify issues relating to property values and site placement of industrial wind turbines.

Michael Trebilcock LLB, LL.M. a law and economics professor at the University of Toronto, summed up the problem in the Financial Post on March 6, 2010, p.5 "Before mortgaging its long-term future by awarding hundreds more 20 year fixed price contracts to wind developers, the province of Ontario urgently needs an independent, objective, expert investigation...regarding the prospective economic, environmental and employment effects of wind power and other renewable energy policies."

Impacts of Industrial Wind Turbines on the Environment: Land and Fresh Water Locations

Many scientists have expressed the need for further investigation into the effects of industrial wind turbines on wildlife, farm animals and the ecosystems. In Ontario, the Ministry of the Environment (MOE) regulates a setback of only 5 km from the shoreline. The low frequency vibration produced by industrial wind turbines travels for dozens of km over water because of the close proximity of vapour molecules. The MOE has also restricted the increase of cyclical sound to 5 decibel. The turbulence of the lake water adds significantly to the decibel levels created by the wind turbines, thereby exceeding the 5 decibel increase in sound reaching the shoreline. To protect humans living near the shoreline from the effects of low frequency vibrations, a 60 turbine project must be located beyond 20 km from the shore (Boue, 2010). Sound pollution created by wind turbines interferes with communication within wildlife species, and for those that rely on echo-location such as bats (Dr. Scott Petrie, May 2010).

The Great Lakes make up the world's largest freshwater lake system providing 18% of the planet's supply of water. With over 36 million people living in the Great Lakes Basin, it is the most densely populated coastal area on the continent. Many people obtain drinking water from the Great Lakes which are also important for recreational and aesthetic purposes. Vibrations caused by the construction and operation of wind turbines could disturb toxic sediments (PCBs, dioxin, mercury) and contaminate the drinking water (Lombardi, 2009). This vast ecosystem also supports a varied and important population of wildlife. Lake Erie has the greatest diversity of migratory bird species in the Great Lakes, with 50,000 pairs of waterfowl breeding in the region. Lake Huron has one of the largest populations of indigenous waterfowl. Bruce Peninsula and southern shores of the lake provide important staging areas (where they stop to rest and forage) for migratory waterfowl, shorebirds, eagles and songbirds. Industrial wind turbines located in the vicinity of historical migration routes, present mortal hazards to migrating birds (Stelling, 2008).

The Lake Huron Centre for Coastal Conservation encourages all levels of government in Canada to conduct independent studies to ensure that any offshore wind projects do not compromise the nation's natural heritage assets of water and biodiversity (Peach, G., Pearson, M., 2010). The Species at Risk Act, (SARA) is a Canadian federal law which requires that critical habitat on federal lands or aquatic species anywhere, be legally protected. There are at present, 26 birds, native to the Great Lakes region listed on the Species at Risk Registry (SAR) as being threatened, endangered or of special concern. There are also numerous reptiles, butterflies and mollusks which are identified as at risk by SAR (SARK: Government of Canada, 2004). We have a legal and moral obligation to protect these species and their habitats.

Ducks Unlimited Canada, has asked the Ontario Government to establish a moratorium on wind turbines in areas of wildlife habitat and migratory routes until scientific monitoring and the approval process have been researched. Worldwide plans for the installation of 3.5 million wind turbines will cause the extinction of many bird species. Mark Duchamp, president of Save the Eagles International (STEI), believes that while other threats cannot be easily stopped, poorly-sited wind turbine projects can. The Spanish Ornithological Society recommends that wind turbines no longer be built in natural areas, but in urban and industrial areas instead. Duchamp revealed that bird mortality caused by wind turbines was much higher than previously thought. For the Spanish region of Castilla La Mancha, STEI estimates 1.3 million birds are killed by wind turbines a year. Many birds, such as the Imperial Eagle, the Bonelli's Eagle or the Lesser Kestrel, are in danger of extinction. STEI concludes that this considerable number proves that wind turbines have a great capacity for killing. To save birds from this new threat, it is urgent to impose a moratorium on wind turbine construction and to call for a totally independent commission to investigate the effectiveness of this intermittent, unreliable and destructive form of energy (Duchamp, 2011).

The Great Lakes are a closed system with a very slow retention time (the time required for a substance added to the system to flow out). The average retention time for Lake Huron is 22 years, which makes it especially vulnerable to pollution and subject to major, potentially long-lasting damage (Great Lakes Information Network, 2005). The construction and operation of wind turbines in the Great Lakes, creates the possibility of introducing contaminants such as oil and other lubricants into the delicate ecosystem. Each turbine contains hundreds of litres of lubricating fluids which could leak into the ecosystem over decades. There are many opportunities for mishaps to occur during the construction, operation and decommissioning of the turbines.

The braking system of a wind turbine is designed to prevent the vanes from turning too fast in excessively strong winds. However there are examples of the braking system failing, causing the wind turbines to blow apart and scatter rotating metal, hundreds of meters (Nordtank, 2001). In Europe, the underwater foundations of turbines were found to have a design fault that caused the towers to slide on their bases. There are also numerous examples of lightning strikes, turbine fires and ice buildup causing the collapse of wind turbines. The construction of underwater transmission cables destroys the habitat and leads to displacement of flora and fauna of the lake-bed which has detrimental effects on the food chain. A malfunction of the high voltage underwater cables could result in dangerous levels of electricity in the water, harming wildlife and humans. Industrial wind turbines leave massive environmental effects on fragile ecosystems on land and in freshwater locations.

Recently, Bob Runciman, Canadian Senator, presented a motion that was unanimously endorsed by the Senate, to declare a moratorium on wind energy projects due to environmental concerns (Hendra, 2011).

It is evident that there is a need for independent research to determine placement of industrial wind turbines in locations that will be safe for wildlife and their habitats, farm animals as well as for humans.

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CFUW Kincardine, July 2012.

Summary of Background Information for the Resolution:

CFUW Kincardine supports Green Energy sources and the need for green technology, however, we do not support the existing process involved with the siting/placement of industrial wind turbine developments. There is a need for research so that negative effects on people, animals, the environment and the economy can be avoided.

This Resolution brings awareness of environmental issues that affect health, democratic principles and the rights of individuals. There is growing public concern because the developments seem to be driven by profit instead of research-based criteria.

Due to the lack of unbiased scientific research, our Resolution is requesting research so that fair and standardized national regulations can be created.

Our Resolution was based on the most credible sources we could find at the time we did the research. We included information from 33 different sites such as journal articles, authors, texts, research studies, anecdotal reports, internet sources and professional sources. Some of our sources include: Dr. Robert McMurtry (former Assistant Deputy Minister of Population and Public Health Branch of Health Canada), Dr. Hazel Lynn (Grey-Bruce Medical Officer of Health), the Environmental Protection Act, Canadian government websites, a Mayor, Dr. Nina Pierpont (MD PhD, New York), Prof. Mariana Alves-Pereira (Dept. of Environmental Sciences and Engineering, Portugal), Dr. S. Laurie (MD, Australia), Jim McCarter (Ontario Auditor General), Michael Trebilcock (LLB, LLM University of Toronto), Lake Huron Centre for Coastal Conservation, the Species at Risk Foundation, Save the Eagles International, and Bob Runciman (Canadian Senator). We included as much relevant information as possible in only 4 pages of documentation.

CFUW Kincardine has observed this issue evolve from a grassroots movement into world-wide concern and demand for more research into the effects of poorly placed industrial wind turbines. As the developments spread across Canada, they are becoming a national issue.

In the time since we completed our Resolution, The Registered Nurses' Association of Ontario (59,000 members) and The Ontario Federation of Agriculture (37,000 members) have also requested a moratorium on industrial wind turbine development. Most recently, in a press release (July, 2012, p. 1) David S. Michaud PhD, Principal Investigator, Health Canada, indicated that "Health Canada is working with Statistics Canada and other experts to design a research study to explore the relationship between wind turbine noise and the extent of health effects reported by, and objectively measured in, those living near wind power developments."

Aboriginal people are urging that they have the right to be included more in the initial consultation process. There are flaws in the current process that could be rectified by impartial scientific research and national standards.

There are no health studies on the effects of low frequency noise and stray voltage on infants, babies, pregnant women and livestock living in proximity to industrial wind turbines. We also have a moral and legal obligation to protect wildlife and their habitats from poorly sited wind turbine developments. This resolution is attainable through public awareness, education and political will.



SP Armow Wind Ontario LP
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Canada

November 8, 2012

RE: Canadian Federation of University Women, Kincardine chapter, Moratorium, research and national regulations needed for the site placement of industrial wind turbine developments

Dear Canadian Federation of University Women, Kincardine Chapter,

Thank you for your letter of September 16, 2012 outlining your group's position with respect to the Armow Wind Project (the Project). Please be informed that a second Open House for the Project is scheduled for November 12, 2012 from 5:30 p.m. to 8 p.m. at the Best Western – Governor's Inn located at 791 Durham Street, Kincardine and at the Tiverton Community Center located at 6 McKay Street, Tiverton. Also please be advised that the draft documents that will be submitted as part of the Renewable Energy Approvals application are available for your review on the Project website (www.armowwind.com). The potential adverse environmental effects that could result from the Project are assessed in detail in these reports. We welcome an opportunity to discuss any questions or concerns that you may have regarding the Project.

Below, please find responses to your concerns outlined in your letter (September 16, 2012). To address all of the concerns raised in your letter, the follow responses are organized by sub-headings.

Industrial Wind Turbines and Human Health

Potential Human Health Effects

As documented on the Ministry of the Environment's website (www.ene.gov.on.ca), Ontario's Chief Medical Officer of Health conducted a review of possible health impacts of wind turbines in a response to public concerns. This review stated that, "the scientific evidence available to date does not demonstrate a direct causal link between wind turbine noise and adverse health effects". The sound level from wind turbines at common residential setbacks is likely not sufficient to cause hearing impairment or other direct health effects. Proposed wind facilities within the Province of Ontario must adhere to the Regulatory requirements regarding noise which are consistent with World Health Organization noise limits.

Setbacks

SP Armow Wind Ontario is working with the Ad Hoc Municipal Council Committee to understand the intent of the Kincardine Wind Generation System Development Policy, which includes site provisions for setbacks, in Project planning. Our discussions have allowed for a working level understanding of both sides of the issue, which has been considered in our proposed layout.

Noise

A Noise Study Assessment and Report was prepared by Germanischer Lloyd Garrad Hassan (GL GH) and found that all Points of Reception are compliant with MOE Noise Guidelines. The Regulatory requirements are consistent with the 2009 World Health Organization outdoor night noise limit of 40.0 dBA.

Stray Voltage

The Project must adhere to all appropriate electrical and distribution codes to minimize the occurrence and effects of stray voltage. The potential for stray voltage is not unique to wind power facilities. Hydro One has standards and procedures in place to address or occurrence of stray voltage for both on-farm and off-farm sources. Operations staff will also be available to address any concerns on stray voltage that may result from the Project.

Wind Turbine Syndrome

Dr. Nina Pierpont's publication regarding Wind Turbine Syndrome has not been published in peer-reviewed journals and has not been technically validated. In addition, her results and opinions are not supported by scientists who specialize in acoustics, low frequency sound and related human health impacts. The Canadian Wind Energy Association (CanWEA) has compiled a list of articles and publications on the subject from reputable sources in Europe and North America and are available at (http://www.canwea.ca/media/release/release_e.php?newsId=37)

Economics and Wind Turbines

Economic Benefits to Communities and the Province

This was not mentioned in your letter but we feel it is important to note that wind farms provide a new source of tax revenue for local municipalities, which will benefit the entire community. Additionally, the manufacturing, construction and operations jobs that will be created by these projects will strengthen the economy of the province and create further opportunities for economic development.

The Cost of Wind Turbine Generated Power

A recent study conducted by GL GH in the province of British Columbia found that wind turbine prices have dropped by 20 per cent since 2009 while at the same time the productivity of turbines has increased by as much as 27 per cent. The full report is available at (http://www.canwea.ca/pdf/Assessment_Est-Cost-of-Wind-Energy_BC.pdf)

Impact on Electricity Bills

A recent study conducted by Tim Weis and P.J. Partington titled "Behind the Switch: Pricing Ontario Electricity Options" (2011) found that the Green Energy Act has little or no impact to Ontario ratepayers. The reasons behind this were that currently planned renewable resources would have to be replaced with other options which would likely work out to be more polluting, less sustainable and in the long-term more expensive. Another important point raised in this study is the increased cost of continuing to use coal plants, notably to the health care system. Further discussion about this study as well as a link to the study itself is available at (<http://www.pembina.org/blog/556>).

Cost of Decommissioning

Any financial burden associated with the decommissioning of turbines is the sole responsibility of SP Armow Wind. Further details regarding decommissioning activities can be found in the draft Decommissioning Plan Report found on the Project website (www.armowwind.com).

Property Values

A report on property values was completed by Canning Consultants Inc. & John Simmons Reality Services Ltd. (2010). They found in Chatham-Kent, where wind farms were clearly visible, that there was no empirical evidence to indicate that rural residential properties realized lower sale prices than similar residential properties within the same area that were outside the view shed of a wind turbine. Their entire report can be viewed at: www.canwea.ca/pdf/talkwind/PropertyValuesConsultingReportFebruary42010.pdf.

The RE/MAX Market Trends Report, Farm Edition 2012 found that agricultural land values continue to rise, specifically mentioning the county of Bruce as having impressive gains over 2011 (which also saw values rise from 2010). The full report can be viewed at: <http://www.remax.ca/miscellaneous/REMAX%20MEDIA%20REPORTS/FARM%20REPORT%202012/REMAXFarmRpt2012.FNL.pdf>.

The above is supported by a comprehensive analysis by the US Department of Energy's Lawrence Berkeley National Laboratory found that proximity to wind energy facilities does not have a pervasive or widespread adverse effect on the value of nearby homes. Researchers examined 7,500 single-family property sales between 1996 and 2007, covering a time span from before the wind farms were announced to well after construction and operation.

Further, the Municipal Property Assessment Corporation (MPAC) recently released a newsletter (Summer 2012) that indicates that neither a positive or negative impact on property values can be attributed to wind turbines either abutting or in proximity to that property. This newsletter can be found at:
<http://www.mpac.ca/pdf/MPACNewsSummer2012.pdf>

Potential Environmental Impacts

Potential Impacts on Wildlife, Farm animals and Ecosystems

In keeping with Section 23 through Section 28 of O. Reg. 359/09, as amended by O. Reg 195/12, SP Armow Wind has prepared an environmental effect monitoring plan as well as a natural heritage assessment. This assessment included site investigations which followed the Ministry of Natural Resources' prescribed methods for identifying significant wildlife. The results of these efforts are that significant adverse effects from the construction, operation and decommissioning activities have been minimized through careful facility layout planning, the application of appropriate mitigation measures, and adherence to all regulatory requirements.

The Natural Heritage Records Review Report, the Site Investigation Report, the Evaluation of Significance Report, the Environmental Impact Study, the Water Body Records Review Report, Site Investigation Report, as well as the Environmental Impact study are all available for your review on the Project website (www.armowwind.com).

We appreciate your interest in the Armow Project and look forward to discussing further with you.

Sincerely,



Brian Edwards, Project Developer
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55 Standish Court
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5. Other Stakeholders: Letter and Response

To whom it may concern,

My wife and I moved from the town of Kincardine to the Glammis area in August 2011 after we did some research on the locations of wind turbines within the Municipality. We were thrilled to learn that if we found a home we liked within 2.75KM of the Hamlet of Glammis or Armow we would not have to worry about living close to any wind turbines as the Municipality of Kincardine Planning and Development Policy PD.1.9 was passed on April 13, 2011 with that stipulation.

In August 2012, only a year after we moved into our new home, we received a site plan report in the mail from the Armow Wind Project. We were stunned to learn that not only were there turbines planned on being placed within said setbacks from the Hamlets of Glammis and Armow, but also that one was planned to be placed behind our home.

I immediately contacted the Project Developer, and the Project Manager of the Armow Wind Project to find out why it was not following the Municipality of Kincardine's Policy PD.1.9. I was told by the Armow Wind Project worked with the Municipal Planning Department and the Ad-Hoc Committee where it was decided that the project would adhere to the setback of 2.75KM from the Lakeshore and Tiverton but choose not to adhere to it in regards to Glammis and Armow (which are also named in the policy as they did not want to exclude any landowners).

Needless to say I was shocked to hear this explanation. Firstly, the Municipality of Kincardine and the Armow Wind Project has put the wants of a few landowners over and above the wants of hundreds of landowners and moreover above the home owners in the Glammis and Armow area. Secondly, and more outrageous was that the Municipality of Kincardine has protected its people that live close to the Lakeshore and Tiverton but has in essence not protected the people that live within the same setbacks around Glammis and Armow. This seems as if the people living around Glammis and Armow do not have the same rights within in the Municipality of Kincardine.

Every home owner and land owner within the Municipality of Kincardine pays the same tax rate, so how can some areas be overlooked and forgotten while others are protected under the Municipal policy PD.1.9.? Do the people of Glammis and Armow not matter to the Municipality of Kincardine? This Municipality has essentially turned neighbours against neighbours and towns against towns. Anyway you look at it this is an obvious injustice in our community.

I could go on about concerns I now have in regards to these Industrial Wind Turbines; safety, visibility, noise, wildlife, devaluation of homes and lands, however I want to underline the issue of health concerns first and foremost. In response to all the pressure of health concerns from industrial wind turbines, Health Canada and the Ministry of the Environment have begun a health study in Bruce, Haldimand, and Norfolk counties, among other areas. This study is independent from government and the wind companies. Therefore until said study is complete and its findings released, placing more turbines close to people's homes simply does not make any sense anywhere in Ontario or Canada.

The Ripley Wind Project has already had to purchase people's homes due to health concerns, and to put more wind turbines close to people's homes around Glammis and Armow after Policy PD.1.9 was adopted is a gross injustice by the Municipality of Kincardine whom are ultimately charged with the protection of all the citizens that live here.

When health concerns and real estate prices drop after these turbines are erected in and around Glammis and Armow, I wonder if the Municipality of Kincardine is going to do anything for these people. My guess would be likely not; as it is blatantly obvious the Municipality does not care about its citizens that call these locations home.

If we the people of the Municipality of Kincardine cannot stand together as a whole and unified community then all is lost. The voices of the people of Glammis and Armow must be heard as equal to others in our community.

The only right decision is clear; adhere to the Municipal policy PD.1.9 that was adopted to protect the people of Kincardine that live close to Industrial Wind Turbines. It was adopted in 2011 in response to the mistakes made when the first turbines were erected, and not to follow it would be criminal.

In writing this letter it is my hope that the voices of the people of Glammis and Armow are heard, that something is done to protect these people and their homes, and ultimately that the desire for more industrial wind turbines is not put before human life and safety.

Sincerely,





SP Armow Wind Ontario LP
322 Lambton Street
Kincardine, Ontario N2Z 1Z1
Canada

November 8, 2012

RE: Site Plan Report SP Armow Wind Project

Dear [REDACTED]

Thank you for your letter of August 2012 outlining your concerns and questions regarding the Armow Wind Project (the Project). Please be informed that a second Open House for the Project is scheduled for November 12, 2012 from 5:30 p.m. to 8 p.m. at the Best Western – Governor's Inn located at 791 Durham Street, Kincardine and at the Tiverton Community Center located at 6 McKay Street, Tiverton. Also please be advised that the draft documents that will be submitted as part of the Renewable Energy Approvals application are available for your review on the Project website (www.armowwind.com). The potential adverse environmental effects that could result from the Project are assessed in detail in these reports. We welcome an opportunity to discuss any further questions or concerns that you may have regarding the Project.

As we have discussed previously many of the concerns that you raised in your August 2012 letter over email, we'd like to provide some feedback on the health concerns that you raised.

As documented on the Ministry of the Environment's website (www.ene.gov.on.ca), Ontario's Chief Medical Officer of Health conducted a review of possible health impacts of wind turbines in a response to public concerns. This review stated that, "the scientific evidence available to date does not demonstrate a direct causal link between wind turbine noise and adverse health effects". The sound level from wind turbines at common residential setbacks is likely not sufficient to cause hearing impairment or other direct health effects. Proposed wind facilities within the Province of Ontario must adhere to the Regulatory requirements regarding noise which are consistent with World Health Organization noise limits.

The Canadian Wind Energy Association (CanWEA) has compiled a list of articles and publications on the subject from reputable sources in Europe and North America and are available at (http://www.canwea.ca/media/release/release_e.php?newsId=37).

Regarding the announced Health Canada study, it is important to note that, during the study period, Health Canada has not encouraged or supported a moratorium on wind projects.

We appreciate your interest in the Armow Project and look forward to discussing any questions or concerns that you may have regarding the Project further with you.

Sincerely,

Brian Edwards, Project Developer
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Comments
on the
Noise Impact Assessment for the Armow Wind Project
(Document #: 800235-CAOT-R-01, Issue C, Final)

1. According to page 5 of the Noise Impact Assessment, the turbines being used for this project are the Siemens SWT-2.3-101 and they have a Rated Power output of 2.3 MW. The acoustic emission at the rated output for these turbines is stated to be 106dB(A) on page 7 of the report.
The MOE Noise Guidelines for Wind Turbines (PIBS 4709e) Section 6.4 states "The noise assessment must represent the maximum rated output of the Wind Farm". This means that the noise calculations should be based on the "rated" capacity of the turbines and not on values that the turbines are limited to.
Therefore the noise calculations should be based on a noise emission of 106dB(A) for each turbine. This would increase the calculated noise levels for most of the receptors above MOE Noise Guidelines.
2. The MOE Noise Guidelines for Wind Turbines (PIBS 4709e) Section 6.4 states "The noise assessment must represent ... and reflect the principle of "predictable worst case", Publications NPC-205 and NPC-232, ..."
 - a. According to ISO 9613 and Section 6 of the Noise Impact Assessment, the accuracy of the noise calculations is estimated to be $\pm 3\text{dB(A)}$. If you follow the principle of "predictable worst case" then you must add 3dB(A) to the noise calculations for each receptor due to the fact that the calculated values could be 3dB(A) too low. This would again increase the calculated noise levels for most of the receptors above the MOE Noise Guidelines.
 - b. According to ISO 9613 the accuracy of $\pm 3\text{dB(A)}$ for the noise calculations is only an estimate and therefore could be even be higher. The least that should be done is to add 3dB(A) to the noise calculations as in 2a above. Does this mean that the noise levels could exceed the MOE Noise Guidelines for all receptors?
 - c. The Ground Attenuation Factor used in the Noise Calculations is stated in Section 6 of the Noise Impact Assessment to be 0.7 which assumes a porous ground with vegetation. In the Spring, Fall and especially Winter the ground is frozen, covered with snow and ice and there are no leaves on trees to absorb the noise. The Ground Attenuation Factor should therefore be set closer to 0.0 in order to comply with principle of "predictable worst case" as required in the MOE Noise Guidelines.
This could again increase the calculated noise levels for most of the receptors above the MOE Noise Guidelines.
3. The Turbine locations on the maps in the Noise Impact Assessment for the Armow Wind Project do not agree with GPS Coordinates listed in Appendix F of the same report. The noise calculations could therefore be inaccurate and exceed the MOE Noise Guidelines for a number of Receptors.
4. There is one Receptor in the Armow Wind Project with a turbine closer than 400M but in the Noise Impact Assessment table it's listed as having the nearest turbine more than 800M away. Also, the nearest Turbine number listed does not match the number of the actual nearest Turbine. Are there any more Receptors with the same problem?



SP Armow Wind Ontario LP
322 Lambton Street
Kincardine, Ontario N2Z 1Z1
Canada

November 30, 2012

**RE: Comments on the Noise Impact Assessment for the Armow Wind Project
(Document #: 800235-CAOT-R-01, Issue C, Final)
Dated November, 2012**

Dear

Thank you for your letter dated November 2012, outlining noise-related concerns the Armow Wind Project (the Project). Responses to your questions are provided below. The responses have been numbered to correspond to your numbered questions. The responses are a joint effort between SP Armow Wind Ontario LP, as the Project developer, and our noise consultants GL Garrad Hassan.

Response #1:

The Armow layout consists of six variants of the SWT-2.3-101 turbine. The table below, based on Table 4-1 of the Armow Noise Impact Assessment (NIA) [1], shows how many of each variant are in the layout, the rated power of each variant, and the peak sound power level of each variant.

Noise reduced operation summary – Siemens SWT-2.3-101

Rated power output [MW]	Number of turbines	Peak Sound Power Level [dB(A)]
1.824	15	101
1.903	57	102
2.030	5	103
2.126	7	104
2.221	7	105
2.3	7	106
Total	98	

As can be seen in the table above, each of the highlighted noise reduced turbine variants has a rated power output less than 2.3 MW, and a corresponding Peak Sound Power Level lower than the 2.3 MW version of the turbine. The noise calculations in the NIA are based on each turbine's sound power level at the turbine's rated output. The maximum rated power output of the Project, 194.4 MW, is the sum of the rated output of each turbine. A summary of the turbine IDs and associated Peak Sound Power Level [dB(A)] can be found in Appendix F of the revised NIA.

Response #2:

A) and B)

ISO 9613-2 [2] specifies an engineering method for calculating the attenuation of sound during propagation outdoors in order to predict the levels of environmental noise at a distance from a variety of sources. In ISO 9613-2, the accuracy of the method is estimated to be ± 3 dB(A).

The MOE document "Noise Guidelines for Wind Farms" [3] specifies 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 the standard ISO 9613-2. The Armow NIA has followed the ISO 9613-2 method and checked that the sound level at each receptor location is compliant with the sound level limit for receptors in a Class 3 area, as described by "Noise Guidelines for Wind Farms" [3]. GL GH has calculated sound pressure levels in respect of the Project using CadnaA software which is an implementation of ISO 9613-1 and ISO 9613-2 [1]. Given the conservative nature of the assumptions incorporated here, the probability of the overall noise simulation being underestimated is reduced.

The conservative assumptions made as part of the Guidelines [3], and included in the noise modelling completed in respect of the Project, include:

- Receptors are always downwind (as described in ISO 9613-2);
- No attenuation due to foliage, trees or obstacles (referred to as Afol in ISO 9613-2);

- Temperature and humidity settings are favourable to propagation;
- Propagation under a well-developed moderate ground-based temperature inversion, such as commonly occurs at night during the summer; and
- When windy, the ambient noise may be louder than the sound generated by the wind turbine

There is a potential for uncertainty associated with modelled noise predictions, as is the case with any engineering model. The conservative assumptions used in the CadnaA software influence the uncertainty of the approach. Accounting for the conservative nature of the aforementioned assumptions, it is considered to be unlikely that a value generated by the CadnaA software in respect of the Project is significantly underestimated.

C)

The Guidelines specifies that a global value ground factor of 0.7 is appropriate. Parameters used in the noise modeling have been designed to provide clarity and consistency as well as reflect the principle of the “predictable worst case” noise impact [3]. The Project has followed the noise modeling methodology described by the MOE [3] and the ISO [2]. Further, as discussed above, the model used for the Project includes several conservative assumptions in respect of physical environmental impacts on noise propagation.

Response #3 and Response #4:

The errors in the NIA were limited to Table 7-2: Wind Turbine Noise Impact Assessment Summary – Participating Receptors and Appendix F only. The errors were compilation errors made during the formatting of the report as data was transferred manually from the sound analysis program to the Ministry of the Environment (MOE) prescribed templates. It is important to note that all sound analyses and maps presented in the NIA, and at the second public meeting, accurately reflect the GPS coordinates of the proposed turbine locations.

We are holding a Focused Information Session on December 11, 2012 from 6:00 p.m. to 8:00 p.m. at the Tiverton Community Center, 6 McKay St, Tiverton, Ontario. The Focused Information Session is to discuss the minor changes made to the NIA since the final open house held November 12, 2012. The revised NIA will also be made available on the Project website, at the Municipality of Kincardine and Bruce County offices, and at the Kincardine and Tiverton public libraries.

We hope that the above responses have answered your specific questions. The documents that are being submitted as part of the Renewable Energy Approvals application will be available for your review on the Project website (www.armowwind.com). We welcome an opportunity to discuss any questions or concerns that you may have regarding the Project.

Sincerely,

Brian Edwards, Project Developer
on behalf of SP Armow Wind Ontario LP
Samsung Renewable Energy Inc.
55 Standish Court
Mississauga, ON L5R 4B2
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Jody Law, Project Developer
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Toronto, ON M5H 3T4
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References

1. GL Garrad Hassan, July 2012. ArmowWind Farm Noise Impact Assessment, GL GH Document No. 800235-CAOT-R-01, Issue C.
2. International Organization for Standardization (ISO), 1996. Acoustics - Attenuation of Sound During Propagation Outdoors - General Method of Calculation. ISO 9613-2. 25 p.
3. Ministry of the Environment, October 2008. Noise Guidelines for Wind Farms, Interpretation for applying MOE NPC Publications to Wind Power Generation Facilities

Questions
Armow Wind



November 12, 2012

Section 09 – Noise Impact Assessment

1. There are 395 “receptors” within 1500 metres of a wind turbine, and 36 participants. Interesting to note that there are over 10 times as many impacted for each participant. Do you wish to comment on the justice of this?
2. The MOE Noise Guidelines for Wind Farms calls for the manufacturer’s sound levels to be adjusted by the average summer nighttime wind shear. All of the references in the tables for the sound limits for the Siemens turbines refer to a roughness of 0.05. This corresponds to a wind shear of 0.16. What is the average nighttime wind shear for the Armow Project, - please provide an example of how the wind turbine sound level was corrected for the average summer nighttime wind shear.
3. Which turbine locations are proposed for each of the 5 noise reduced modes. Can you please provide a worked example of how the noise at a typical receptor that is impacted by normal and noise reduced mode turbines was calculated?
4. Please identify how each wind turbine produces the reduced noise mode, and how evidence that each turbine claimed to be operating in noise reduced mode is actually doing so.
5. The impact of the Enbridge Wind Farm was calculated from the April 2006 noise assessment. This assessment was not corrected for average night time wind shear, and used a wind shear lower than the average night time wind shear that was identified during the OMB hearings. Can you please show how you corrected the Enbridge Wind turbine impact for average nighttime wind shear?
6. Similarly, the noise for the Enbridge Cruickshank wind turbines was not corrected for average nighttime wind shear in the submitted noise assessment. Please identify how the contribution from these has been corrected in the Armow Noise Impact Assessment.

Section 01 – Project Description:

1. Please identify the basis for the statement in 3.7.2.4 that a setback of blade length plus 10 metres provides a safe setback for ice throw, using examples of the distance ice is actually thrown from wind turbines – such as 100 metres for pieces of ice up to 12 inches x 12 inches x 2 inches from the 50 metre tall Tacke wind turbine with 21 metre blades, considering that the Amrow turbines have nearly twice the height, and blade length over twice as large.
2. Similarly, please provide an assessment that a setback of blade length plus 10 metres is a safe setback to protect against the throw of full or parts of wind turbine blades, considering the impact on an unprotected person on a public roadway. Comment specifically given the loss of a full blade on a similar Siemens turbine in Scotland.
3. Please provide an assessment of the maximum hours of shadow flicker at any receptor or any public roadway in the Amrow project.
4. In Section 3.7, please identify why Noise is not considered as an environmental contaminant, as it is identified as so in the Environmental Protection Act.

Section 10 – Wind Turbine Specifications

1. The specifications describe the wind turbine sound power level for a surface roughness of 0.05. Please identify the wind shear this roughness represents (I believe it is 0.16) and explain how you are correcting the sound power level for average summer sight time wind shear.
2. Please provide the value of average summer nighttime wind shear you have determined to apply for the Amrow Project. Please identify the range of nighttime wind shears observed in your monitoring.



SP Armow Wind Ontario LP
322 Lambton Street
Kincardine, Ontario N2Z 1Z1
Canada

November 30, 2012

RE: Questions – Armow Wind: Letter Submitted by William Palmer

Dear Mr. Palmer,

Thank you for your letter of outlining noise-related concerns the Armow Wind Project (the Project). Responses to your questions are provided below. The responses are a joint effort between SP Armow Wind Ontario LP, as the Project developer and our Noise consultants GL Garrard Hassan (GL GH).

Noise Impact Assessment

Q: (1) *There are 395 “receptors” within 1,500 metre of a wind turbine, and 36 participants. Interesting to note that there are over 10 times as many impacted for each participant. Do you wish to comment on the justice of this?*

R: Participating receptors are defined as receptors on parcels of land with Project infrastructure located on the land. In addition, there are a number of landowners that are supportive of the Project that cannot have infrastructure on their properties for a variety of reasons, involving setback requirements. The Project has been designed in accordance with all applicable setback requirements for both participating and non participating landowners.

Q: (2) *The MOE Noise Guideline for Wind Farms calls for the manufacturer’s sound levels to be adjusted by the average summer nighttime wind shear. All of the reference in the tables for the sound limits for the Siemens turbines refer to a roughness of 0.05. This corresponds to a wind shear of 0.16. What is the average nighttime wind shear for the Armow Project? Please provide an example of how the wind turbine sound level was corrected for the average summer nighttime wind shear?*

R: GL GH has followed MOE’s Noise Guidelines for Wind Farms (the “Guidelines”) [1], Section 6.2.3 of which states the following:

“The wind speed profile on site of the Wind Farm may have an effect on the manufacturer’s wind turbine acoustic emission data and, consequently, on the sound levels predicted at a Point of Reception. Therefore, the wind turbine generator acoustic emission levels must be consistent with the wind speed profile of the project area.

To address this issue, the assessment must use manufacturer’s acoustic emission data adjusted for the average summer night time wind speed profile, representative of the site.

The adjusted acoustic emissions data must be used in the noise impact assessment at each receptor. The manufacturer’s acoustic emissions data and the adjusted acoustic emission data used in the noise impact assessment must be tabulated in Table 3.”

GL GH has modeled the sound emitted by the turbines based on specifications supplied by Siemens, the turbine supplier for the Project, available as Appendix E in the Noise Impact Assessment (the “NIA”) [2]. Siemens has provided Warranted Acoustic Emissions, which specify the broadband sound power level (PWL) of the turbine as a function of the wind speed at a height of 10 m above ground level. This inherently includes an assumption regarding wind shear (and associated surface roughness), which relates the wind speed at a height of 10 m to the wind speed at the turbine’s hub height. The Guidelines [1] specify the sound level limit at a receptor as a function of wind speed at a height of 10 m above ground level. The methodology used by GL GH in respect of the noise modeling for the Project complies

with the Guidelines.

During the summer at night-time, shear is assumed to be high, i.e. “worst case”. In this case, the wind speed at 10 m will be significantly lower than the wind speed at the turbine’s hub height. The standard assumption about shear made by Siemens does not apply; therefore, an adjustment is required. GL GH has assumed that for wind speeds of 6 m/s and greater at a height of 10 m, the shear may be high, resulting in a much greater wind speed at the turbine’s hub height than at a height of 10 m. As a result, for sound modeling at 10 m wind speeds of 6 to 10 m/s, GL GH has assumed that each turbine is producing its peak PWL.

For example, if the 10 m wind speed is 6 m/s, then the sound level limit at a class 3 receptor is 40.0 dB(A) [1]. Using standard shear assumptions, if the 10 m wind speed is 6 m/s, then from the specifications for the SWT-2.3-101, the PWL is 105.4 dB(A).

However, if summer night-time shear is assumed, as was done for all calculations in the NIA, then the shear is greater than that assumed by Siemens. Under summer night-time conditions, at a 10 m wind speed of 6 m/s, the turbine’s PWL is conservatively assumed to correspond to the maximum value for the turbine, rather than the PWL corresponding to a wind speed of 6 m/s at 10 m in the noise specifications. From the specifications for the SWT-2.3-101, the resulting PWL is then 106.0 dB(A). The maximum PWL of the turbine, 106.0 dB(A), was used for all 10 m wind speed scenarios considered.

Q: (3) *Which turbine locations are proposed for each of the 5 noise reduced modes. Can you please provide a worked example of how the noise at a typical receptor that is impacted by normal and noise reduced mode turbines was calculated?*

R: A complete list of which noise reduced variant is proposed for each turbine location is available in Appendix F of the NIA [2]. Noise reduced turbines are modeled as noise sources with a lower PWL than the standard version of the turbine.

Two example sound calculations are shown in Appendix B of the NIA [2]. These sample calculations show all contributions to the cumulative sound pressure level (SPL) at each of R_152 and V_693. Contributions from each turbine are shown separately, including contributions from the noise reduced turbines.

Q: (4) *Please identify how each wind turbine produces the reduced noise mode, and how evidence that each turbine claimed to be operating in noise reduced mode is actually doing so.*

R: For the Project, 91 of the 98 turbines will be operated in a noise reduced mode. This is done to ensure that the Project is compliant with the Guidelines and all applicable regulations. As a result of the noise reduced operation, the turbines will produce less power at certain wind speeds. Please see the NIA for a description of which turbines will operate in noise reduced mode. Please see Appendix E of the NIA for technical specifications of the noise reduced turbines.

Turbine noise reduction is mainly a result of lower rotor speed and consequently lower aerodynamic noise levels, as well as lower mechanical noise levels caused by the gearbox and generator inside the nacelle operating at less than full capacity.

Q: (5) *The impact of the Enbridge Wind Farm was calculated from the April 2006 noise assessment. This assessment was not corrected for average night time wind shear, and used a wind shear lower than the average night time wind shear that was identified during the OMB hearings. Can you please show how you corrected the Enbridge Wind turbine impact for average nighttime wind shear?*

R: For the Enbridge Ontario Wind Farm, GL GH only obtained noise model inputs from the Enbridge Ontario Wind Farm Noise Impact Assessment [3], including turbine locations, turbine type, and turbine PWLs. Specifically, GL GH obtained octave band PWLs for the Vestas V82-1.65 MW turbine for a wind speed of 10 m/s, which is the wind speed at which the broadband PWL of the V82 is at a maximum.

In order to account for the high shear expected to be experienced at the site during the summer at night-time, GL GH has used these 10 m/s octave band sound power levels to model all turbine sound from the Enbridge Ontario Wind Farm in the Armow NIA [2], regardless of the wind speed at a height of 10 m. A more detailed explanation of how this accounts for summer night-time shear is given in response to Question 2.

In other words, GL GH has independently calculated the impact of the Enbridge Wind Farm rather than directly incorporating the results from the Enbridge NIA into the Armow NIA, as required by the Guidelines.

Q: (6) *Similarly, the noise for the Enbridge Cruickshank wind turbines was not corrected for average nighttime wind shear in the submitted noise assessment. Please identify how the contribution from these has been corrected in the Armow Noise Impact Assessment.*

R: For the Cruickshank Wind Farm, GL GH obtained noise model inputs from the Proponent, including turbine locations and turbine type [4]. GL GH obtained octave band sound power levels for the Vestas V82-1.65 MW turbine for a wind speed of 10 m/s from the Enbridge Ontario Wind Farm Noise Impact Assessment [3]. The broadband PWL of the V82 is at a maximum at a wind speed of 10 m/s.

In order to account for the high shear expected to be experienced at the site during the summer at night-time, GL GH has used these 10 m/s octave band PWLs to model all turbine sound from the Cruickshank Wind Farms in the Armow NIA [2], regardless of the wind speed at a height of 10 m. A more detailed explanation of how this accounts for summer night-time shear is given in response to Question 2.

In other words, GL GH has independently calculated the impact of the Cruickshank Wind Farm rather than directly incorporating the results from the Cruickshank NIA into the Armow NIA, as required by the Guidelines.

Project Description

Q: (7) *Please identify the basis for the statement in 3.7.2.4 that a setback of blade length plus 10 metres provides a safe setback for ice throw, using examples of the distance ice is actually thrown from wind turbines – such as 100 metres for pieces of ice up to 12 inches x 12 inches x 2 inches from the 50 metre tall Tacke wind turbine with 21 metre blades, considering that the Armow turbines have nearly twice the height, and blade length over twice as large.*

R: The section you refer to in the Project Description report states the following: “Wind turbines for the proposed Project will be located on private property, and meet (at a minimum) the setback distances from non-participating receptors (550 m) and roads (blade length plus 10 m) outlined in O. Reg. 359/09, as amended. The setbacks are defined by the province to be protective of human health and safety. During the operation of the Project, sensors located on the turbines will be able to detect ice build-up and turbines will be shut down during unsafe operating conditions.”

Ice throw is an exceptionally rare occurrence as there are multiple safety measures in place to prevent ice throw. Sensors can detect ice accumulation on the blades and the turbines will automatically shut down until the ice is cleared. Additionally, mandatory site inspections will occur prior to start-up of each turbine.

Q: (8) *Similarly, please provide an assessment that a setback of blade length plus 10 metres is a safe setback to protect against the throw of full or parts of wind turbine blades, considering the impact on an unprotected person on a public roadway. Comment specifically given the loss of a full blade on a similar Siemens turbine in Scotland.*

R: In addition to the response provided above, each turbine requires a full inspection before obtaining mechanical completion and sign-off from both the installer and the manufacturer. Various tests are then completed to fully commission each turbine. The turbines are then inspected again to ensure they are in

proper working order. Once operational, bolts are retorqued and turbines are placed on a routine maintenance schedule for the life of Project. It is measures such as these that ensure turbines function as designed and equipment malfunctions do not occur.

- Q:** (9) *Please provide an assessment of the maximum hours of shadow flicker at any receptor or any public roadway in the Armow project.*
- R:** (10) This is not an assessment required under O.Reg. 359/09. It is important to note that the Siemens turbines used for this Project do not spin fast enough to elicit photosensitive epileptic seizures and thus will not impact health (CMOH, 2010). Additionally, the global literature has not linked wind turbine shadow flicker or navigation lights at night to onset of migraines.
- Q:** (11) *In Section 3.7, please identify why Noise is not considered as an environmental contaminant, as it is identified as so in the Environmental Protection Act.*
- R:** Noise is discussed in Section 3.5 of the Project Description Report. Although it is not listed as an environmental contaminant in Section 3.7, it is considered as a potential environmental effect in Section 3.5. Specifically, the PDR states
In accordance with the requirements of O. Reg. 359/09, as amended, the environmental effects outlined in this report address the following environmental considerations:
- *Cultural Heritage;*
 - *Natural Heritage;*
 - *Water Bodies;*
 - *Air, Odour, Dust;*
 - *Noise;*
 - *Local Interests, Land Use and Infrastructure; and*
 - *Public Health and Safety.'*

Wind Turbine Specifications

- Q:** (12) *The specifications described in the wind turbine sound power level for a surface roughness of 0.05. Please identify the wind shear this roughness represents (I believe it is 0.16) and explain how you are correcting the sound power level for average summer nighttime wind shear.*
- R:** GL GH has followed the Guidelines [1], Section 6.2.3 of which states the following:
- See response to question 2 above.
- Q:** Please provide the value of average summer nighttime wind shear you have determined to apply for the Armow Project. Please identify the range of nighttime wind shears observed in your monitoring.
- R:** See response to question 2 above.

The documents that are being submitted as part of the Renewable Energy Approvals application will be available for your review on the Project website (www.armowwind.com). We welcome an opportunity to discuss any questions or concerns that you may have regarding the Project.

Sincerely,

Brian Edwards, Project Developer
Samsung Renewable Energy Inc.
55 Standish Court
Mississauga, ON L5R 4B2
Phone: 905-501-5667

Jody Law, Project Developer
Pattern Renewable Holdings Canada ULC
100 Simcoe St. Suite 105
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References

1. Ministry of the Environment, Noise Guidelines for Wind Farms, Interpretation for applying MOE NPC Publications to Wind Power Generation Facilities, October 2008.
2. GL Garrad Hassan, Armow Wind Farm Noise Impact Assessment, GL GH Document No. 800235-CAOT-R-01, Issue G November 2012.
3. Valcoustics Canada Ltd., Environmental Noise Assessment – Enbridge Wind Power Project, April 2006. Received via FTP from the Proponent to GL GH, April 2012.
4. Cruickshank Wind Farm and Huron Wind Farm turbine layouts, n.d. Received via FTP from the Proponent to GL GH, April 2012.
5. Chief Medical Officer of Health (CMOH) Report. 2010. The Potential Health Impact of Wind Turbines. May 2010.

The World Health Organization recommended safe noise level should not used as a target for siting Industrial Wind Turbines. Noise modeling for IWTs is not an exact science. The prediction error can be ± 3 dBA. Worst case atmospheric & site conditions are not accounted for by modeling. The ISO standard is not intended to be used for 120m tall IWTs. As IWTs age and wear, they become noisier. Wind farm sound pollution from the Enbridge project exceed the modelled values appreciably 25% of the time.

The MOE Corporatocracy

A consultant to the MOE has recommended that stricter sound pollution limits be applied to IWTs in rural areas. He also said "if the province enforced the regulations—it would have a major impact on wind farms around the province". "First implication is that the number of wind turbines in wind-farms would have to be reduced considerably and wind-farm developers would have to look for localities where they are not impacting the neighbourhood".

Memos from MOE staff released through the Freedom of Information Act state:

- the computer modelling used to determine Ontario's safe "set back distances" was flawed and inadequate.
- stricter noise limits are needed in rural areas,
- stricter noise limits are needed on account of "swooshing sounds."
- the MOE over-relies on background noise masking .
- the MOE currently does not have a method for measuring noise from multiple sources and so can't confirm compliance, and.
- ""It appears compliance with the minimum setbacks and the noise study approach currently being used to approve the siting of WTGs will result or likely result in adverse effects contrary to sub-section 14(1) of the EPA."" .

But the MOE keeps handing out Certificates of Approval regardless of how many letters dirty little unwashed people send in.

In view of this dereliction of duty by the industry regulator, I am appealing to SP as a good corporate citizen to adopt the following recommendations.

Pre-construction noise surveys

SP should perform pre-construction noise surveys at non-participating receptors where guestimated noise intrusions exceed 35dBA. This is to provide a reference background for confirming compliance in the event of reported sound pollution exceedences after the project goes into operation. Pre-construction noise surveys are a recommended best management practice per industry association lobbyist CANWEA.

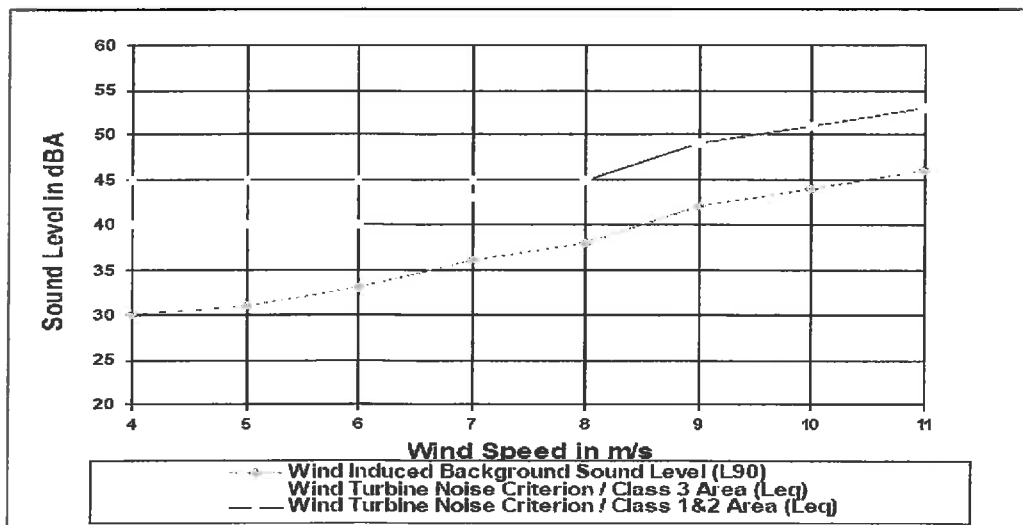
CanWEA's best practice guidelines call for ambient sound levels to be taken before start-up of operations to provide a bench mark for sound measurements.

*It is far more appropriate to deal with each application on its own merits, taking into account the topography in the area, the number and placement of the wind turbine, the **sound** power produced by the particular model of wind turbine, and the ambient **sound** levels at the receptors.*

Ambient **sound** levels should be monitored at the receptors to assist in defining criteria and to **provide a benchmark for any sound** measurements following start-up of the operations. It is important to note that, particularly in quiet rural areas, the ambient **sound** levels are influenced by wind – as the wind speed increases the ambient **sound** levels increase. Therefore, it is appropriate to correlate ambient **sound** levels to wind speed. CANWEA-WIND TURBINES AND SOUND: REVIEW AND BEST PRACTICE GUIDELINES

Where is this mythical receptor per the MOE that is deafened by 3dbAs at critical wind speed (7 m/s) where noise from IWTs is most intrusive?

A summary of the above limits is shown in figure and table below.



Wind Speed (m/s)	4	5	6	7	8	9	10	11
Wind Turbine Noise Criterion NPC-232 (dBA)	40	40	40	43	45	49	51	53
Wind Turbine Noise Criterion NPC-205 (dBA)	45	45	45	45	45	49	51	53

Why are wind speeds at a met tower many kms. distant used for guestimating the “masking” at a receptor's back deck on a calm summer evening?

Presently, without representative background ambient noise values, once the windfarm is in operation, it becomes almost impossible to prove non-compliance.

Turbulent Inflow

SP proposes to put 2 IWTs on farm lots. This will force IWTs closer to non-participating receptors who live on severed lots and have moved to the countryside for peace and enjoyment of the outdoor amenity.

On account of the closer spacing, inflow of turbulent air from nearby-up wind IWTs will increase sound emissions. See Attachment: Turbine-induced Turbulence

Central Bruce Grey Wind concerns raised this issue by letter to SP in Nov. 15/2011.

If SP is going to site IWTs closer together (<7 rotor diameters) then the noise rules should take into consideration the effect of turbulent inflows wrt. sound and vibration impacts.

IWTs efficiency and output will be reduced on account of closer spacing.

AMPLITUDE MODULATION

Wind turbines emit a characteristic modulating sound. The amplitude modulated noise from several nearby wind turbines interacts. It is this periodic noise that causes the widespread annoyance. Noise rules use Leq. in setting their noise limits and this averages out the modulation. The ear responds on a fast time scale and does not average the noise peak away. The Ontario Ministry of the Environment (NPC 104) applies a penalty of 5 dBA for this periodic variation of noise to noise emitters but NOT to IWTs. Noise limits need to include a 5 dBA penalty for amplitude modulated noise.

Tonal Noise

If the sound levels produced by the equipment exhibit tonality (meaning a pronounced audible tonal quality such as a whine, screech, buzz, or hum) then a 5 dBA penalty should be applied. This includes sound pollution from a transformer station.

Sound Emission Compliance Protocol

Since the MOE is not ensuring compliance of windfarms to the noise regs., a compliance program responsive to reporting of sound pollution exceedences by the public is in order. The protocol should ensure that reported exceedences are properly documented and followed-up in a timely and effective manner. The protocol would set standards for measuring the exceedence and comparing the sound level to the pre-operation ambient background sounds by a qualified third party. The protocol would be simple to enforce. (I had requested such a protocol in my delegation to council inviting SP to participate (with SP in attendance Dec. 2011). By letter Nov. 15/2011, Central Bruce Grey Wind concerns had requested SP provide a protocol.

Attachment:**Excerpt from:**

**PRESENTATION TO THE ANNUAL CONFERENCE OF THE CANADIAN ACOUSTICS ASSOCIATION
OCTOBER 2009 – NIAGARA-ON-THE LAKE**

INADEQUACY OF WIND TURBINE NOISE REGULATIONS AND THEIR APPLICATION

John P Harrison

Physics Department, Queen's University, Kingston, ON K7L 3N6 harrisjp@physics.queensu.ca

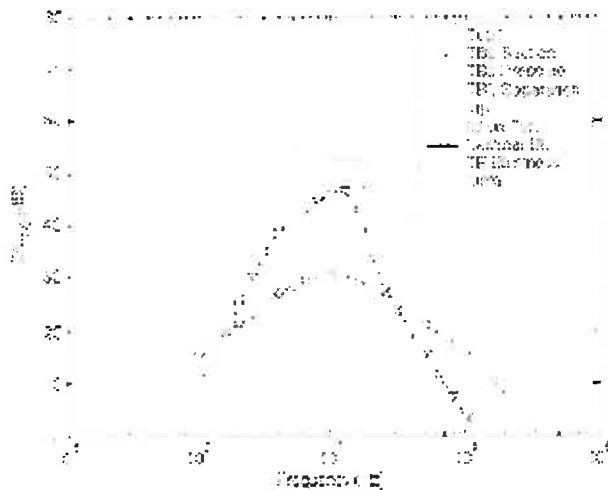
2.3 Turbulence

Many noise complaints draw attention to a component that sounds like a rumble (a dryer or a passing train that never passes!). Some victims cannot bear to put their heads down on their pillows because of the vibration. This is probably excess low frequency noise and vibration associated with turbulent inflow of air into the blades. The turbulence has two sources, turbulence in the atmosphere and the turbulent wake from neighbouring turbines. Atmospheric turbulence, like wind speed, is a variable. However, it can be measured and average values quantified as a function of time of day and/or season of the year. Turbine-induced turbulence can and has been measured. SODAR (sound equivalent of radar) measurements have shown that for $x/D \sim 5$, the turbulent intensity behind a turbine is comparable to the atmospheric turbulent intensity (x is the distance behind the blade and D is the blade diameter). They were 5% and 7% respectively. Turbulent intensity is defined as σ/v where σ is the standard deviation of the wind speed v . The SODAR measurements were made every minute and the averaging time for σ and v was 10 minutes. Low frequency noise requires a faster time scale for the calculation of σ and hence of the appropriate turbulent intensity. I note that for the Wolfe Island wind farm in Ontario about half of the turbines are within 6 blade diameters of an upwind turbine for the prevailing south-west winds. As an aside, the velocity deficit for the same half of the turbines due to the wake of the upwind neighbours will be up to 20% (Barthelmie 2003), so lowering the power output efficiency from that of the upwind turbines!

Moriarty and Migliore working at the National Renewable Energy Laboratory in Golden CO, made a study of inflow turbulence noise from turbines, with both measurements and predictions. The figure shows their results as sound pressure level as a function of sound frequency for a measuring site downwind of a test turbine. Various aerodynamic mechanisms contribute to the noise. All but the open diamonds correspond to predictions for the various mechanisms operating in a stable atmosphere. The open diamonds represent the predicted excess noise for the blades turning in turbulent air with a turbulent intensity corresponding to that measured. The red line is the sum of all these contributions. The blue diamonds are the measurements of the turbine noise. The agreement between the predicted and measured noise is compelling.

Below 1 kHz, the turbulent inflow noise can dominate the total turbine noise. For instance, with a turbulent intensity of $I = 10.6\%$, at 100 Hz this noise is 30 dBA larger than the combined noise from all other aerodynamic sources. The noise power is

proportional to I^2 , so that the sound pressure level falls by only 6 dBA as the turbulent intensity is halved. The noise measurements bear out the predictions apart from the need for an adjustment for the averaging time for the determination of σ .



It is quite clear from measurements of the turbulent wake downwind of a turbine, the close proximity of turbines to each other, particularly in Ontario, the enhancement of turbulence for on-shore winds, the predictions of turbulent inflow noise calculations and the agreement with measured noise that it is vital that this noise source be a part of noise regulation. This noise will not go away at night when the day-time atmospheric turbulence gives way to the stable night-time atmosphere. Turbulent inflow noise is predominantly in the low frequency range below 1 kHz, particularly near the lower range of hearing, and where the absorption by the atmosphere is minimal. Enough is known that prediction of turbulence noise can be made both from prior wind speed test tower measurements and from the proposed layout of the turbines. To date, no jurisdiction is requiring turbulence noise in their approval process. This must change.



SP Armow Wind Ontario LP
322 Lambton Street
Kincardine, Ontario N2Z 1Z1
Canada

November 30, 2012

RE: Comments to SP for Open House Letter by

Dear

Thank you for your letter of outlining noise-related concerns the Armow Wind Project (the Project). Responses to your questions are provided below. The response below is a joint effort between SP Armow Wind Ontario LP, as the developer of the Project and our Noise consultants GL Garrad Hassan (GL GH).

The Project has been designed in accordance with all applicable laws and regulations, including applicable noise related obligations. In connection with the Project's application for a Renewable Energy Approval, we have engaged GL GH to complete the necessary noise assessments in accordance with the Renewable Energy Approval requirements.

GL GH has calculated sound pressure levels in respect of the Project using CadnaA software which is an implementation of ISO 9613-1 and ISO 9613-2 [1]. The accuracy of the ISO 9613-2 method is estimated to be ± 3 dB(A). However, given the conservative nature of the assumptions incorporated in the CadnaA software, the probability of the overall noise simulation being underestimated is reduced.

The conservative assumptions made as part of the Guidelines [2] and included in the model used for the Project, include:

- Receptors are always downwind (as described in ISO 9613-2);
- No attenuation due to foliage, trees or obstacles (referred to as A_{fol} in ISO 9613-2);
- Temperature and humidity are favourable to propagation;
- Propagation under a well-developed moderate ground-based temperature inversion, such as commonly occurs at night during the summer;
- When windy, the ambient noise may be louder than the sound generated by the wind turbine; and,
- A 5dB(A) tonal penalty was applied to the transformer.

There is a potential for uncertainty associated with modelled noise predictions, as is the case with any engineering model. The conservative assumptions used in the CadnaA software [influence the uncertainty of the approach. Accounting for the conservative nature of the aforementioned assumptions, it is considered to be unlikely that a value generated by the CadnaA software in respect of the Project is significantly underestimated.

GL GH has not conducted a background sound level campaign for the Project, as this is not required by the Guidelines. As per page 6 of the Guidelines [2]:

"The measurement of wind induced background sound level is not required to establish the applicable limit. The wind induced background sound level reference curve, dashed line in Figure 1, was determined by correlating the A-weighted ninetieth percentile sound level (L90) with the average wind speed measured at a particularly quiet site. The applicable Leq sound level limits at higher wind speeds are given by adding 7 dB to the wind induced background L90 sound level reference values, using the principles for establishing sound level limits described in Publication NPC-232." [2]

According to the Guidelines, the applicable noise limit cannot be set lower than 40 dB(A) for Class 3 receptors, regardless of background sound levels.

GL GH has modeled the sound emitted by the turbines based on specifications supplied by Siemens, the turbine supplier for the Project, available as Appendix E in the NIA [3], and in accordance with the Guidelines [2]. Siemens has provided warranted Contract Acoustic Emissions which specify the broadband PWL of the turbine as a function of wind speed. The Guidelines do not make any special noise considerations for turbulent inflow conditions or amplitude modulation. These phenomena were therefore not considered in the analysis.

A tonal penalty of 5 dB was applied to the transformer.

Per the Guidelines [2] and the MOE NPC-104 standard [4] and based on turbine acoustic emissions information provided by the Client [5], the Siemens SWT-2.3-101 turbine does not present a pronounced audible tonal quality; thus, no tonal penalty was applied.

We hope that the above responses have answered your specific questions. The documents that are being submitted as part of the Renewable Energy Approval application for the Project will be available for your review on the Project website (www.armowwind.com). We welcome an opportunity to discuss any questions or concerns that you may have regarding the Project.

Sincerely,

Brian Edwards, Project Developer
Samsung Renewable Energy Inc.
on behalf of SP Armow Wind Ontario LP
55 Standish Court
Mississauga, ON L5R 4B2
Phone: 905-501-5667

Jody Law, Project Developer
Pattern Renewable Holdings Canada ULC
on behalf of SP Armow Wind Ontario LP
100 Simcoe St. Suite 105
Toronto, ON M5H 3T4
Phone: 416-263-8029

References

1. International Organization for Standardization (ISO), Acoustics - Attenuation of Sound During Propagation Outdoors - General Method of Calculation, ISO 9613-2, 25 p., 1996.
2. Ministry of the Environment, Noise Guidelines for Wind Farms, Interpretation for applying MOE NPC Publications to Wind Power Generation Facilities, October 2008.
3. GL Garrad Hassan, Armow Wind Farm Noise Impact Assessment, GL GH Document No. 800235-CAOT-R-01, Issue G November 2012.
4. Ministry of the Environment, NPC-104: Sound Level Adjustments, n.d.
5. Turbine noise emissions documents sent by email, J. Law, Pattern Energy, to D. Boudreau, GL GH, 28 November 2012, "Noise Measurement xxxx Txx AJJ redacted version 16 April 2011.pdf".



4. Meeting with Amish Community Members Materials

October 23/12

Regarding Arrow Wind Project
Meeting at 322 Lambton St. Kincardine

To introduce ourselves, here on behalf of the Amish community, having been involved with the wind turbine issue and the concerns and effects as to our community. These men with me are [redacted], one of our ministers and as an experienced former member of our school board. Also school board members [redacted] and [redacted]

Another school board member, [redacted] had another commitment to-day, so had to cancel out

We would like to talk about how our schools concern you, and how your Arrow project concerns our schools. We want to do that in a way that we can work together as much as

possible and still be friends with you people, the municipal and county planning board and all of our neighbours, regardless of where they stand on the wind turbine issue

At present we have only two schools. Some teachers and pupils have up to 7 miles to school, much too far to walk. And now with some of the younger set four years old, it is time to think about a closer school. If it can be built at the right location, almost everyone would be within less than one-half of that distance

We have been advised that we need to plan for that now. We hope we can all work together toward that goal, and that will require your input also

Questions -

1. Possible locations for a school, as far as you are concerned?
2. Minimum distance from proposed turbine to existing school at sideroad 10, between Con 11 and County Rd 15?
3. Question about set-back from towns or hamlets?
4. About horse-drawn vehicle traffic while turbines under construction

These may be other questions as meeting progresses



SP Armow Wind Ontario LP
322 Lambton Street
Kincardine, Ontario N2Z 1Z1
Canada

Tuesday October 23, 2012

RE: Meeting Notes between Armow Wind and the Kincardine Amish Community Representatives

1. **Question:**

The placement of some of the turbines limits the location for future development of schools for their children. They would like to build a new school that would be more central for all but because of laws both Municipal (placement of schools to barns 800 feet) and Provincial (placement of buildings next to turbines 550m) they are very limited. Looking at our maps can we work together to find a place to build the new school that would work for everyone.

Answer:

Consensus from both parties was to work together to come to a resolution that will work for both parties.

2 potential location where identified by the Amish.

SP Armow will provide larger maps of these areas with sound curves.

SP Armow suggested that regular meeting take place with the Amish group to better communicate with each other. SP Armow commented to meeting with maps of the Amish potential school locations.

.

2. **Question:**

██████ asked for clarification of minimum distances from proposed turbines to an existing school at side road 10, between Concession 11 and Country Road 15.

Answer:

Turbine 73 is closest to the current school. Although the Provincial Government allows for 550 metres between dwellings the average distance for the Armow Project is 710 metres. A factor in this decision is noise restrictions which the Provincial Government put at 40 decibels. A turbine 73 is well within that parameter. At 300 meters from the base, the sound a Siemens turbine makes has been electronically measured and compared to a whispering voice. Much of the sound from the blades is masked by the sound of the wind itself and of the accompanying sound of rustling leaves in nearby trees and shrubs.

3. **Question:**

How did we come up with set-backs for towns and hamlets?

Answer:

Working with the Municipal Ad Hoc Committee;

SP Armow meets the 3000km setback from Kincardine, Tiverton, and coastline.

SP Armow average turbine distance is 710m.

The Armow and Glamis Hamlets have not grown over the last ten years.

Grown of this areas are limited by;

Armow bordered by Municipal land and a waste treatment facility.

Glamis is bordered by large significant wetlands.

4. **Question:**

There is a concern regarding horse-drawn vehicle traffic while the project is under construction.

Answer:

The Traffic Management Plan has not been drawn up yet but there will be consideration in that plan for horse drawn vehicles.

Sp Armow requested Amish travel routes.

We can reduce construction traffic and speeds on side roads and in some cases keep construction traffic off roads. We just need to have open communication. We will not be constructing until next year.

It has been agreed for both parties to meet again in a couple of weeks – Susan to call meeting.



APPENDIX C

First Public Meeting (December 13, 2011) – Handouts, Sample Comment Form and Panels



APPENDIX C

1. Handouts

Wind energy benefits you.



"As fossil fuels become scarce, their price can only increase. Wind energy costs are stable because fuel isn't part of the equation."

Natural gas – a rapidly depleting, non-renewable resource – is being used more and more to generate electricity, even though it's better suited for other uses such as home heating and cooking. Increasing demand for natural gas has helped drive prices up 400% in the last 5 years.²

Studies have consistently shown that increased use of wind energy will actually result in lower prices to consumers for natural gas³ – and help conserve that resource for future generations in the process.

Environmentally and economically sound, free from the increasing cost of fossil fuels, wind has a lot to offer Canadians. Wind farms can be built quickly – faster than many other types of power plants – and can meet our growing need for electricity in cities, towns and rural areas.

With wind energy, the cost of electricity is predictable because there are no escalating fuel costs. Investing in wind also helps us offset our use of other precious resources. That's why wind energy is a great choice for today and tomorrow.

Making the connection.

Energy without fuel.

Unlike many forms of conventional energy, which are susceptible to the increasing cost of fuel, wind energy relies on no fuel at all. Think about it. The only thing that fuels a wind farm is the wind – free and limitless.

This means that once a wind farm project is built, the price of electricity is set and it stays at that price for the lifespan of the wind turbines – approximately 20-30 years. Of course the wind is limitless and will outlast the lifespan of the turbines themselves. When they are decommissioned, newer and more efficient models of wind turbines may take their place, ensuring our ability to harvest this clean and fuel-free resource well into the future.

Conserving natural gas.

Our supply of natural gas is increasingly limited and, despite rising prices, drilling for gas is challenged to keep pace with demand and more and more of Canada's natural gas resources are located in environmentally sensitive and protected areas.

The increased use of natural gas for the production of electricity is one of the major reasons supply is tightening. But natural gas is not as efficient in creating electricity⁴ as it is in heating homes or providing fuel for stoves and other activities. So why not put this precious resource to better use or save it for generations to come? Wind energy can help. More wind energy coming on line will alleviate some of the pressures on natural gas.



Birds, bats and wind energy.



"It is estimated that more than 10,000 migratory birds are killed in Toronto each year between the hours of 11:00 p.m. and 5:00 a.m. in collisions with brightly lit office towers."^{1,3}



Studies show that modern wind farms with sensitive siting have no significant adverse effect on bird populations. The wind energy industry is investing in closely monitoring this important issue and continues to work vigilantly to avoid any significant impact.

Wind energy is emission-free and can help offset the effects of climate change. Wind farms can also be developed with respect for habitats – addressing two significant threats to birds and all other forms of wildlife.

Making way for birds and bats.

How birds and wind turbines interrelate.

There are a few ways that wind turbines might interfere with birds – one is the potential impact to their natural habitat, another is through possible collisions with the turbines themselves. A well-sited wind farm goes a long way towards minimizing the risk to birds and brings about a natural and healthy co-existence between wind energy and avian creatures of all stripes.

A study reviewing the impact of wind farms on birds in the US, found that generally, only 2 birds per turbine per year ever die in collisions with wind turbines.¹

Bear in mind that this is far less than the millions of deaths per year associated with birds crashing into buildings and windows, and the many millions of deaths associated with birds colliding with vehicles.

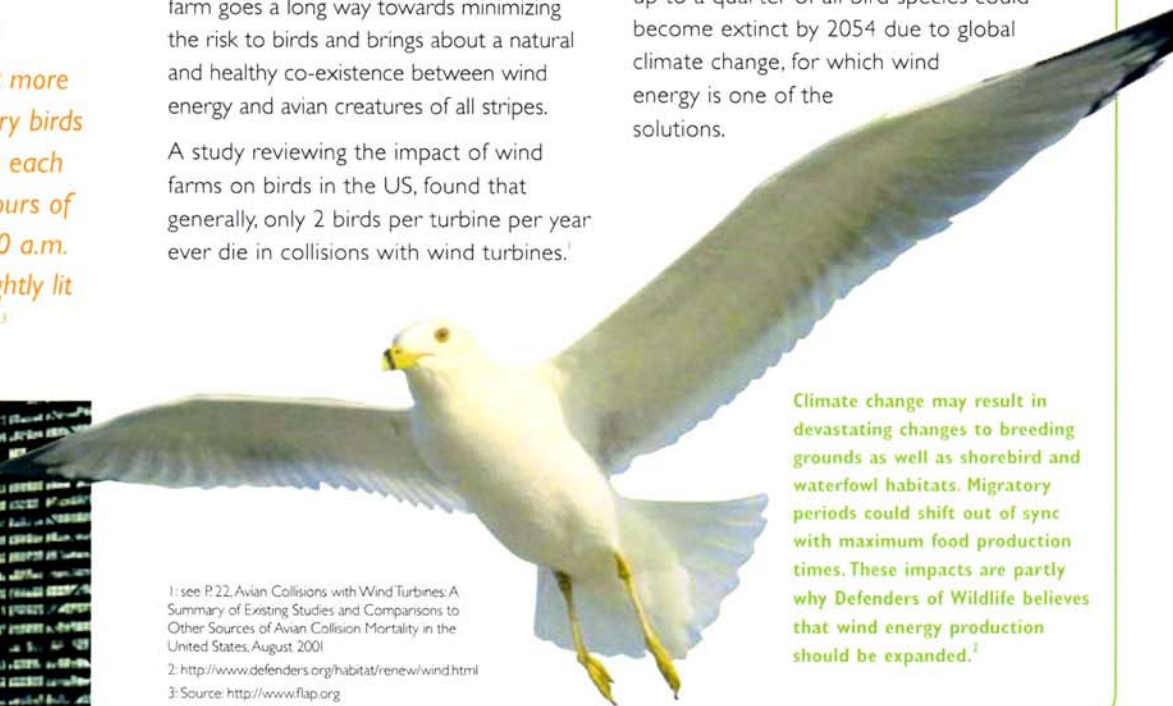
A real concern for birds is noted in the 2004 study in *Nature* that estimated that up to a quarter of all bird species could become extinct by 2054 due to global climate change, for which wind energy is one of the solutions.

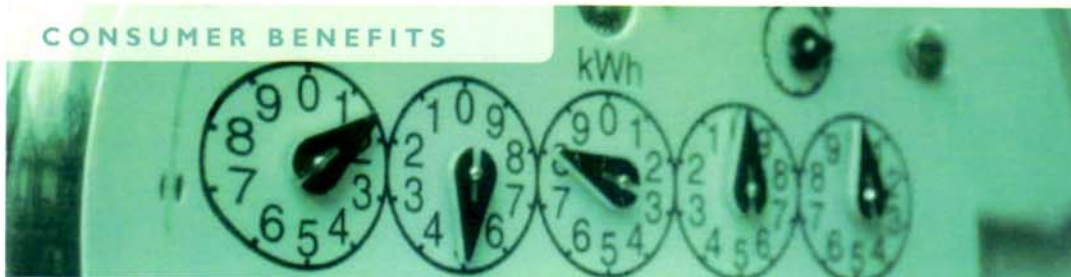
Climate change may result in devastating changes to breeding grounds as well as shorebird and waterfowl habitats. Migratory periods could shift out of sync with maximum food production times. These impacts are partly why Defenders of Wildlife believes that wind energy production should be expanded.²

1: see P.22, Avian Collisions with Wind Turbines: A Summary of Existing Studies and Comparisons to Other Sources of Avian Collision Mortality in the United States, August 2001

2: <http://www.defenders.org/habitat/renew/wind.html>

3: Source: <http://www.flap.org>





Wind fits with today's use of energy.

Wind farms can be built to a variety of scales. Smaller scale projects provide Canadians with the opportunity to have a diverse and well-distributed power supply. Compare that to other forms of electricity that are generated in large scale power plants. The chance of brown or black outs increases when we depend on a single large power plant. Having many smaller power producers on line is an ideal way to reduce this risk.

Another benefit of distributed energy is the ability to locate a wind farm close to transmission lines that aren't being used to full capacity. Transmission lines represent a major investment in infrastructure, so it's wise to use them as efficiently as possible. Electricity also loses power when it travels long distances, so the ability to locate wind farms closer to areas of demand is an additional benefit. Energy is precious; we don't want to waste it.

Energy when we need it.

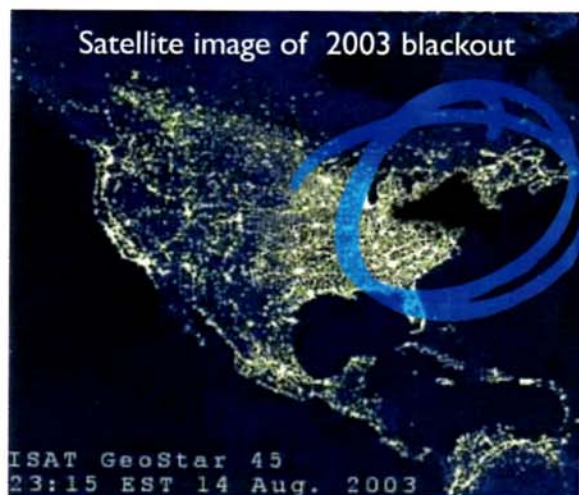
In Canada, we are most dependent on energy in the winter months, when it's cold. Luckily for us, the wind also blows hardest in these cold winter months meaning that wind energy production hits its peak just as our critical demand for energy does. Just another way wind energy can be there for us when we need it most.

Cold winter winds are also denser than winds in warmer seasons. Denser winds contain more energy, so provide even more power potential when we need it most.

Think of throwing a hardball or a whiffle ball as hard as you can. The dense hardball travels much farther because it has more kinetic energy.



Satellite image of 2003 blackout



The "cascading failures" of the August 14, 2003 blackout affected a 9,300 square mile area and 50 million people. It took just 3 minutes to shut down 21 power plants.

Several nuclear plants were not restarted for days, due to the extensive and time-consuming restart procedures they must go through to ensure safe operation.

In contrast, wind plants were able to start up nearly immediately after the safety of the grid was assured.⁵

CASE STUDY

Austin Energy

GreenChoice® program is a huge success with consumers¹

Sign Up for GreenChoice®
Due to overwhelming demand, GreenChoice®
currently working on obtaining more

When Austin Energy, the publicly owned utility in Austin Texas, launched their GreenChoice® program in 2000, customers had the option of purchasing green power at a premium price – but a price that is now guaranteed to remain stable through June 30, 2015. Their decision to opt for long-term stability paid off in the fall of 2005, when escalating natural gas prices pushed Austin Energy's conventional electricity costs higher than their GreenChoice® power pricing.

Long-term, fixed price contracts for green energy were negotiated with power producers that include the wind farms in McCamey and Sweetwater Texas. Austin Energy purchases 100% of the electricity produced by these 120 turbines – enough to power 35,000 Austin homes. Austin Energy, in turn, provides power at a fixed price to more than 7,000 retail customers and over 400 corporate customers – saving them about US \$670,000 annually.

Due to an overwhelming demand, Austin Energy's GreenChoice® program is now fully subscribed leaving the utility searching for more clean energy for waiting customers.

Canadian utilities are following Austin's example. For a list of companies across Canada that sell green power we invite you to visit:
www.canwea.ca/en/GreenPower.html

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Canadian Wind Energy Association
Powering Canada's future naturally

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www.canwea.ca



Natural Resources Canada
Ressources naturelles Canada

CanWEA acknowledges the contribution of Natural Resources Canada.

1: Source: http://www.naturalgas.org/overview/uses_electrical.asp

2: Source: Canadian Association of Petroleum Producers

3: Easing the Natural Gas Crisis: Reducing Natural Gas Prices through Increased Deployment of Renewable Energy and Energy Efficiency, Wisser & Bolinger

4: Source: Austin Energy (<http://www.austinenenergy.com>)

5: Source: National Association of State PIRGs

Bats and Wind Energy Cooperative (BWEC)

Bat research is underway

Lessons learned.

Lessons were learned from one of the first major wind farm projects in North America. Established in the 1970s, Altamont Pass was problematic for birds. As turbines at Altamont are replaced, newer, fewer and bigger models take their place, making air space around the wind turbines safer for birds.

Today, the wind energy industry has put procedures in place to enhance our understanding of birds and how they interrelate with wind turbines. The modern wind farm undergoes a series of environmental assessments before being approved. In this process, the proposed site will be monitored and bird populations evaluated. What kinds of birds are on site? What are their habits, flight patterns? Do they nest in the area or simply fly through? Questions like these are answered in an effort to better understand on-site bird populations and to mitigate their potential interactions with wind turbines. Once built, further monitoring takes place to better understand the ongoing relationship between birds and the wind farm.

Watching out for wildlife.

There is an emerging concern about the impact certain wind farms might have on bat populations. As of today, bats and their interactions with wind turbines are far less understood than those of birds.

The wind energy industry has taken a proactive approach to working on this important issue. In the US, conservationists, industry officials and federal agencies are joining forces to address this, as yet, little understood relationship between bats and wind energy. In Canada, we are starting to do the same.

The wind energy industry is very interested in learning more about bats to address any potential problems.⁴



Bat behaviour in general, and collisions with wind turbines specifically, is largely understudied. To improve our understanding of this interaction, the Bats and Wind Energy Cooperative (BWEC) was formed in 2003.

BWEC is an alliance of Bat Conservation International, the US Fish and Wildlife Service, the American Wind Energy Association and the National Renewable Energy Laboratory of the US Department of Energy.

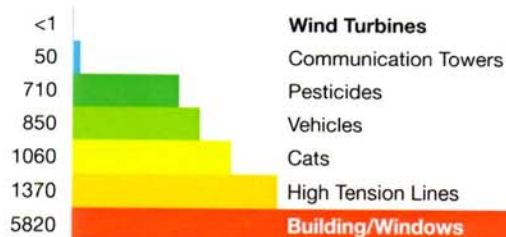
During the fall of 2004, BWEC researchers conducted the most detailed studies ever performed on bat fatalities at wind sites. The primary goal of this research was to improve fatality search methods and observe bat/turbine interactions. Research techniques included video and thermal imaging which provided new insights on flight, predation and roosting behaviours. This was the first time these observations were made in the rotor-swept zone of operating turbines.

This and on-going research by BWEC is rapidly advancing our understanding of bat fatalities at wind farms and is only possible with the continued support of the wind energy industry.

To review this, and other research, including the study mentioned above, please visit:
<http://www.batcon.org/home/index.asp?idPage=55&idSubPage=30>

Causes of Bird Fatalities⁵

Number per 10,000 Fatalities



Today's comprehensive site assessment studies and better data on migration routes have reduced bird collisions with wind turbines to levels far below other common causes of fatalities.



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⁴: http://www.nationalwind.org/workgroups/wildlife/publications_catalog.pdf
⁵: Source: A Summary and Comparison of Bird Mortality from Anthropogenic Causes with an Emphasis on Collisions, Erickson, et al



WIND FACTS

HEALTH

Wind energy is generating clean electricity, new jobs and economic development opportunities in communities across the country. While wind energy has enjoyed growing success in many countries for several decades, it is a relatively new contributor to the power system here in Canada. As such, it is natural for people to ask questions. As a responsible industry, we are committed to ensuring Canadians have the most up-to-date factual information on wind energy.



Wind Energy: Providing Clean and Safe Power

A growing body of peer-reviewed scientific evidence clearly indicates there is no direct link between wind turbines and health effects in humans.

One of the most thorough examinations of the issue to date is a report released in December 2009 by an expert panel of medical doctors, audiologists, and acoustical professionals. The panel, established by CanWEA and the American Wind Energy Association, reviewed existing scientific literature on the perceived health effects of wind turbines and concluded there is "nothing unique" about the sounds they emit and no evidence they could plausibly have direct adverse physiological effects.

(continued on next page)

"According to the scientific evidence, there isn't any direct causal link between wind turbine noise and adverse health effects."¹

-Dr. Arlene King, Ontario's Chief Medical Officer of Health



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Ontario's Chief Medical Officer of Health and the National Public Health Institute in Quebec reached the same conclusion in their own independent reviews of available evidence.

Responsible siting of projects and meaningful community engagement will address any sound impacts for neighbouring homes and communities. Ontario, for example, has the most stringent regulations in Canada with its requirement that turbines be at least 550 metres from dwellings.

Wind power for clean air.

While operating, wind turbines are powered by wind, producing no greenhouse gasses or pollution.

WHAT DO THE EXPERTS SAY?

"The body of accumulated knowledge provides no evidence that the audible or sub audible sounds emitted by wind turbines have any direct adverse physiological or health effects."

Dr. Robert McCunney, Pulmonary Division Specialist in Occupational and Environmental Medicine, Massachusetts General Hospital, Wind Turbine Sound and Health Effects: An Expert Panel Review

"The infrasound generated by wind turbines is not of sufficient intensity to cause health problems, or even a nuisance."

National Public Health Institute of Québec study, 2009

"Ontario doctors, nurses and other health professionals support energy conservation combined with wind and solar power, to help us move away from coal."

2011 advertising campaign sponsored by the Ontario College of Family Physicians, Registered Nurses Association of Ontario, the Asthma Society of Canada and the Ontario Lung Association

Interested in learning more? These links will take you to PDFs:

Wind Turbine Sound and Health Effects: An Expert Panel Review

(www.canwea.ca/pdf/talkwind/Wind_Turbine_Sound_and_Health_Effects.pdf)

Executive Summary, Conclusions and Panel Member Biographies

(www.canwea.ca/pdf/talkwind/Wind_Turbine_Sound_and_Health_Effects-Executive_Summary.pdf)

The Potential Health Impacts of Wind Turbines (report by Ontario Chief Medical Officer of Health)

(www.health.gov.on.ca/en/public/publications/ministry_reports/wind_turbine/wind_turbine.pdf)

Wind Turbines and Public Health (study by National Public Health Institute of Québec)

(www.inspq.qc.ca/pdf/publications/1015_EoliennesSantePublique.pdf)

¹ The Potential Health Impacts of Wind Turbines. (Ontario Chief Medical Officer of Health, May 2010)



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WIND FACTS

PRICING

Wind energy is generating clean electricity, new jobs and economic development opportunities in communities across the country. While wind energy has enjoyed growing success in many countries for several decades, it is a relatively new contributor to the power system here in Canada. As such, it is natural for people to ask questions. As a responsible industry, we are committed to ensuring Canadians have the most up-to-date factual information on wind energy.



Wind Energy: A Reliable and Affordable Source of Power

Wind is an affordable source of new energy supply that protects against unpredictable fuel and carbon costs.

Any new source of electricity generation is going to cost more than the current generating plants, built and paid for decades ago, that now supply most of Canada's electricity. Among today's options, wind energy stacks up well. Wind is extremely competitive with new installations of coal, hydro, and nuclear power, when the cost of health and environmental impacts are considered.^{1, 2}

The price we pay for wind today, though, is only one part of its value proposition.

Wind turbines do not use fossil fuels for producing electricity; this means that once a wind farm is built, the price of the electricity it produces is set and remains at that level for the entire life of the wind farm. In a time of increasing price volatility of traditional sources of energy, the price stability from wind farms

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provides important protection for consumers. There is no guarantee, for example, that natural gas will remain at today's low prices over the long term. Natural gas prices vary over time with changes in supply and demand – just a few years ago electricity from natural gas-fired projects was more expensive than electricity from wind.

Because wind requires no fuel, produces very little waste and consumes barely any water during operation, it also provides a hedge against the risk and uncertain costs of complying with future greenhouse gas emission restrictions and other environmental regulations.

Jurisdictions in Canada and around the world have developed strategies for capturing the value that wind energy brings to a power system. Feed-in tariffs (FIT), used successfully in countries like Germany, Spain, and France, are a well-established way of creating a stable market for renewable energy investment by providing predictable revenue to wind producers and increasing their access to financing. Ontario's FIT program is the first of its kind in North America, and is helping attract billions of dollars in new investment to the province.

WHAT DO THE EXPERTS SAY?

In 2010, the Ontario Power Authority paid electricity resource costs of \$317 million for conservation programs, and \$269 million for renewables. That is a lot of money – but you must realize that it is recovered over a total Ontario consumption in 2010 of 142 terawatt hours (that's 142,000,000,000 kWh), which amounts to 0.4 cents per kWh (split roughly equally between conservation and renewable subsidies). So the cost of conservation and all the renewable subsidies in 2010 amounted to 0.4 cents of the 13 cents we paid for a kWh in our homes.³

"Once the investment is made, you have a secure price for that power over many, many years. So we're looking for certainty in the electricity supply. This is one way to take out some of the volatility in the marketplace."

Nova Scotia Premier Darrell Dexter, March 2010

The California Energy Commission calculates that a new gas-fired combined cycle power plant has a levelized cost of operation of \$115 per MWh.⁴ Add \$20/MWh to cover the estimated cost of environmental and health damages⁵ and the total is \$135/MWh – exactly the same as Ontario's feed-in tariff rate for onshore, non-community based wind energy.

Interested in learning more?

The Oil Drum, an energy information website, analyzes the cost of wind, the price of wind, the value of wind (www.theoil Drum.com/node/5354). Lazard's Levelized Cost of Energy Analysis (www.blog.cleanenergy.org/files/2009/04/lazard2009_levelizedcostofenergy.pdf) and the World Economic Forum's report on Green Investing 2011 (www.weforum.org/reports/green-investing-2011) compare the cost of some generating technologies.

Sources:

1. Mining coal, mounting costs: The life cycle consequences of coal. Centre for Health and The Global Environment, Harvard Medical School, January 2011
2. Behind the switch: pricing Ontario electricity options, The Pembina Institute, July 2011
3. The True Cost of Renewable Energy and Conservation, Environmental Commissioner of Ontario, March 2011. <http://www.eco.on.ca/blog/2011/03/22/the-true-cost-of-renewable-energy-and-conservation/>
4. Comparative Costs of California Central Station Electricity Generation. (California Energy Commission, January 2010). Table 4, page 3
5. Cost Benefit Analysis: Replacing Ontario's Coal-Fired Electricity Generation. (DSS Management Consultants, RWDI Air Inc; April 2005), page ii.



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WIND FACTS

PROPERTY VALUES

Wind energy is generating clean electricity, new jobs and economic development opportunities in communities across the country. While wind energy has enjoyed growing success in many countries for several decades, it is a relatively new contributor to the power system here in Canada. As such, it is natural for people to ask questions. As a responsible industry, we are committed to ensuring Canadians have the most up-to-date factual information on wind energy.



Wind Energy: Providing Significant Local Economic Benefits

There are a number of factors that impact property values and it is difficult to isolate the potential impact of any single variable. What we do know is that multiple studies have consistently found no evidence that wind energy projects around the world are negatively impacting property values. In fact, wind energy projects provide new sources of stable revenue for municipalities and landowners in the form of taxes and lease payments.

A 2010 study conducted in Chatham-Kent, Ontario, found there was no statistically relevant relationship between the presence of a wind project and negative effects on property values.¹

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A similar analysis by the US Department of Energy's Lawrence Berkeley National Laboratory found that proximity to wind energy facilities does not have a pervasive or widespread adverse effect on the value of nearby homes. Researchers examined 7,500 single-family property sales between 1996 and 2007, covering a time span from before the wind farms were announced to well after construction and operation.²

A 2010 study looking at property values near the 396 MW Twin Groves Wind Farm in Illinois found prices were negatively affected **before** the wind farm was built, but rebounded **after** it was in place.³

WHAT DO THE EXPERTS SAY?

"The Board finds there is no evidence to allow the Board to conclude that since the construction of the wind farm properties on what [the landowner] defines as the west side of the Island have sold for less than properties on the east side."

Assessment Review Board. Commission de révision de l'évaluation foncière.
File No: WR 113994. Municipality: Township of Frontenac Islands

"Based on the data sample and analysis presented here, no evidence is found that home prices surrounding wind facilities are consistently, measurably, and significantly affected by either the view of wind facilities or the distance of the home to those facilities."

The Impact of Wind Power Projects on Residential Property Values in the United States: A Multi-Site Hedonistic Analysis

"In the study area, where wind farms were clearly visible, there was no empirical evidence to indicate that rural residential properties realized lower sales prices than similar residential properties within the same area that were outside the viewshed of a wind turbine."

Wind Energy Study – Effect on Real Estate Values in the Municipality of Chatham-Kent

"During the operational stage of the wind farm project, when property owners living close to the wind turbines actually had a chance to see if any of their concerns materialized, property values rebounded."

Wind Farm Proximity and Property Values: A Pooled Hedonistic Regression Analysis of Property Values in Central Illinois

Sources:

1. Wind Energy Study - Effect on Real Estate Values in the Municipality of Chatham-Kent (Canning Consultants Inc. and John Simmons Realty Services Ltd., February 2010)
2. The Impact of Wind Power Projects on Residential Property Values in the United States: A Multi-Site Hedonistic Analysis (Ben Hoen, Ryan Wiser, Peter Cappers, Mark Thayer, and Gautam Sethi, December 2009)
3. Wind Farm Proximity and Property Values: A Pooled Hedonistic Regression Analysis of Property Values in Central Illinois (Jennifer L. Hinman, May 2010)



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The sights and sounds of wind.



"Tour of the windmills was a surprise and very informative. Great exhibit lovely place"
From the visitor guest book in the interpretive centre of the Wind Energy Institute of Canada

People have a lot of questions about wind turbines and what they look and sound like. Are they really big? How much sound do they make? What will it look like when a wind farm goes up in my community?

Far from being disinterested, developers want to answer these questions and more because building wind farms that address the needs and wishes of local communities is the way to build an industry that benefits all Canadians.

It's not just the view – it's the vision that counts.

The eye of the beholder.

Let's face it. There's no hiding a wind turbine. They are 30 stories tall and tend to be set in clusters. Having said that, many people find beauty and elegance in these sleek and modern structures. Many of these people are residents who live closest to wind farms.

Studies in Denmark and in other European countries where wind farms are prevalent show that proximity to the nearest turbine seems to have a surprising effect on people's attitudes. Residents who live closer than 500 meters to the nearest wind turbine tend to be even more positive about wind energy than people sited further away.¹

Designing for the future.

Developers recognize that visual impacts are a concern for the community. That's why so much effort goes into the planning stages of a wind energy project. Developers are always looking for new and innovative ways to reduce impacts and gain the consent of the community.

There are computer modelling programs that use Geographic Information Systems (GIS) technology to show residents exactly what the landscape will look like once the farm is installed. These programs provide the community with visual answers to their questions. Residents get to see the farm from different perspectives, including how it may look from the local community centre or church – or even someone's living room window.

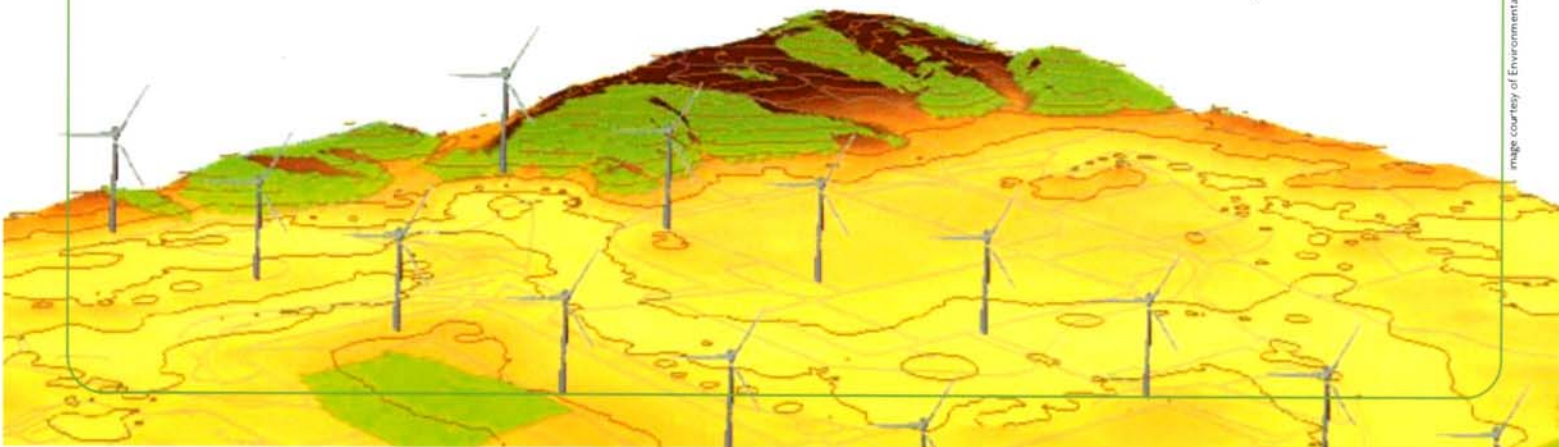




photo courtesy of Vision Quest

CASE STUDY

Wind Energy Institute of Canada, PEI

Site draws 60,000 visitors annually



Wind farms and popular culture.

Where can wind turbines and wind farms be seen today?

If you live near a wind farm, you can always visit. If you don't, you'd be surprised at where wind turbines are turning up. Look closely and you'll see them in TV ads, music videos and in other forms of popular culture. The wind turbine has even made it onto the 51¢ postage stamp from Canada Post!



Noise reduction.

Are modern wind turbines noisy? The answer is no. Any mechanical device has the potential for mechanical noise – the sound that is emitted when two parts rub together. The good news is that this type of sound has virtually disappeared from today's well-engineered modern turbine.

In fact, turbines are so quiet that it's possible to carry on a normal conversation at the base.² At 300 meters from the base, the sound they make has been electronically measured and compared to a whispering voice.

Wind turbines operate under windy conditions, the harder the wind blows the faster the turbines spin. However, much of the sound from the blades is masked by the sound of the wind itself and of the accompanying sound of rustling leaves in nearby trees and shrubs.³



photo courtesy of WEIC

Good science constantly helps us discover new information and unexpected results.

The Atlantic Wind Test Site was established in 1980 and by summer 2006 had evolved into the Wind Energy Institute of Canada (WEICan) – a research and testing facility for wind turbine technology. It is funded 70% by Natural Resources Canada and 30% by PEI Energy Corporation.

This site is home to the most diverse mix of wind turbine designs you'll find anywhere on the planet. Small wind turbines; large capacity turbines; giant "egg beater" vertical axis turbines – and all have generated one completely unexpected result – **tourism!**

The almost universal comment from the 60,000 visitors this site attracts each year is their astonishment at how quiet and how beautiful these wind turbines are.

Rave reviews don't end there. Because of the space constraints for WEICan, wind turbines are closer to local dwellings and roadways than would be permitted with present siting guidelines. Despite this, there has not been a single complaint from local residents. On the contrary, locals take great pride in 'their' wind plant and regularly hike along the access roads. To find out more about WEICan, please visit: www.weican.ca

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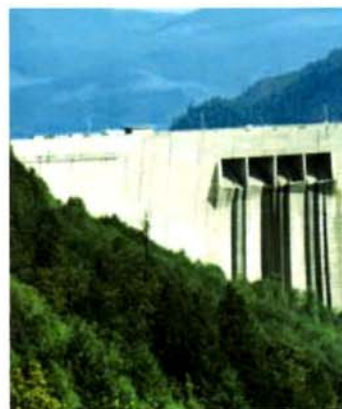
1: Andersen et al. (1997). Rapport om hvordan en dansk kommune blev selvforsynende med ren vindenergi, og skabte ny indkomst til kommunens borgere. Nordvestjysk Folkecenter for Vedvarende Energi, Bishop et Proctor (1994).
2: http://www.wvea.org/pubs/factsheets/WE_Noise.pdf
3: <http://www.bwea.com/ref/noise.html>

WIND POWER IS RELIABLE

Wind power is here.



"Wind has an availability factor of 98% – much higher than conventional forms of energy production."¹



Wind power is determined by more than just how and when the wind blows. Wind energy is the culmination of years of studying the wind and perfecting the technology that harnesses it.

Wind is reliable and has the power to make a significant contribution to Canada's energy needs. In Denmark, 20% of electricity demand is currently met by wind energy. With our abundant resource, there's no reason why we couldn't follow their lead – and the Canadian wind energy industry is here to capture that potential.

As long as there is wind, there will be wind power.

Changing winds.

Everyone knows that the wind is variable. Sometimes it blows, other times it doesn't. So how can wind power be a reliable source of energy? The answer to that lies in how we plan for variability.

Most turbines are located in sites where there's enough wind to produce electricity 70-80% of the time. Naturally, the amount of electricity produced varies with the wind. The way we manage for this variability is to locate wind farms in different geographical areas so that turbines can take advantage of different prevailing winds. The fact is, the wind will never stop blowing everywhere at once – even within a single wind farm, it's unlikely that all the turbines stop spinning at one time. With Canada's large and varied wind resource, there's no doubt that the wind can power us well into the future.

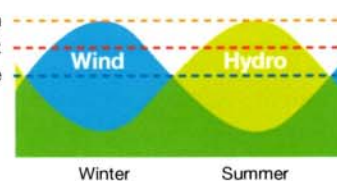
The power of two.

In Canada, we would never rely on wind turbines alone to meet the entire country's electricity needs. Instead, we use wind in conjunction with other forms of compatible energy production.

One example is wind and hydro-electric. These two sources of energy are a natural fit. In the winter, wind is at its peak, allowing hydro to store energy for use when wind productivity is lower. Hydro dams can be closed relatively quickly allowing water reserves to build when peak wind is in full swing.

In the spring and fall, hydro is at its peak production and wind energy serves as its supplement. It's interesting to note how wind energy can help us better manage our precious water resources.

Peak seasonal power production
Average of wind/hydro complement
Average of wind or hydro alone





"The variability of wind matches the variability of demand. Generally wind is strongest in cold-weather months when our demand for electricity is highest."¹

Capturing the energy of wind.

Estimating energy productivity is done through a calculation called capacity factor. If a power plant produced at full capacity 100% of the time, it would have a capacity factor of 100%. Of course, wind is variable, so it doesn't have a 100% capacity factor – but neither does any other form of energy. No energy source, conventional or otherwise, works 100% of the time. It's simply impossible. There are periods when power plants shut down for maintenance and repairs. There are times when resources run low or when unexpected outages occur.

One of the greatest attributes of wind is that it blows hardest – and therefore generates more electricity – in the winter. Wind power offers an opportunity to add more green energy to the grid and to add it during the coldest months of the year, when demand is heavy.

Yes, it's true; the wind blows some of the places all of the time, and all of the places some of the time – but it can't blow everywhere at once.

Wind is variable, but with good site selection, wind farms have access to strong and steady winds.

As of June, 2006, Canada's installed capacity was 1,049 MW – enough to power about 315,000 Canadian homes.

Wind turbines are reliable.

Wind-generated power is a reliable source of electricity. Wind turbines have one of the highest availability factors – a term that refers to the reliability of the turbines and the percentage of time that a plant is ready to generate energy. Wind has an availability factor of 98% – much higher than conventional forms of energy production.

Maintenance issues are also much smaller on a wind farm. At some conventional power plants, the entire plant may have to be shut down for repairs whereas at a wind farm maintenance takes place one turbine at a time.

Enhanced technology and design improvements have also played a part in increasing the reliability of wind power allowing turbines to generate electricity in all but the most extreme weather conditions. Plus wind forecasting technology has the potential to make wind energy more predictable and more reliable than ever before.



CASE STUDY

North Cape Wind Farm, PEI

Owner/operator:
PEI Energy Corporation



On line since 2001, PEI Energy Corporation's North Cape Wind Farm – sited in one of Canada's windiest locations – has an installed capacity of 10.56 MW. With a capacity factor of 40%, it generates about 35,000 MWh annually – enough to supply 3% of PEI's electricity requirements, or about 5,000 PEI homes.

Together, with other wind farms, PEI will have 52 MW of installed wind capacity by mid 2007.

It's estimated that PEI could develop 200 MW of wind energy by 2015. PEI currently imports over 90% of its electricity from New Brunswick. By exporting excess wind energy during periods when production exceeds demand, it's feasible that PEI could net out as an energy self-sufficient province.

Purchasing agreement: North Cape Wind Farm's power is sold to Maritime Electric Company Limited for distribution. Maritime Electric can sell the power through their Green Power Program, which allows customers to purchase it at a premium price. This green power premium is passed along to PEI Energy Corporation. If the electricity available under this program becomes fully subscribed, then additional wind powered generators may be installed on PEI.



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1: Source: http://www.awea.org/faq/tutorial/wwt_basics.html

2: Source: <http://www.windpower.org/en/tour/grid/season.htm>

BLOWING SMOKE

Correcting Anti-Wind Myths in Ontario



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INTRODUCTION

Ontario's communities must be more involved in the benefits and management of wind power projects. A \$2.3 trillion¹ dollar race is unfolding around the world over the next decade to see who will gain the investment and jobs from the global clean energy shift now well underway. The degree to which Ontario secures the buy-in of its citizens will determine whether it will remain a leader in this race and in securing the benefits, or whether it will fall behind and be stuck with an old, polluting economy.

There is no doubt that the building of a wind power facility brings change to where it is located. Some people see the aesthetics of windmills as hopeful and beautiful while others see them as intrusive and ugly. Some benefit from rent or jobs related to the project, while others nearby do not. Taken together, the change, particularly when rapid, can bring controversy. This is now true in parts of Ontario.

Yet into these controversies has stepped a small group of anti-wind activists who have taken advantage of local concern to spread misinformation and fear. They have claimed, with no scientific backing, that there are health impacts. They have claimed, counter to the evidence, that wind power doesn't work or doesn't have benefits. They have succeeded in creating a misinformed backlash against wind power that now jeopardizes jobs, investment and environmental progress in Ontario.



A big part of the response to this situation must come from better practices by the Ontario government and wind power companies. More community-owned power projects must emerge to spread greater benefits to local communities. Earlier and better consultation with local communities must take place as projects are designed and implemented. Environmental assessments must be robust, and facility siting decisions done well. Communities must be real partners in development.

Another part of the response, however, must be to correct the record regarding the misinformation now being spread by anti-wind activists. Communities will not be able to make informed decisions while they are subjected only to a litany of fear-based arguments by those who simply want to shut down the industry. Ontario will not be able to be a leader in clean energy if it is held hostage by those whose only answer is "no."

This report aims to correct the main myths of the anti-wind activists, using credible scientific, mainstream sources to counter the collection of unfounded and unproven opinions promoted by those with only one agenda, to stop wind power.

Whether you live in a local community with a wind power project, are a member of a local council, are a member of the media or are simply an interested party, we hope you will take the time to research the issues for yourself so that you can come to your own informed opinion. Our future depends on getting it right.

Myth 1: **Health impacts**

Reality: **Repeated studies around the world have found no scientific evidence of health impacts from wind power projects.**

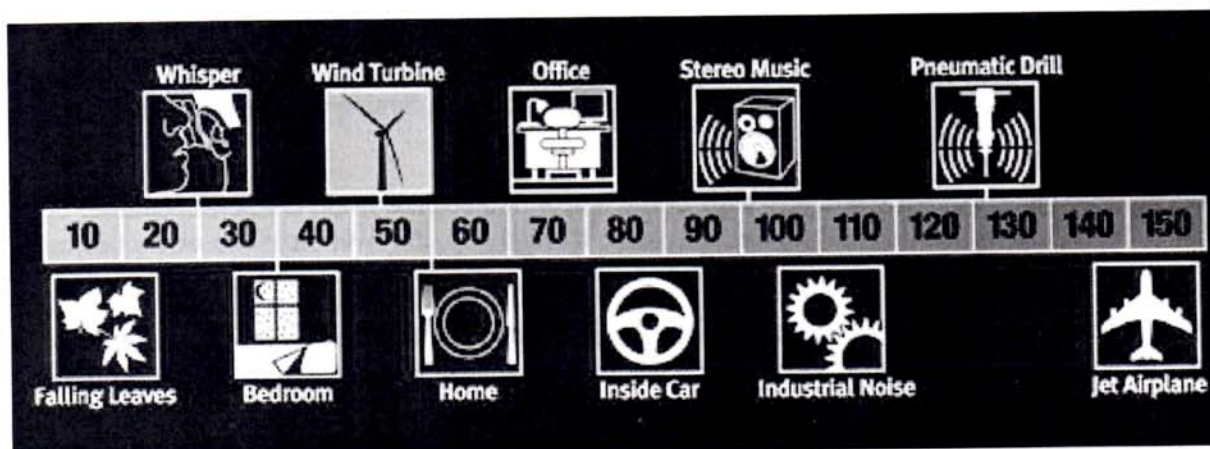


The use of windmills dates back to Persia as early as 200 BC. Many think of the picturesque Dutch windmills used to drain the Rhine delta in the 14th century. The first electricity generating windmills were installed in 1887 in the U.K. and the U.S.. By 1900 Denmark had about 2,500 windmills in service. Around World War I, American windmill makers were producing 100,000 units a year for water pumping on farms and ranches. In 2010 there were enough installed windmills worldwide to produce 430 terrawatt (TW) hours per year, more than the total electricity demand of the U.K..³

In short, people have been living around and using all kinds of windmills for many generations. All of these windmills through history, whether for electricity or otherwise, have made a sound when turning. Now, though, anti-wind activists are alleging that the sounds of windmills lead to health impacts.

Ontario's current setbacks establishing a distance of at least 550m (six football fields long) between windmills and residences are designed to limit a person hearing windmill sounds to under 40 decibels (dB), comparable to indoor background sound, and a level that the World Health Organization says is below the level at which impacts on sleep occur.⁴ This is not to say, however, that people cannot hear the sound of wind power installations, or that weather-related events like temperature inversions can't help project sounds further away.⁵ Even with the setbacks, good siting decisions must still be made in consultation with the community, and the wind industry must keep developing quieter blades.

Comparison of everyday noises to utility-scale turbine sounds CREDIT: PEMBINA INSTITUTE, 2009



Even at a distance, some people still find the sound “annoying,” and those perceptions deserve respect. Studies show, however, that perceptions vary from person to person, depending on their other feelings about windmills. A comprehensive study in Sweden and the Netherlands found that four to 10 per cent of interviewees expressed annoyance at windmill sound levels of 35 to 45 dB, but that this was heavily influenced by whether or not people found the windmills visually ugly (more annoyed) or whether they benefitted from them financially (less annoyed).⁶ This speaks to the need to ensure that communities should both better benefit from and work together with local wind power projects.

A more granular anti-wind argument concerns alleged health impacts from “low frequency sound” and “infrasound” – those sounds that we find hard to hear and which are everywhere in the environment, coming from rivers, the wind itself and also from human sources like cars. Yet, after an extensive review, Ontario’s Chief Medical Officer of Health concluded that “there is no scientific evidence...to indicate that low frequency sound generated from wind turbines causes adverse health effects.”⁷ This finding is echoed in scientific reviews done in the U.S., Australia, and Europe.

“It is clear that some people respond negatively to the noise qualities generated by the operation of wind turbines, but there is no peer-reviewed, scientific data to support a claim that wind turbine are causing disease or specific health conditions.”

— Evaluation done for **WISCONSIN PUBLIC SERVICE COMMISSION**³⁰

While it is important to remain open to new information, it is also important that the information be subject to rigorous scientific analysis, and not taken as fact because it appears on the Internet.

Another issue seized on by anti-wind activists is “shadow flicker” from blades turning in the sunshine that can occur for about 30 minutes at sunrise or sunset when the conditions allow.⁸ Flickering shadows or light from all sources affects about five per cent of people who suffer from epilepsy, but the frequency of the flickering needs to be above 2.5 to 3 hertz - well above the rate of flickering associated with windmills turning.⁹

Finally, there are allegations of harm from electromagnetic fields (EMFs) from windmills. While the World Health Organization (WHO) does recognize adverse impacts from human exposure to very high levels of EMFs, such high levels are not associated with windmills.¹⁰ In its extensive study of electromagnetic fields, the WHO has not found any evidence to conclude that exposure to low level electromagnetic fields is harmful to human health.¹¹

Myth 2: **Viability**

Reality: **Wind power has been successfully used for decades and the world is rapidly scaling up its use because it works, particularly in light of climate change.**



The first large windmill to feed electricity into the grid did so in 1941 in Vermont.¹² The first modern wind farm was installed in New Hampshire in 1980.¹³ Since that time, about 80 countries have installed wind power projects amounting to almost 200 gigawatts (GW) of capacity¹⁴ – for reference, Canada's installed electricity capacity from all sources is 125 GW. Worldwide, wind power has been the fastest growing source of power generation for several years.¹⁵

Yet, despite all this, anti-wind activists claim that wind power isn't viable. That's certainly news to those thousands of engineers and utility managers around the world who have been successfully using wind power for decades.

A big part of the anti-wind activists' argument regarding viability is that the wind does not blow all the time – the power is intermittent. While this is true, the fact that wind power is part of an overall electricity system connected to multiple wind projects in different places, other electricity sources, and other jurisdictions who can trade electricity means that intermittency can be planned for and dealt with. Indeed, it is being successfully dealt with in countries like Denmark, Germany, and Spain which already have much higher levels of wind power on their grids than Ontario does.

Ontario's Independent Electric System Operator concluded that the province could reach peak wind penetration of 17 per cent with minimal system operation impacts.¹⁶ Denmark is now exploring how it can achieve 50 per cent penetration of wind power by 2025, including the use of 'storage' in district heating systems.¹⁷

Digging deeper, anti-wind activists claim that wind power must have polluting electricity sources as backup, which just isn't true. Even if it were, it's bizarre to argue for dropping the clean part of the mix, leaving only the dirty part. The reality is that every megawatt hour of wind power delivered to the grid is a megawatt hour that does not have to come from someplace else, clean or otherwise.

At about 2 per cent of Ontario's electricity output by fuel type,¹⁸ wind's intermittency is currently easily dealt with by other sources. Hydro, for example, accounts for about 20 per cent and can be used as a type of storage, drawing down water levels when wind is low and letting them build up when it is strong. Ontario could also explore pumped storage at hydro facilities, using wind power during strong wind periods to pump water back behind dams to release for power later.¹⁹ With a better tie-in to the hydro-rich Quebec grid and more electricity trading with that province, the wind-hydro synergy could improve even more. Manitoba, for example, just signed a \$4 billion deal with Minnesota to trade wind and hydro power.²⁰

Finally, anti-wind activists allege that wind power isn't viable because it is too expensive. It must be pointed out that if cost is their concern, then they should be arguing against nuclear power, currently Ontario's largest and most expensive source of power, but we rarely hear this from them.

Clean energy in Ontario is currently awarded preferential pricing under the *Green Energy Act*. Nuclear energy in Ontario receives even greater public supports from the province in the form of bailouts for billions in cost overruns. Polluting energy in Ontario does not yet pay for its health and climate impacts that show up in places like hospital costs, although both the provincial and federal governments are moving forward to impose tougher regulations on these sources. Add to this the billions of upgrades to the grid itself that Ontario is finally moving ahead with after years of neglect, and we are left with a complicated picture of what is expensive.

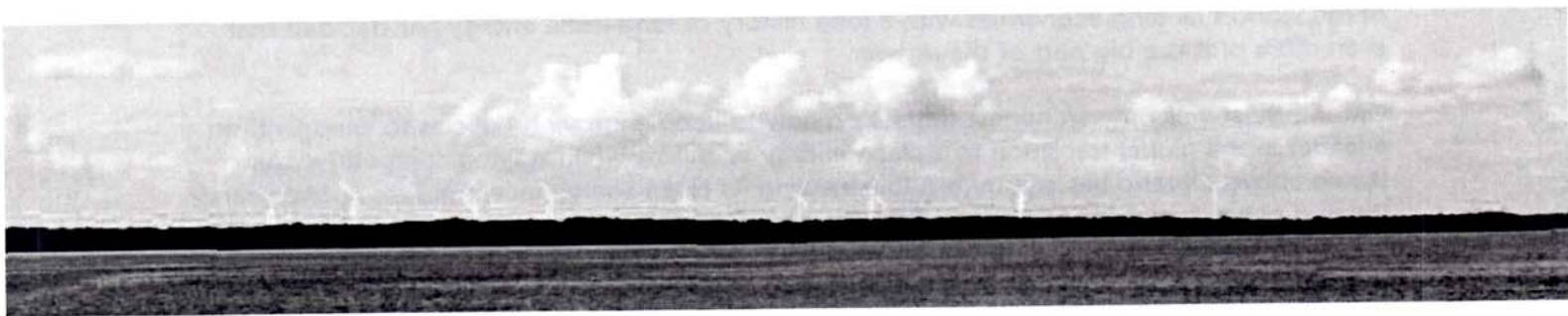
“Wind power is a proven generation technology that is working in today's electrical grids around the world.”

— UNIVERSITY OF MASSACHUSETTS, Renewable Energy Research Laboratory⁴²

So, while anti-wind activists make simplistic allegations that clean energy is responsible for rising power bills, the truth is that other factors have been much bigger drivers. Ontario's Environmental Commissioner recently analyzed the average power bill and found that clean energy incentives account for only about 0.2 cents of the typical 13 cent per kilowatt hour (kWh) that households pay for electricity, with conservation programs accounting for another 0.2 cents.²¹

Since this will go up, however, as more clean energy projects come on line, it is important to note that the Ontario government is going to review its preferential pricing for clean energy every two years.²² Other jurisdictions like Germany, France and Spain have reduced clean energy incentives over time as the industry matures and achieves technical strength and economies of scale.²³ At the same time, the global shift towards making fossil fuels bear their true costs on health and the climate will only accelerate, reducing the relative cost of alternatives like wind power. It is expected that by 2020, wind power will be cheaper than both nuclear and fossil fuels.²⁴

The future of energy will be clean. Will Ontario embrace the future?



Myth 2: **Economic & Environmental Benefits**

Reality: **Wind power is creating thousands of jobs across Ontario and letting us reduce the use of harmful fossil fuels.**



Workers in companies like DMI in Fort Erie, Siemens in Tillsonburg, or Samsung in Windsor would be oddly surprised to find that their jobs “don’t actually exist,”²⁵ as alleged by anti-wind activists. The International Brotherhood of Electrical Workers - Construction Council of Ontario is more than surprised, passionately denouncing efforts to turn the clock back on clean energy as hurting working families, estimating that related projects have resulted in several million person years of employment.²⁶

An independent study projects that 80,000 person years of employment will be created in Ontario in the wind industry between 2011 and 2018.²⁷ These jobs are diverse, ranging from component manufacturing, surveying, engineering, construction, materials supply, operations managers, repair crews, and more.

This sector offers more than a boost for Ontario’s struggling manufacturing base. It is also creating a growing field of education and research. Schools like Kingston’s St. Lawrence’s College are training the next generation of green energy experts, while programs like Repower Ontario help workers make the transition to new careers in the green energy industry.²⁸

Another argument seized on by anti-wind activists is that since clean energy incentives are paid for through electricity bills, this drives up the cost of power for industrial users overall, driving away jobs. Some in Ontario are citing the infamous “Spanish” study, a report done by a Spanish author with links to Exxon-Mobil that claimed a net job loss from renewable incentives in Spain. But the report has been thoroughly debunked by the U.S. government and others, including the right-leaning *Wall Street Journal*.²⁹

Nonetheless, respected bodies like Ontario’s Task Force on Competitiveness, Productivity and Economic Progress has flagged this issue as one to watch, and has opened a discussion about lessons from places like Germany with a longer history of promoting renewable energy than Ontario.³⁰ It must be noted, though, that the traditionally conservative Germans, under conservative Chancellor Merkel, have recently pledged to double down on renewable energy, rather than move away from it.³¹ When faced with tough choices on the future of energy, one of the world’s leading economies with a long history of renewable energy has decided that even more of it is a big part of the answer.

Ontario must welcome an honest debate on how to keep improving policies to keep Ontario a leader in the global transition to a clean energy economy while staying competitive. As stated above, Ontario has committed to reviewing its clean energy incentives every two years. Related policy tools also come into play. The Task Force, for example, advocates a carbon tax to drive renewable energy development and innovation.³² There is also no reason, though, why a carbon tax and clean energy incentives cannot work hand-in-hand, with revenues from the former helping to finance the latter, for example.

As noted above, every kilowatt hour of electricity from wind power is one less that may need to come from burning fossil fuels to drive turbines. The Ontario Medical Association estimates that air pollution causes thousands of premature deaths each year as well as diseases such as asthma.³³ The Ontario Centre for Climate Impacts and Adaptation Resources outlines other costs to the province in the form of increased heat days, decreases in lake water levels, more fire, drought and pests in our forests, extreme weather events, and more invasive species.³⁴

Make no mistake, the stark reality of climate change is forcing us to shift rapidly away from fossil fuels and towards renewable energy. This will also be true of our transportation system, which will necessitate the need for more electricity in that sector, while also providing a new source of storage with the widespread deployment of battery technology in electric vehicles. While Ontario must adjust its clean energy policy over time to learn from experience and to adjust to new developments, there is no turning back on the overall drive towards the deployment of renewable energy, including wind power.

“There is no end to the potential of alternative, non-polluting energy sources.”

— PRIME MINISTER STEPHEN HARPER⁴²



"Concerns about fairness and equity may also influence attitudes towards wind farms and allegations about effects on health. These factors deserve greater attention in future developments."
ONTARIO CHIEF MEDICAL OFFICER OF HEALTH³⁵

"Although opposition to wind farms on aesthetic grounds is a legitimate point of view, opposition to wind farms on the basis of potential adverse health consequences is not justified by the evidence."
DR. DAVID COLBY, Chatham-Kent Acting Medical Officer of Health³⁶

"The perception of the noise is also influenced by the attitude of the hearer towards the sound source. This is sometimes called the nocebo effect, which is the opposite of the better known placebo effect. If people have been preconditioned to hold negative opinions about a noise source, they are more likely to be affected by it."
NATIONAL HEALTH AND MEDICAL RESEARCH COUNCIL, Australian Government³⁷

"Anti-wind information is widely available for free online and relatively simplistic, while the science debunking these claims is complex and often hidden behind an academic journal's pay-walls."
Ontario Journalist ANDREA MCDOWELL³⁸

"It is clear that some people respond negatively to the noise qualities generated by the operation of wind turbines, but there is no peer-reviewed, scientific data to support a claim that wind turbines are causing disease or specific health conditions."
Evaluation done for WISCONSIN PUBLIC SERVICE COMMISSION³⁹

"The articles cited by those who are in favor of a [wind turbine] moratorium are either from non-peer reviewed journals (though some are labeled as "peer reviewed") or are misinterpreted analyses from peer reviewed journals...If there is any evidence for a moratorium, it is most likely on further use of fossil fuels, given their known and common effects on the health of our population."
DORA ANN MILLS, Maine Center for Disease Control and Prevention⁴⁰

"Wind electricity is both variable and, to some degree, unpredictable, but experience and detailed studies from many regions have shown that the integration of wind energy generally poses no insurmountable technical barriers."
INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE⁴¹

"Wind power is a proven generation technology that is working in today's electrical grids around the world."

UNIVERSITY OF MASSACHUSETTS, Renewable Energy Research Laboratory⁴²

"Renewable energy is an important new source of power generation which will help to reduce CO₂ emissions, stabilize energy costs and support long term prosperity for Canadian businesses."

RBC ROYAL BANK⁴³

"Annual income from the wind development has allowed this municipality to achieve sustainability and to reduce property taxes."

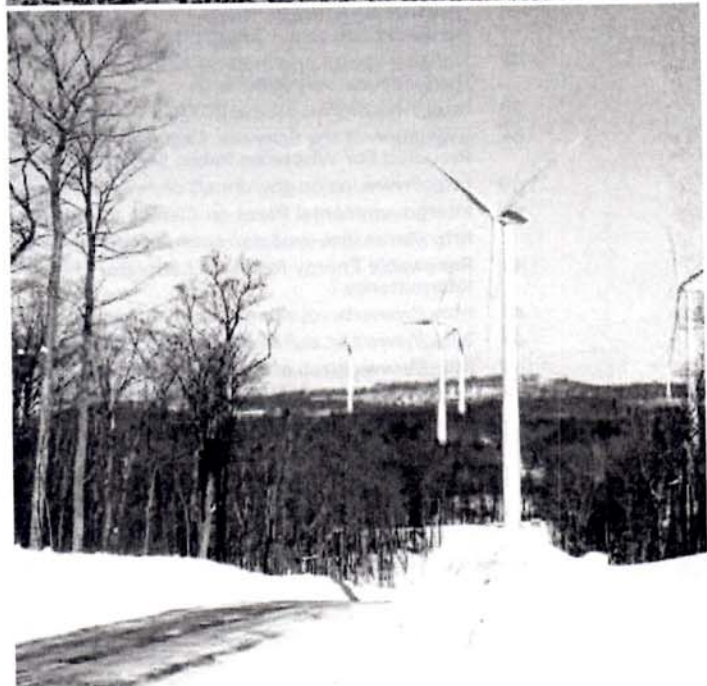
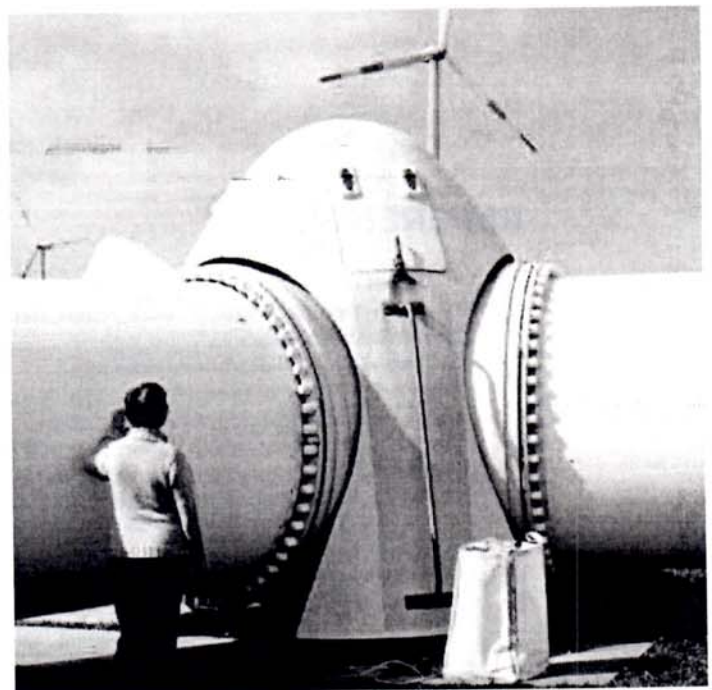
JIM VANDENHOEK, former mayor of Frontenac Islands⁴⁵

"There is no end to the potential of alternative, non-polluting energy sources."

PRIME MINISTER STEPHEN HARPER⁴⁴

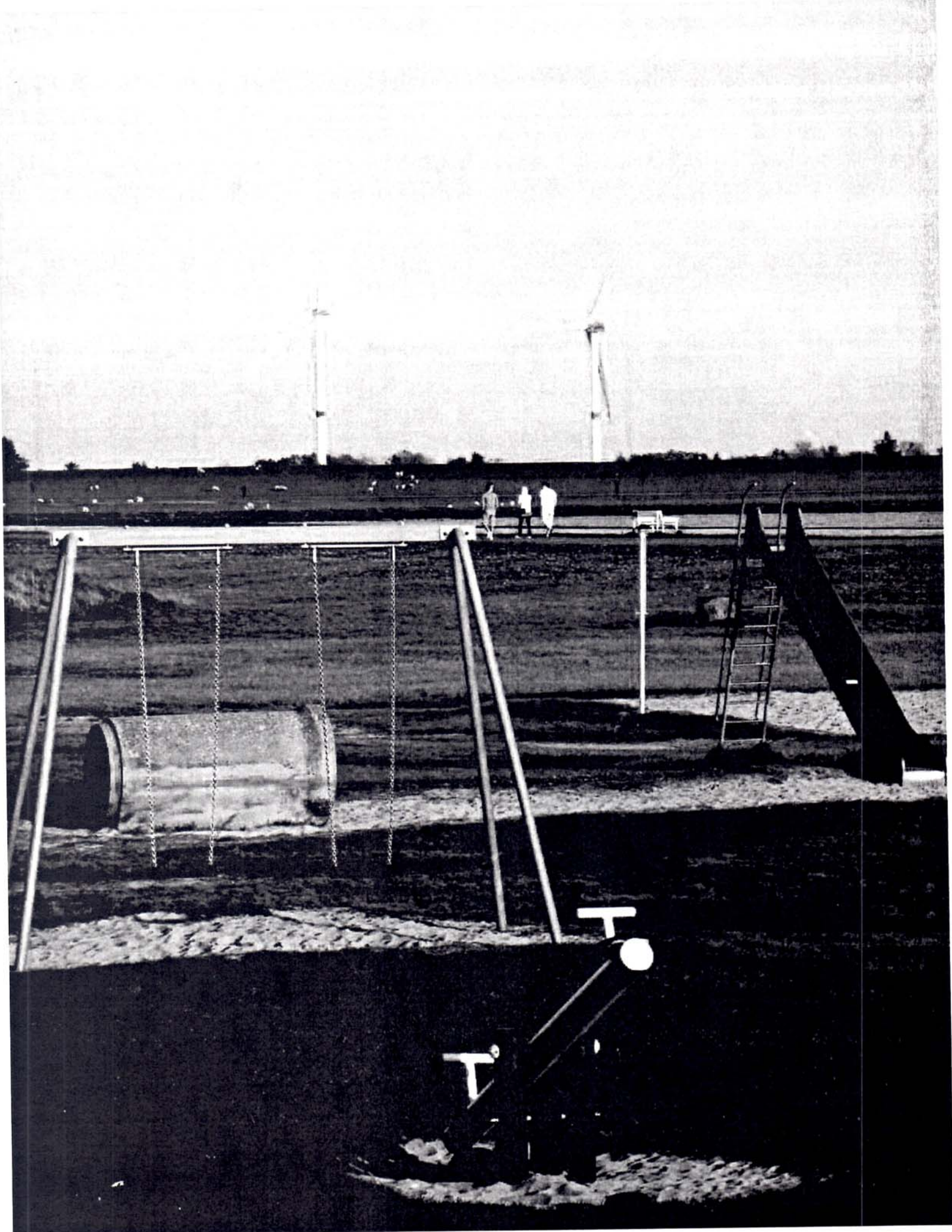
"Design of turbine blades is of course continually being improved; after all, the noise is a sign of inefficiency (rotational energy sacrificed by aerodynamic turbulence), so newer blades are likely to be quieter."

ACOUSTIC ECOLOGY INSTITUTE⁴⁵

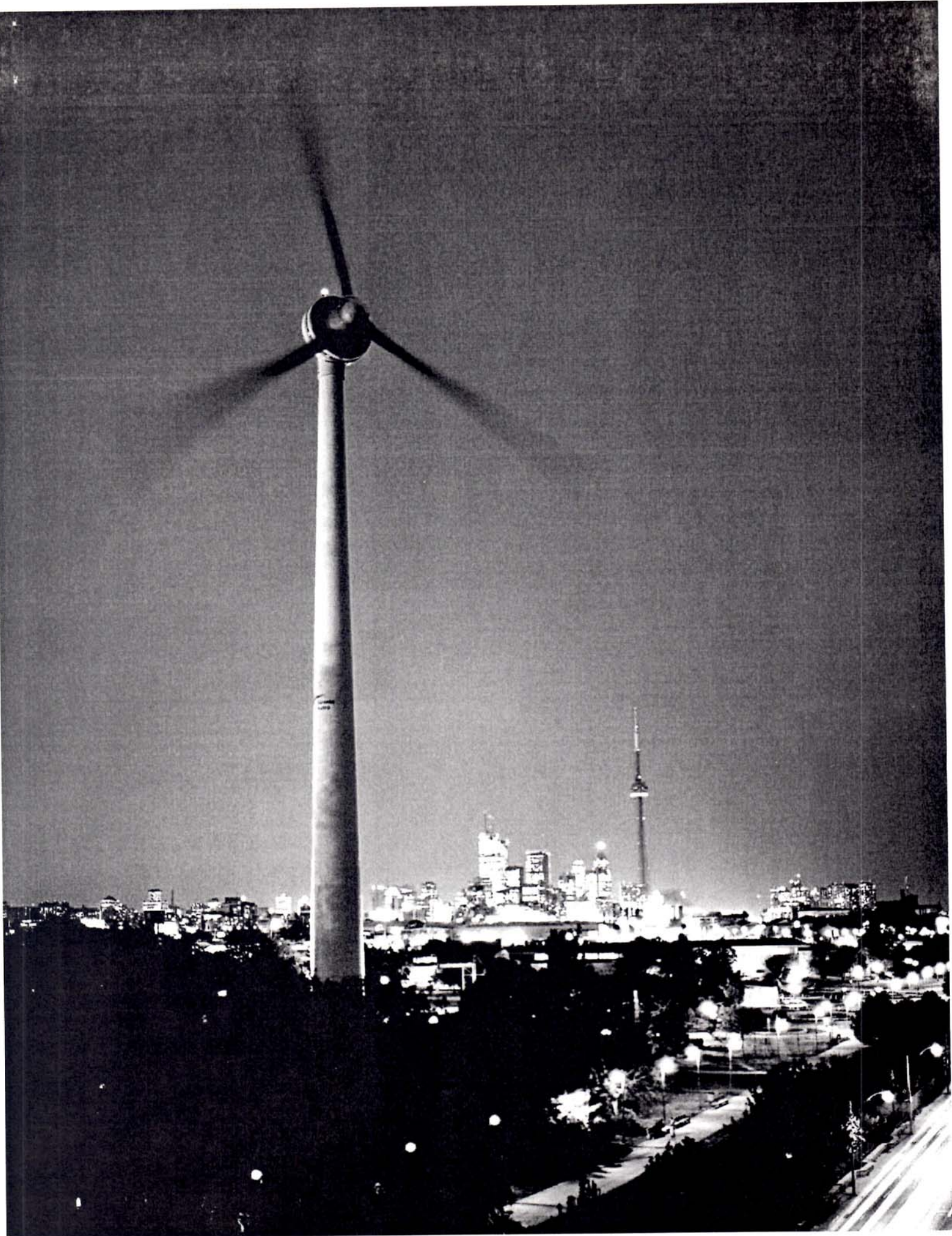


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Time to confront the anti-wind fear campaign

Media Release, June 9, 2011

OTTAWA - Sierra Club Canada's report *The Real Truth About Wind Energy* is available again on the Club's website. The report brings together the best science on the alleged health impacts of wind turbines.

A notice of legal action caused it to be temporarily removed after 1700 downloads.

"People want to know the truth. We will not be deterred from speaking out by bullying, intimidation or attacks on our reputation," said John Bennett, Executive Director of Sierra Club Canada.

Sierra Club Canada is just the latest target of anti-wind energy groups who appear to be out to destroy the reputations of those who do not share their views.

"We have been accused of being paid-off by government and industry - which is simply not true," said Bennett. "Even our youth wing has been smeared because it's a partner in the 'High School Climate Challenge' (HSCC). The alleged crime? HSCC is a program of *Clean Air Champions* which receives funding from the Ontario Trillium Foundation.

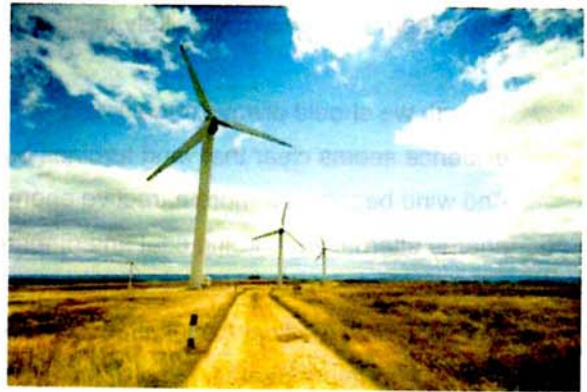
"The real public health risk is from climate change and air pollution. This week the United Nations reported that in 2010, over 42 million people lost their homes due to natural disasters, including climate change-related storms, floods and drought," said Bennett. "That's 17 million more than the year before."

Sierra Club Canada believes rural Ontarians are being frightened and confused when it comes to wind energy.

Sierra Club Canada remains strongly supportive of wind turbines but notes the importance of locating them away from residences, known migratory bird flyways and other sensitive areas.

John Bennett, Executive Director
Sierra Club Canada
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When it comes to health, wind power blows away the alternative



By David Suzuki with contributions from Dale Marshall, David Suzuki Foundation climate change policy analyst.

Wind energy is increasingly being considered a viable and attractive power source. Many countries, including the U.S., Germany, Spain, China, and India, are putting policies into place to drive the development of their wind energy industries. In Canada, the amount of wind energy being harnessed for use in our homes, offices, and factories has grown quickly over the past few years, led by Ontario with its Green Energy Act.

However, a backlash has been growing in many places where wind power is being developed. In Ontario, one of the main criticisms of wind development has been its impact on human health, mostly because of the noise that wind turbines produce. Yet, the peer-reviewed scientific research indicates that the sound from windmills, which generally falls into three categories (audible sound, low frequency, and infrasound), has little to no impact on human health.

This is especially true if windmills are built far enough away from residences. For example, the required setback in Ontario is 550 metres. At this distance, the audible sound from windmills has been found to be below 40 decibels, which is around the level of sound you'd find in most bedrooms and living rooms. Studies from the University of Massachusetts similarly found that even if the sound were audible, annoyance would be minimal.

Critics have also pointed to low frequency sound and infrasound as the source of health impacts from wind turbines. These are sounds that are either difficult to hear or inaudible to humans. However, Ontario's Chief Medical Officer of Health did a review of the scientific literature and found no evidence that low frequency sound from wind turbines causes adverse health effects.

Research from Sweden and the Netherlands may shed some light on the opposition that windmills are facing, despite the lack of evidence for human health impacts. At or just under 40 decibels, 73 per cent of

people could notice the sound and six per cent were annoyed. But those who did not like windmills or found them ugly were more likely to notice the sound and were more likely to be annoyed by it.

Though we should always remain open-minded about new and emerging research on any issue, the evidence seems clear that wind turbines built with appropriate setbacks do not constitute a health hazard. And wind becomes a more attractive energy source when you consider the health impacts of the main energy alternative, burning coal and other fossil fuels.

The Canadian Medical Association estimated that in 2008 Canada's air pollution was responsible for 21,000 premature deaths, 92,000 emergency room visits, and 620,000 visits to a doctor's office. Even if you look only at the health impacts of Ontario coal-fired power plants, the numbers are significant and startling.

When considering whether Canada needs to curtail the development of its wind resources or expand wind power in the way that Ontario's Green Energy Act proposes, we should heed the conclusion of Maine's Center for Disease Control. After dismissing the notion of a moratorium on wind development due to its health impacts, the Center's Dr. Dora Ann Mills concluded, "If there is any evidence for a moratorium, it is most likely on further use of fossil fuels, given their known and common effects on the health of our population."

As for the impacts on wildlife, that's another story. But "most scientific research shows that newer technologies and proper locating can overcome most of the threats to birds and bats. One recent study also noted that "the number of birds killed in wind developments is substantially lower relative to estimated annual bird casualty rates from a variety of other anthropogenic factors including vehicles, buildings and windows, power transmission lines, communication towers, toxic chemicals including pesticides, and feral and domestic cats."

It's never easy to find energy technologies that will satisfy everyone, but with the world facing ever-growing negative consequences of burning fossil fuels, we must weigh our options. In doing so, wind power comes out ahead. If we ensure that care is taken to use technologies with minimal environmental impact and to locate turbines in areas where effects on humans and animals are also minimal, there is no good reason to oppose wind power.

July 6, 2011

<http://www.davidsuzuki.org/blogs/science-matters/2011/07/when-it-comes-to-health-wind-power-blows-away-the-alternative/>

Answers to Frequently Asked Questions

1. What entities receive the estimated \$500,000 tax revenue from the project?

- Municipality of Kincardine, Bruce County and the Bluewater District School Board
- Wind farms provide a new tax revenue stream for local municipalities, which can be used for the benefit of all. Communities can make new choices with funding from an increased tax base, such as local initiatives like community centres, roads, park maintenance and more.

2. What is stray voltage and do we need to worry about the wind farm causing it?

- Stray voltage refers to the difference in voltage potential between two objects that a human or farm animal could make contact with at the same time, for example the barn floor and a grounded device such as a milking machine. The difference in voltage causes a nuisance shock in a human or animal that bridges the distance between the barn floor and the milking machine.
- Ground currents result from unbalanced currents on the distribution lines that serve customers electrical devices. Wind farm collector lines are not connected to customer loads and are perfectly balanced, which prevents unbalanced currents getting into the ground that could cause stray voltage.
- Wind farm contribution to stray voltage will be prevented through engineering studies and avoiding any collector lines using common poles with the utility collector system.
- In Ontario, utilities must be in compliance with stray voltage standards and investigate complaints. The wind farm will comply with all applicable health and safety standards.

3. What are electronic magnetic fields and are they a concern?

- Electromagnetic fields are a combination of invisible electric and magnetic fields. They occur both naturally (light is a natural form of EMF) and as a result of human activity. Nearly all electrical and electronic devices emit some type of EMF. The strength of the EMF decreases with the distance from the source. We have not seen any evidence that establishes a causal link between EMF and health effects to humans.
- The magnetic fields produced by the generation and export of electricity from a modern wind do not pose a threat to public health. Test results on a wind turbine showed that the magnetic field at 10 feet from the wind turbine and associated transformer was less than the magnetic field from a household appliance. No measurable magnetic field is expected at a distance of 25 feet from the turbine studied¹.
- EMF from wind farms is similar to EMF from the utility distribution system, except that the currents from the wind farm are balanced, unlike unbalanced currents from the utility power system. The wind farm collector lines will be mainly underground, not on common poles with the utility power system, so coupling between the utility power system and the wind farm collector system does not occur, effectively eliminating any electric fields.

4. How will you prevent “dirty electricity” impacts?

- The term “dirty electricity” is a new term that seems to be unique to this geographical area. It may be a term intended to describe a common characteristic of electric power

systems known as harmonics. Harmonics are created by non-linear electrical loads such as computer power supplies, florescent lights, TVs and most electrical devices.

- Harmonics can develop in wind farm collector lines when the collector lines are positioned on utility poles in parallel with utility lines that service customers. The wind farm does not plan to use common poles with the utility lines as we plan to bury our collector lines underground wherever possible.
- In Ontario, generators and utilities must be in compliance with harmonic standards and the wind farm will be designed to meet all applicable health and safety design standards.

5. How is wind energy a viable source for power since it is intermittent?

- Electricity grids are already designed to handle variability in both demand and supply. Because of the natural variations in demand, the electric grid always has more power available than it needs. During a power plant outage – whether a conventional plant or a wind plant – backup is provided by the entire interconnected utility system.
- No power plant operates 100% of the time. There are periods when power plants shut down for maintenance and repairs and times when resources run low or unexpected outages occur. At some conventional power plants, the entire plant may have shut down for repairs, whereas wind farm maintenance takes place one turbine at a time.
- The wind turbines at the Armow Wind Project are expected to generate energy between 80-90% of the time on any average year, with the maximum production usually happening during the evening and morning and in winter months, when demand for electricity is highest. Wind forecasting technology makes wind energy easier to predict and more reliable than ever before.

6. How does wind energy affect the cost of energy?

- The cost of electricity from wind energy is predictable because there are no escalating fuel costs, unlike forms of conventional energy. Wind energy costs are stable because fuel isn't part of the equation. Once a wind farm project is built, the price of electricity from the project is set for its lifespan.
- Investing in wind energy also helps us offset our use of other precious resources. Studies have consistently shown that increased use of wind energy will actually result in lower prices to consumers for natural gas – and help conserve that resource for further generations in the process.

7. Should we be worried about safety issues, such as a fire or a turbine falling over?

- To date, there are currently more than 4,500 Siemens 2.3 MW model wind turbines operating around the world, which is the same model that will be used for this project. Siemens has confirmed that there have been no incidents of turbine collapse or fires with this turbine fleet.
- The chance of a turbine collapsing is extremely rare today because of better turbine design and engineering, as well as modern technology that senses any operating errors. The turbines are equipped with technology that automatically shuts them down during very high wind speeds.

- The health and safety of the public, landowners, and personnel at our wind projects is of utmost importance to Armow Wind. The project will be monitored on-site and by a remote operations center staffed 24/7.

8. Does sound or low frequency noise from wind turbines impact human health?

- For more than thirty years people have been living near more than 50,000 wind turbines operating in Europe and more than 35,000 wind turbines operating in North America.² There is no scientific evidence indicating that wind turbines have caused any adverse health effects.³ Overall, health and medical agencies agree that the sound from wind turbines is not loud enough to cause hearing impairment and is not causally related to adverse effects.⁴ Scientific evidence to date does indicate that at the typical setback distances there is no direct health risk from wind turbine noise, including low frequency noise and infrasound.⁵
- Wind turbine sounds are not unique. Based on the levels and frequencies of the sounds, a multidisciplinary scientific advisory panel comprising of medical doctors, audiologists, and acoustical professionals concluded that there is no evidence the audible or sub-audible sounds emitted by wind turbines have any direct adverse physiological effects.⁶

For reference, two recent governmental reports:

- The Massachusetts Department of Environmental Protection in collaboration with the Massachusetts Department of Public Health convened an independent panel of experts, which concluded in January 2012 that there is no evidence for a set of health effects from exposure to wind turbines.
- The Ontario Chief Medical Officer of Health's report in 2010 concluded that scientific evidence available to date does not demonstrate a direct causal link between wind turbine noise and adverse health effects, and there is no scientific evidence that vibration from low frequency wind turbine noise causes adverse health effects.

9. What are examples of sound levels?

Sound Sources (Noise) Examples with distance	Sound Pressure Level L_p dB
Jet aircraft, 50 m away	140
Threshold of pain	130
Threshold of discomfort	120
Chainsaw, 1 m distance	110
Disco, 1 m from speaker	100
Diesel truck, 10 m away	90
Curbside of busy road, 5 m	80
Vacuum cleaner, distance 1 m	70
Conversational speech, 1 m	60
Average home	50
Quiet library	40

10. Examples of organizations supporting wind energy.

"Ontario doctors, nurses, and other health professionals support energy conservation combined with wind and solar power – to help us move away from coal."

– Ontario College of Family Physicians, Registered Nurses Association of Ontario, Canadian Association of Physicians for the Environment, Physicians for Global Survival, the Asthma Society of Canada, and the Lung Association

"With a full review of available data, including that referenced by wind opposition groups, Sierra Club Canada adds its voice to the overwhelming majority of governmental, non-governmental, scientific and environmental groups in saying that a link between wind turbines and health concerns is unfounded."

– Sierra Club Canada

"This report aims to correct the main myths of the anti-wind activists, using credible scientific, mainstream sources to counter the collection of unfounded and unproven opinions promoted by those with only one agenda, to stop wind power..."

- *Reality: repeated studies around the world have found no scientific evidence of health impacts from wind power projects.*
- *Reality: Wind power has been successfully used for decades and the world is rapidly scaling up its use because it works, particularly in light of climate change.*
- *Reality: Wind power is creating thousands of jobs across Ontario and letting us reduce the use of harmful fossil fuels."*

– Environmental Defence and the Ontario Sustainable Energy Association

"There is no end to the potential of alternative, non-polluting energy sources."

– Prime Minister Stephen Harper

"Although opposition to wind farms on aesthetic grounds is a legitimate point of view, opposition to wind farms on the basis of potential adverse health consequences is not justified by the evidence."

– Dr. David Colby, Chatham-Kent Acting Medical Officer of Health

"Renewable energy is an important new source of power generation which will help to reduce CO2 emissions, stabilize energy costs and support long term prosperity for Canadian businesses."

– RBC Royal Bank

"Annual income from the wind development has allowed this municipality to achieve sustainability and to reduce property taxes."

– Jim Vandenhoek, former mayor of Frontenac Islands

In addition, according to the Canada Wind Energy Association, The Canadian Association of Physicians for the Environment, Toronto Renewable Energy Co-operative, Pembina Institute, Bullfrog, The David Suzuki Foundation, Clean Air Alliance, Canada Auto Workers, County Sustainability Group, and Friends of Wind Ontario are all supporters of wind energy in Ontario.

11. How does wind energy compare to the health risks from coal-fired power plants?

- The process of generating energy from the wind does not produce any pollution. Wind energy doesn't contribute to smog, acid rain or climate change. An inevitable by-product of burning fossil fuels for electricity is air pollution, which can cause many forms of health impacts from respiratory disease, cancer and birth defects. When considering electricity generating options, we should consider the full range of costs – including those associated with environmental impacts like air pollution and long-term health effects.
- Conventional sources of energy also have higher environmental lifecycle costs because of all the activity it takes to turn these natural resources into electricity. For instance, coal must be extracted from the ground before shipped by truck or train or sent by pipeline to power plants for conversion into electricity. All this uses energy and creates air pollution.
- Environment Canada statistics show air pollution causes an estimated 5,000 premature deaths in Canada per year and thousands suffer from adverse health effects. Children and seniors suffer the greatest risk.
- According to Environment Canada, 18% of Canada's greenhouse gas emissions are created by burning fossil fuels to generate electricity, and nearly 12% of Canada's smog is a result of burning fossil fuels to produce electricity. The faster we bring more wind energy online, the faster we can clear the air.

12. What will happen to the soil that is excavated from the turbine sites?

- The soil that is excavated to install the turbine foundation structure will be used to backfill the foundation and redistributed around the turbine after construction. If there is excess material that is not needed for fill on project roads or other places in the project area, the soil can typically be left for the landowner to do what he/she wants with it.

13. If drainage tiles are damaged during construction, how and when are they repaired?

- There will be a survey of drainage tiles near excavation sites made before construction. Drainage tiles that are affected near the turbine sites are routed around the foundation area. Tiles cut during trenching operations are repaired within a couple of days or less. In Ontario most municipalities require a local licensed drainage contractor to do all of the repairs and dictate how the location of the cut and repair needs to be documented.

¹ "The Health Effects of Magnetic Fields Generated by Wind Turbines," Windrush, October 2004.

² e.g., Chatham-Kent Public Health Unit, 2008; Minnesota Department of Health, 2009; Australian Government, National Health and Medical Research Council, 2010; Australian Government, 2011, Massachusetts Department of Environmental Protection (MassDEP) and Massachusetts Department of Public Health (MDPH), 2012.

³ e.g., Chatham-Kent Public Health Unit, 2008; Minnesota Department of Health, 2009; Australian Government, National Health and Medical Research Council, 2010; Australian Government, 2011, Massachusetts Department of Environmental Protection (MassDEP) and Massachusetts Department of Public Health (MDPH), 2012.

⁴ e.g., Chatham-Kent Public Health Unit, 2008; Minnesota Department of Health, 2009; Australian Government, National Health and Medical Research Council, 2010; Australian Government, 2011, Massachusetts Department of Environmental Protection (MassDEP) and Massachusetts Department of Public Health (MDPH), 2012.

⁵ Ontario Chief Medical Officer of Health, "The Potential Health Impacts of Wind Turbines," May 2010.

⁶ W. David Colby, M.D., Robert Dobie, M.D., Geoff Leventhall, Ph.D., David M. Lipscomb, Ph.D., Robert J. McCunney, M.D., Michael T. Seilo, Ph.D., Bo Søndergaard, M.Sc., "Wind Turbine Sound and Health Effects An Expert Panel Review," Prepared for American Wind Energy Association and Canadian Wind Energy Association, December 2009.

References and Websites

PROJECT

Project Website: www.armowwind.com

RENEWABLE ENERGY APPROVAL (REA)

Ontario Regulation 359/09: http://www.e-laws.gov.on.ca/html/source/regs/english/2009/elaws_src_regs_r09359_e.htm

NOISE

MOE Guidelines for Wind Farms: http://www.ene.gov.on.ca/environment/en/resources/STD01_078286.html

HEALTH

Potential Health Impact of Wind Turbines - Chief Medical Officer of Health Report, May 2010: http://www.health.gov.on.ca/en/public/publications/ministry_reports/wind_turbine/wind_turbine.aspx

When it comes to health, wind power blows away the alternative, July 2011. David Suzuki of the David Suzuki Foundation: <http://www.davidsuzuki.org/blogs/science-matters/2011/07/when-it-comes-to-health-wind-power-blows-away-the-alternative/>

Turbines and Health, November 2011. Dr. W David Colby is acting medical officer of health in Chatham-Kent, and associate professor at the University of Western Ontario's Schulich School of Medicine & Dentistry.

STRAY VOLTAGE

Guidelines for Limiting Exposure to Time-Varying Electric and Magnetic Fields, 2010: <http://www.icnirp.de/PubEMF.htm>

PROPERTY VALUES

Canning, G., and L.J. Simmons. (February 2010). Wind Energy Study Effect of Real Estate Values In the municipality of Chatham-Kent. Canning Consultants Inc. & John Simmons Realty Services Ltd. Prepared for the Canadian Wind Energy Association: http://www.canwea.ca/wind-energy/talkingaboutwind_e.php

Hoen, B., Wiser, R., Cappers, P., Thayer, M., and G. Sethi. (December 2009). The impact of Wind Power Projects on Residential Property Values in the United States: A Multi-Hedonic Analysis. Ernest Orlando Lawrence Berkeley National Laboratory. Prepared for the Office of Energy Efficiency and Renewable Energy: http://www.canwea.ca/wind-energy/talkingaboutwind_e.php

GENERAL WIND TOPICS

Canadian Wind Energy Association: <http://www.canwea.ca/>





2. Display Boards

Welcome

Thank you for coming to the Armow Wind Project Open House

Please sign in at the front desk



We are here to:

- Introduce you to the Armow Wind Project and Renewable Energy Approval process
- Answer your questions and get your feedback
- Gather your input for consideration in planning the Project

Please provide your contact information if you would like to receive mailings with information about our Project

Armow Wind Project



About Samsung and Pattern

- Samsung Renewable Energy (Samsung) and Pattern Energy (Pattern) are proposing to develop a 180 MW wind energy project known as the Armow Wind Project
- Our mission is to provide customers with clean, renewable energy by developing lasting successful projects



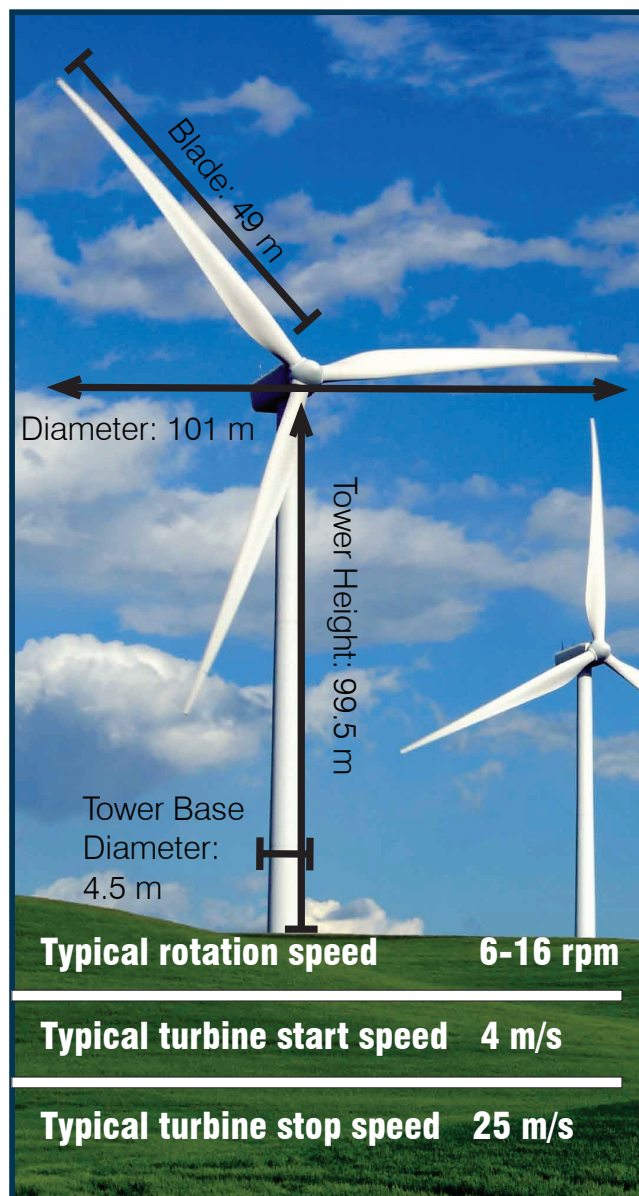
Samsung, together with some of the world's leading renewable energy companies, is making an unprecedented \$7-Billion private-sector investment in Ontario to create the largest cluster of wind and solar power anywhere on the planet. Thanks to Samsung's Green Energy Investment Agreement with the Government of Ontario, we will create 16,000 jobs, kick-start a new industry in Ontario and generate 2,500 megawatts of clean energy – enough to power 600,000 Ontario homes.

Pattern is one of North America's leading independent wind and transmission companies. We develop, construct, own and operate projects built for lasting success. Led by an experienced and proven management team, Pattern has projects totaling over 775 MW in operation or under construction and a development pipeline exceeding 4,000 MW of wind power and transmission projects in the United States, Canada and Latin America.



How Wind Works

- Wind turbines capture kinetic energy in surface winds and convert it into electrical energy using large blades mounted on tall towers
- As wind moves over turbine blades it causes “lift” - the same effect used by airplane wings
- Lift makes the blades rotate, which turns the shaft
- The turning shaft creates electricity within a generator, which in turn creates electricity that can be sent to the power grid
- Components include:
 - Rotors, or blades, which convert the wind’s energy into rotational shaft energy
 - A nacelle (enclosure) containing a drive train, usually including a gearbox and generator
 - A tower to support the rotor and drive train
 - Electronic equipment such as controls, electrical cables, ground support and equipment



Environmental Benefits

Benefits of Wind Power

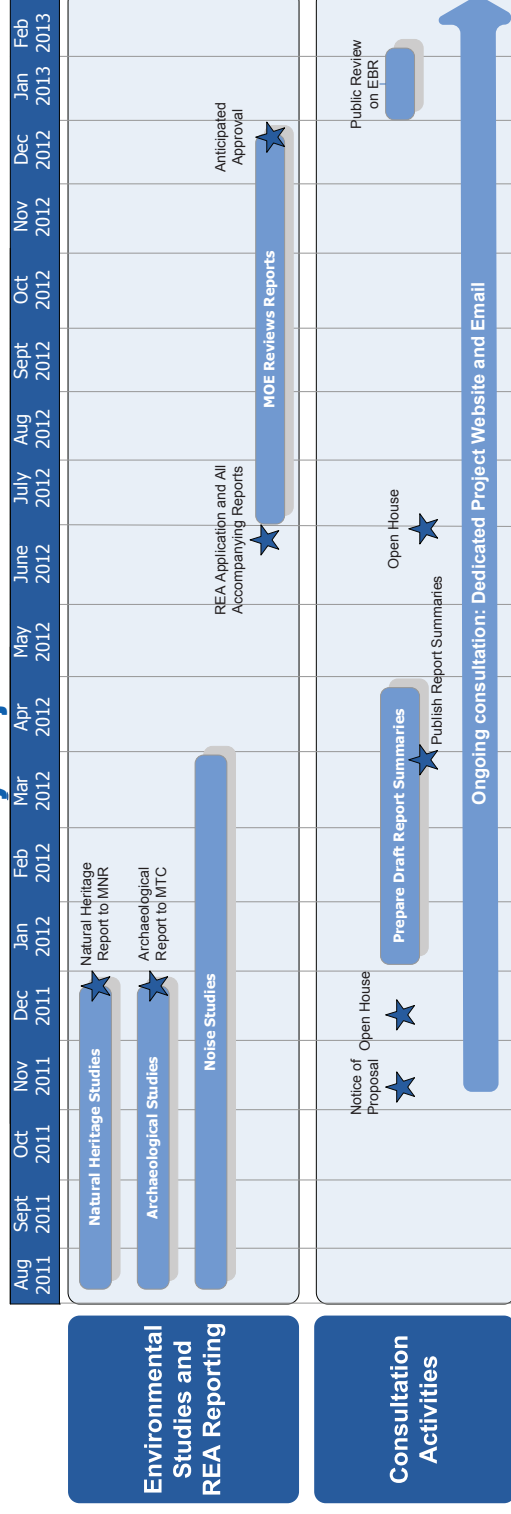
- Clean, economical, and is an inexhaustible resource
- Modern wind power generating equipment is efficient, highly reliable and environmentally friendly
- Renewable energy will help reduce dependence on other forms of electricity generation that contribute to greenhouse gas emissions and poor air quality
- Wind power generation can help reduce the amount of carbon dioxide, sulfur dioxide, and nitrogen oxides that are produced by other forms of electricity generation
- Having wind as part of Ontario's diverse energy sources makes sense from both a cost and security perspective



REA Process

- Before construction can begin, the Armow Wind Project must apply for and be granted a Renewable Energy Approval (REA) by the Ministry of the Environment (MOE)
- The REA process is governed by Ontario Regulation 359/09
- The REA process is a strict environmental approvals process requiring that Samsung and Pattern carry out extensive studies of the potential effects of the project on:
 - Natural Heritage: plants, water and animals (specifically birds and bats)
 - Cultural Heritage (archaeology and built heritage)
 - Noise Receptors
- The process also requires that the proponents consult with community members, municipalities and Aboriginal communities

Preliminary Project Schedule



- ## Project Study Area



Project Design

- Samsung and Pattern are in the planning and early design stages of this Project and a draft Project Description Report has been prepared

A description of construction, operations and decommissioning activities can be found in the Project Description Report on our website at www.armowwind.com

- The major components of the Project include:
 - Wind turbine foundations
 - Wind turbine generators
 - Access roads
 - Collection system
 - Substation interconnect station
 - Laydown areas
 - Construction offices
 - Temporary and permanent metrological towers
- The wind facility will require connection to the existing 230 kV transmission line



Project Design

- We have determined the general Project Study Area and made agreements with landowners who wished to participate in the Project
- In the development of the Project design, we will consider the following:
 - Stakeholder feedback
 - Setbacks from existing infrastructure (roads, lot lines, houses, buildings, etc)
 - Sound
 - Aeronautical safety
 - Wind conditions
 - Site topography
 - Natural environmental features
 - Agricultural operations
 - Radio and telecommunications interference
 - Wake effects between turbines
 - Archaeology

Local Knowledge is Powerful

What else do you think should be considered?

Please fill out a comment form and let us know if there are other important factors that should be considered

Construction Activities

Site Preparation

- Staking and surveying, clearing and grubbing
- Preparation of construction staging areas

Construction of Facility

- Construction of gravel access roads
- Installation of foundations for turbines
- Base preparation for substation
- Wind turbine and substation installation
- Installation of distribution lines
- Testing and commissioning

Site Restoration

- All construction material and temporary facilities will be removed and disposed of properly
- Top soil will be backfilled where appropriate to achieve property drainage
- Re-vegetation and hydro-seeding to occur, where needed

Traffic and Roads

- Only designated transportation routes will be followed
- Proper signage for detours will be promptly displayed
- Flagman and police escorts will be used as necessary

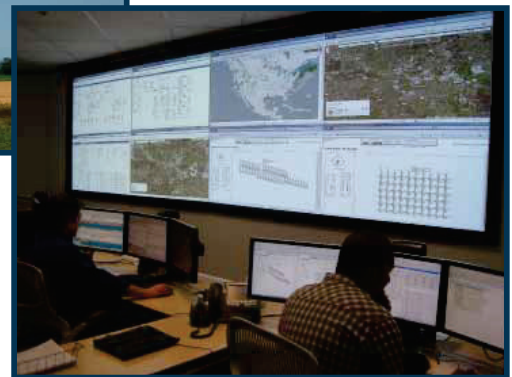
Safety

- Fencing and signs will be used to mark off construction zones



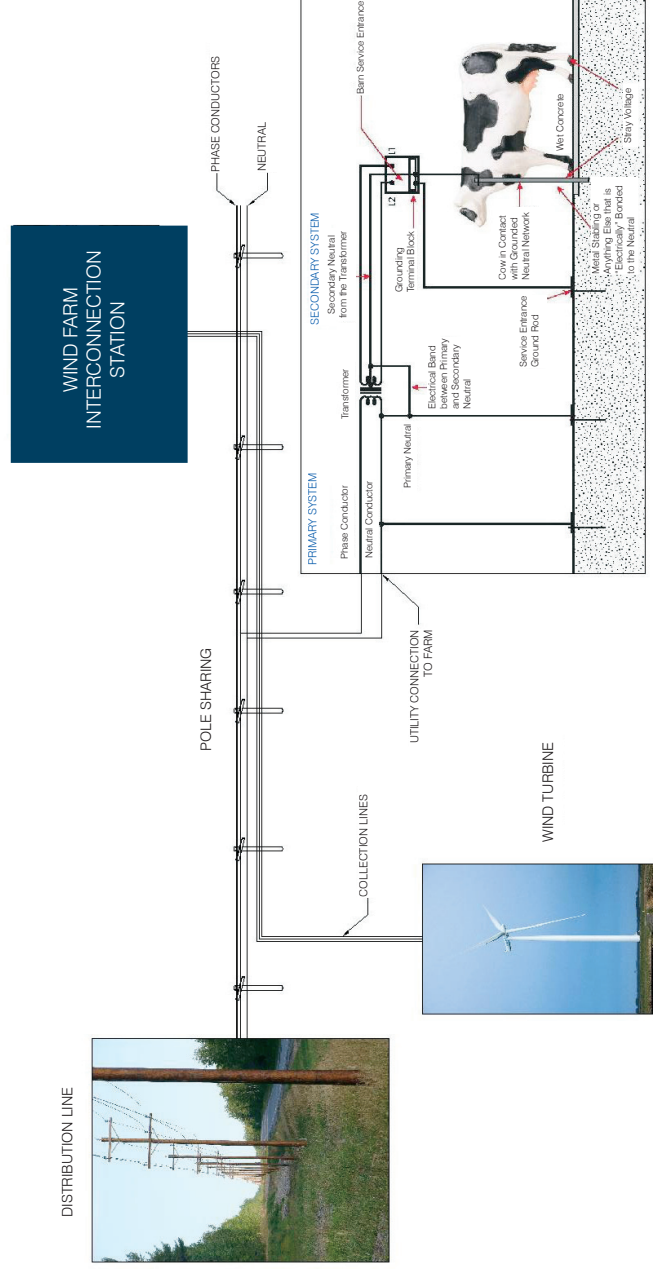
Operation Activities

- Real time monitoring of the Project will occur on-site and remotely to adequately ensure the performance and safety of the wind turbines
- On-site staff combined with an Operational Control Center (OCC) provide 24/7 coverage of the project
- Performance and reliability are ensured through a state-of-the-art Site Control and Data Acquisition (SCADA) system
- Weekly and monthly pro-active maintenance activities occur throughout the life of the Project
- An Emergency Response and Communications Plan will be developed prior to operation
- Project components are expected to be in service for the 20 year term of the power supply agreement between the Proponents and the Ontario Power Authority
- Following the term of the agreement, a decision would be made regarding whether to extend the life of the facility or to decommission
- Decommissioning would entail the removal of Project components and restoring the land to an acceptable condition for its intended use
- The Proponent is responsible for all aspects of the decommissioning of the Project including the associated costs



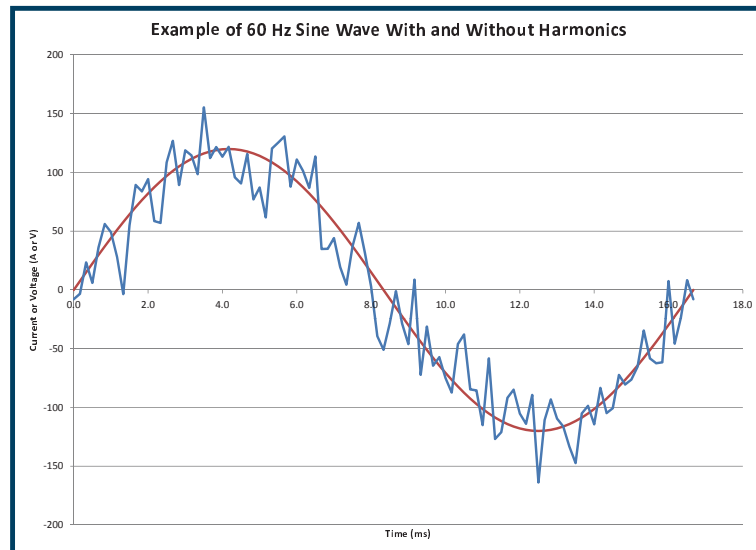
Operation Activities: Stray Voltage

- *Stray Voltage* refers to the difference in voltage potential between two objects that a farm animal could make contact with at the same time
 - In Ontario, utilities must be in compliance with stray voltage standards and must investigate stray voltage complaints
 - Neutral voltage cannot exceed 10 volts and utility contribution to animal contact voltage must be less than 0.5 volts
 - Wind farm contribution to stray voltage can be prevented through engineering studies and design
- Possible stray voltage sources:
 - Elevated voltage on the utility neutral (pole sharing only)
 - Farm wiring
 - Earth return currents under lines with unbalance phase currents
 - Possible wind farm contribution to stray voltage:
 - Induced voltage on utility neutral
 - Earth return currents



Harmonics

- *Harmonics* refers to variations in the normal voltage and current wave shapes
- Excessive harmonics can stress or damage utility and consumer electrical equipment that is connected to the grid
- Possible sources of harmonics:
 - Switched mode power supplies (computers)
 - Lighting (compact fluorescents, halogen, etc.)
 - Motors and generators
 - Power converters (wind turbine)
- Possible wind farm contribution to harmonics:
 - Harmonic current from wind farm flowing into high voltage transmission system (residual after filtering)
 - Induced harmonic current on utility neutral (pole sharing)
 - Harmonic earth return currents

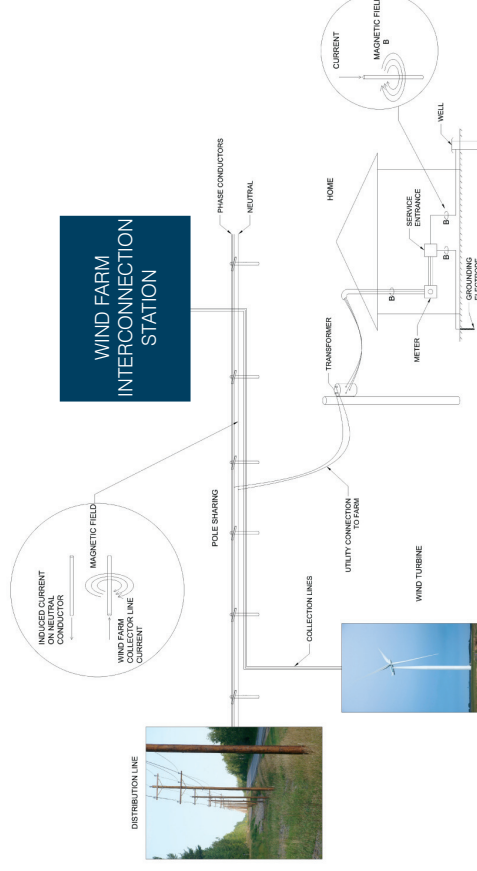


- In Ontario, generators and utilities must be in compliance with harmonic standards
- Engineering study and design can ensure that harmonics remain below required limits

Electromagnetic Fields (EMF)

Electromagnetic fields (EMF) are a combination of invisible electric and magnetic fields. They occur both naturally (light is a natural form of EMF) and as a result of human activity. Nearly all electrical and electronic devices emit some type of EMF. The strength of EMF decreases with distance squared. For example, the field measured 2 meters away from the source will be 4 times weaker than the field measured 1 meter from the source. The field measured 4 meters away will be 16 times weaker, etc.

- Some common electric and magnetic fields:
 - The Earth's magnetic field
 - Light
 - Radio waves
 - Microwaves
 - X-rays
- Possible wind farm contribution to EMF:
 - Wind turbines themselves are not a significant source of EMF
 - EMF is emitted by current flowing through power lines connecting the wind turbines to the power system; this is the same for all power lines
 - EMF produced by wind farm currents can cause currents to flow in the distribution system neutral (pole sharing only); this current will then produce EMF at harmonic frequencies



- International Commission on Non-Ionizing Radiation Protection (ICNIRP) has published "Guidelines for Limiting Exposure to Time-Varying Electric and Magnetic Fields"
- Engineering study and design will ensure that wind farm contribution to EMF (see figure) will be well below these limits

Decommissioning Activities

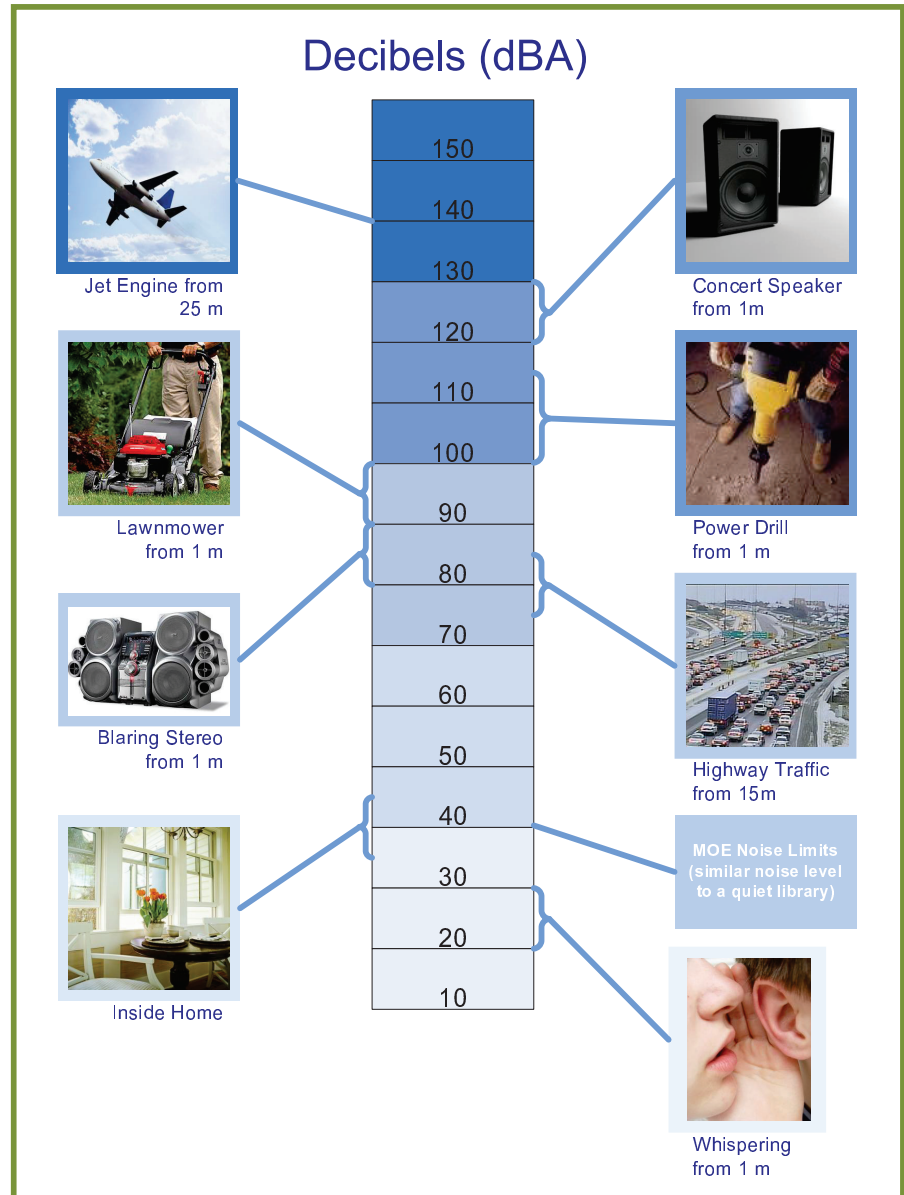
- It is anticipated that the Project will have a useful lifetime of at least 20 years, which can be extended further with proper maintenance, component replacement and repowering
- The Project will be decommissioned after the conclusion of its useful economic life
- Activities involved in decommissioning include:
 - Removal of the wind turbines and all electrical components for salvage
 - Removal of foundations and any access roads not wanted for future farming purposes to a depth suitable for ploughing (approximately 1.0 m)
 - Replacement of topsoil to a depth of surrounding undisturbed lands and plant with suitable ground cover dependent on time of year and in consultation with property owner
 - Ensuring that there are no environmental impacts related to decommissioning activities



Sound - dBA Scale

Renewable Energy Approval Sound Requirements

- Turbines must be placed greater than 550 metres from the closest sound receptor
- Sound levels must adhere to the Ministry of Environment guidelines



- As with all other sound-generating activities (airports, highways, industry, nuclear plants, gas turbines, for example), the Ontario Government requires that wind projects meet specific regulations with respect to sound
- Unlike all other sound-generating activities, wind projects must consider cumulative sound impacts from all wind projects within 5 km

- The Ministry of Environment (MOE) requires the following sound level predictions:
 - Noise from turbines at all receptors (see definition) within 1.5 km of any project turbine or transformer
 - Noise level estimates must be calculated using the ISO 9613-2 International Standard

Sound Receptor

Existing buildings or vacant lots that are or could potentially be used for overnight accommodation or as an educational facility, health care facility, day nursery or place of worship

- The MOE Noise Guidelines for Wind Farms (2008) require that the predicted sound levels at receptors be 40.0 dBA or lower (see sound comparison chart) at all times of the day
- In addition, there is a non-negotiable minimum turbine distance setback of 550 m from any non-participating receptor
 - This distance alone does not guarantee that the sound level will be below 40.0 dBA
 - If the sound level is above 40.0 dBA, the turbine or turbines must be placed further away to achieve this limit
- As part of the REA process, Samsung and Pattern are required to submit a “Noise Assessment Report” to the MOE showing that sound levels predicted using the International Standard are below the limits stipulated in provincial regulations (the Guidelines) at all non-participating points of reception
- If a person believes that the Project is not meeting the required 40 dBA sound limit at his or her receptor, a call-in number for reporting purposes will be provided by Samsung/Pattern to all residents and all reports will be investigated

Natural Heritage

- The Project Area is dominated by active agricultural activities, with several woodlands, wetlands, and open fields occasionally present throughout the area
- A detailed review of available background information, including online and published resources, as well as discussions with knowledgeable agencies, including Ministry of Natural Resources, Bird Studies Canada, and Environment Canada, has been initiated
- During the field monitoring, biologists will be examining all habitat within a minimum of 120 m of the proposed project to identify:

- Woodlands
- Wetlands
- Valleylands
- Significant Wildlife Habitat



- As part of the ongoing field monitoring, several field studies have already been completed to date, including:
 - Vegetation Mapping
 - Amphibian Surveys
 - Bat Habitat Assessments and Acoustic Monitoring
 - Avian Studies
 - Wildlife Habitat Assessments

Natural Heritage reports required for this Project:

- Records Review Report
- Site Investigation Report
- Evaluation of Significance Report
- Environmental Impact Study
- Approvals and Permitting Requirements

- Post-construction monitoring of potential environmental impacts will be completed for at least 3 years at this facility

Water Bodies

- The majority of the watercourses within the Project Area are currently used for agricultural drainage, however natural channels are occasionally present



- Natural watercourses within the Project Area include:
 - Kincardine Creek;
 - Willow Creek; and
 - North Penetangore River
- As part of the field work, all water features within a minimum 120 m of the Project will be examined by aquatic biologists
 - This will confirm and expand upon information collected during the records review
- For any water bodies within 120 m of the Project location, a detailed Environmental Impact Study will be completed to identify and mitigate potential impacts

Birds and Bats

Birds

- Avian studies have been ongoing within this Project Area since 2008 and have focused on several important study periods and survey types, including:
 - Spring Migration
 - Spring Waterfowl Surveys (including Swans)
 - Breeding Bird Surveys
 - Fall Migration Surveys
 - Fall Waterfowl Surveys (including Swans)
 - Winter Bird Surveys
- Study results from the Project Area will be compared to provincial standards for determining Significant Wildlife Habitat
- Any habitats within 120 m of the Project location that are determined to be Significant Wildlife Habitats will require an Environmental Impact Study



Bats

- Acoustic bat surveys were initiated within the Project area in August 2009 to assess fall bat migration and activity patterns
- Surveys were completed using a total of seven ultrasound recording devices designed to record echolocation calls of Ontario's bat species
- Three of the monitoring stations were placed at heights between 30 - 50 m to collect information on bat activity within the heights that overlap with operational turbine blade sweep areas

Archaeology and Heritage

- Archaeological potential is established by determining the likelihood that archaeological resources may be present
- The Ontario Ministry of Culture's criteria for archaeological potential include:
 - Distance to water sources
 - Soil texture and drainage
 - Glacial geomorphology
 - General topographic variability
- For areas where archaeological potential is confirmed, field work must be conducted around all areas disturbed by the Project



Example of artifact found during archaeological field work

- Field work has been conducted and involves walking ploughed fields at 5 metre intervals through the Project area
- Artifacts are identified visually and locations are logged
- Where diagnostic artifacts (artifacts that identify a site's age) are discovered they are collected and catalogued at the laboratory
- If an archaeological site of cultural value is discovered, further assessments will be required

Human Health

"The review concludes that while some people living near wind turbines report symptoms such as dizziness, headaches, and sleep disturbance, the scientific evidence available to date does not demonstrate a direct causal link between wind turbine noise and adverse health effects. The sound level from wind turbines at common residential setbacks is not sufficient to cause hearing impairment or other direct health effects, although some people may find it annoying."

Potential Health Impact of Wind Turbines - Chief Medical Officer of Health Report, May 2010

"The Canadian Medical Association estimated that in 2008 Canada's air pollution was responsible for 21,000 premature deaths, 92,000 emergency room visits, and 620,000 visits to a doctor's office. Even if you look only at the health impacts of Ontario coal-fired power plants, the numbers are significant and startling.

When considering whether Canada needs to curtail the development of its wind resources or expand wind power in the way that Ontario's Green Energy Act proposes, we should heed the conclusion of Maine's Center for Disease Control. After dismissing the notion of a moratorium on wind development due to its health impacts, the Center's Dr. Dora Ann Mills concluded, "If there is any evidence for a moratorium, it is most likely on further use of fossil fuels, given their known and common effects on the health of our population."

It's never easy to find energy technologies that will satisfy everyone, but with the world facing ever-growing negative consequences of burning fossil fuels, we must weigh our options. In doing so, wind power comes out ahead. If we ensure that care is taken to use technologies with minimal environmental impact and to locate turbines in areas where effects on humans and animals are also minimal, there is no good reason to oppose wind power."

"When it comes to health, wind power blows away the alternative," July 2011. David Suzuki of the David Suzuki Foundation.



Human Health

"With a full review of available data, including that referenced by wind opposition groups, Sierra Club Canada adds its voice to the overwhelming majority of governmental, non-governmental, scientific and environmental groups in saying that a link between wind turbines and health concerns is unfounded."

Sierra Club Canada, June 2010

"I researched the topic extensively and found no scientifically credible evidence that wind turbines eroded human health. I was then asked to produce a more extensive report that was issued by the Chatham-Kent Health Unit. Since then I have been asked to speak on a number of occasions about wind turbines and health, and I have collaborated on an international panel review on the topic with some of the biggest names in audiology and occupational health.

Wind power opponents continue to make claims about sickness caused by turbines, which they call "industrial" wind turbines, as that sounds more threatening. However, 10 reviews, including reviews by Ontario's chief medical health officer, the Australian government, the Sierra Club and McMaster University have confirmed that there is no evidence of direct adverse health effects from wind turbines when sited to comply with Ontario's noise regulations. Furthermore, all the power generation alternatives except solar energy are clearly worse than wind turbines in terms of health and environmental effects. That's especially true of coal-fired generating stations. According to a study prepared for the Ontario government, coal plants cause nearly 250 deaths and more than 120,000 illnesses (such as asthma attacks) each year in the province."

"Turbines and Health," November 2011. Dr. W David Colby is acting medical officer of health in Chatham-Kent, and associate professor at the University of Western Ontario's Schulich School of Medicine & Dentistry.

Property Values

“In the study area, where wind farms were clearly visible, there was no empirical evidence to indicate that rural residential properties realized lower sale prices than similar residential properties within the same area that were outside the viewshed of a wind turbine”

Canning, G., and L.J. Simmons. (February 2010). Wind Energy Study Effect of Real Estate Values In the municipality of Chatham-Kent. Canning Consultants Inc. & John Simmons Realty Services Ltd. Prepared for the Canadian Wind Energy Association

“Research collected data on almost 7,500 sales of single family homes situated within 10 miles of 24 existing wind facilities in nine different U.S. states. The conclusions of the study are drawn from eight different hedonic pricing models as well as both repeat sales and sales volume models”.

The various analyses are strong consistent in that none of the models uncovers conclusive evidence of the existence of any widespread property value impacts that might be present in communities surrounding wind energy facilities. Specifically, neither the view of the wind facilities nor the distance of the home to those facilities is found to have any consistent, measurable, and statically significant effect on home sales prices.

Although the analysis cannot dismiss the possibility that individual homes or small numbers of homes have been or could be negatively impacted, it finds that if these impacts do exist, they are either too small and/or too infrequent to result in any widespread, statistically observable impact.”

Hoehn, B., Wiser, R., Cappers, P., Thayer, M., and G. Sethi. (December 2009). The impact of Wind Power Projects on Residential Property Values in the United States: A Multi-Hedonic Analysis. Ernest Orlando Lawrence Berkeley National Laboratory. Prepared for the Office of Energy Efficiency and Renewable Energy

Community Benefits

Job Creation

Construction

- Will create up to 200 jobs during construction period
- The Project will require:
 - Subcontractors experienced in civil work (grading, excavation, and concrete), electrical work, and mechanical assembly
 - Construction managers, electricians, heavy equipment operators, and general laborers for assembly and civil work

Operation

- Will create up to 15 permanent jobs during operations, and business for subcontractors
- Maintenance personnel generally need to be proficient mechanics or electrical/electronic technicians



Overall Community Benefits

- This Project will help support the local economy by:
 - Purchasing goods and services during construction and operation
 - Significantly increasing revenue for all service businesses, i.e. local restaurants and hotels during construction and operations
- Significantly contributes to the tax base annually with approximately \$500,000 benefitting:
 - Municipality of Kincardine
 - Bruce County
 - Bluewater District School Board
- Through land lease agreements with landowners, the Project will provide additional income for farmers
- Community commitments for the life of the Project as determined in a benefits program designed in collaboration with community members

Thank You

Thank you for coming to the Armow Wind Project Open House

Next steps:

- Summarize and respond to comments received at this Open House
- Prepare and publish a site plan with turbine and infrastructure locations
- Complete and prepare reports for required environmental studies
- Open a local Project office
- Hold more Open House events

**To learn more about the Project
or to provide feedback, please
visit our website or contact:**

www.armowwind.com

519-672-3006

info@armowwind.com

**We value your feedback and
want to hear what you think**

Please help yourself to coffee and snacks and complete a comment sheet before you go so that we can take your feedback into consideration



3. Sample Comment Form

Armow Wind Project

Open House, December 13, 2011

Best Western Governor's Inn



Please take a moment to fill out this questionnaire and place it in the box provided, or mail it to the address below. Your input is important. Comments will become part of the public record with the exception of personal information.

1. How did you learn about this Public Open House (please check all that apply)?

- | | |
|---|----------------------------------|
| <input type="checkbox"/> Newspaper Advertisement | <input type="checkbox"/> Website |
| <input type="checkbox"/> Personal Letter or Email | |
| <input type="checkbox"/> Word of Mouth | |
| <input type="checkbox"/> Other: | |

2. What was your main reason for attending this Public Open House?

3. Did this Public Open House meet your information needs?

- | | | |
|------------------------------|-----------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> Somewhat | <input type="checkbox"/> No |
|------------------------------|-----------------------------------|-----------------------------|

Please explain:

[illegible]

Name: _____

Street Address: _____

City/Province: _____

Postal Code: _____ Email: _____

Golder Associates Ltd.
2390 Argentia Rd.
Mississauga, ON
L5N 5Z7



APPENDIX D

First Public Meeting (November 12, 2012) – Handouts, Sample Comment Form and Panels



APPENDIX D

1. Handouts

Summary of Report Revisions



Report	Section of Report	Report Date: August, 2012	Report Date: September, 2012	Report Date: November 2012
Draft Project Description Report	Section 1.1		Added: None of the Project Location is situated on Crown Land.	
	Table 6			Added (to collector substation): Communication equipment, SCADA equipment, protection and control equipment, conforming to IESO market rules
Draft Construction Plan Report	Section 4.0	The following construction-specific potential effects and mitigation measures have been identified and analyzed for any negative environmental effects that may result from construction/installation activities within 120 m from the boundary of the Project Location.	Revised: The following construction-specific potential effects and mitigation measures have been identified and analyzed for any negative environmental effects that may result from construction/installation activities within 300 m from the boundary of the Project Location.	
	Section 4.2.1	Significant wildlife habitat are discussed in more detail in the Draft Natural Heritage Assessment Environmental Impact Study, which considers the following wildlife habitat types: waterfowl stopover and staging areas (terrestrial and aquatic), shorebird migratory stopover areas, bat maternity colonies, colonial-nesting bird breeding habitats (tree/shrub and ground), waterfowl nesting areas, winter deer yards, amphibian breeding habitats (woodland), marsh bird breeding habitats, and, open country bird breeding habitat.	Revised: Significant wildlife habitat are discussed in more detail in the Draft Natural Heritage Assessment Environmental Impact Study, which considers the following wildlife habitat types: waterfowl stopover and staging areas (terrestrial and aquatic), shorebird migratory stopover areas, bat maternity colonies, colonial-nesting bird breeding habitats (tree/shrub and ground), waterfowl nesting areas, winter deer yards, amphibian breeding habitats (woodland), marsh bird breeding habitats, and, open country bird breeding habitat.	

Summary of Report Revisions



Report	Section of Report	Report Date: August, 2012	Report Date: September, 2012	Report Date: November 2012
	Section 4.2.2	Construction activities occurring in close proximity to woodlots will use tree protection fencing or implement a tree preservation plan and wildlife habitats within 30m of construction activities will be delineated to avoid disturbance or damage	Revised: Construction activities occurring in close proximity to woodlots will use erosion control fencing and wildlife habitats within 30m of construction activities will be delineated to avoid disturbance or damage.	
	Table 8		Added: Table 8: Summary of Removal of Vegetation and Habitat Environmental Effects Monitoring Plan	
	Section 4.3.3.3			Added: If pile type foundations are determined to be suitable at some locations, no adverse impacts to the water table are anticipated.
Draft Design and Operations Report	Section 4.4.1	Deleted: A full assessment and location of this well will be developed and determined as part of detailed engineering	Added: Water Supply Feasibility and Effects Assessment for the Project has been completed to evaluate the feasibility of meeting the water demand with groundwater supply wells and assess the potential effects of groundwater supply well use on local landowners and environmental features. The desktop study reviewed the MOE's water records database, construction details and performance testing results for 221 groundwater supply wells located within the Project Study Area. The	

Summary of Report Revisions



Report	Section of Report	Report Date: August, 2012	Report Date: September, 2012	Report Date: November 2012
Draft Design and Operations Report			assessment concluded that feasibility of establishing groundwater supply wells to meet the demands of the Armow Wind Project is considered to be high. The water demand for the Project (less than 20 m ³ /day) is low and will not require permitting from the MOE. Adverse effects on local water well users or environmental features (i.e., wetlands, watercourses and woodlots) are not known to occur from the operation of groundwater supply wells at such low rates. For more information, the Water Supply Feasibility and Effects Assessment can be found under Appendix C of this Report.	
	Section 5.2	Where the Project Location was within 120 m of natural heritage features that were known or were predicted to be significant, an Environmental Impact Study (EIS) was completed. The EIS included an effects assessment, determination of appropriate mitigation measures, and evaluation of residual effects and identification of environmental effects monitoring plans.	Revised: Where the Project Location was within 120 m of natural heritage features that were confirmed or presumed to be significant, an Environmental Impact Study (EIS) was completed. The EIS included an assessment of potential negative effects, determination of appropriate mitigation measures, and the identification of performance objectives, required monitoring and contingency plans.	
	Section 5.2.1	Information obtained in the Records Review, Site Investigation and	Revised: Information obtained in the Records Review, Site	

Summary of Report Revisions



Report	Section of Report	Report Date: August, 2012	Report Date: September, 2012	Report Date: November 2012
		Evaluation of Significance (see Natural Heritage Assessment Report) indicates that there are 108 significant natural features within 120 m of the Project Location. Significant features found within 120m of the Project location include 2 Areas of Natural and Scientific Interest (ANSI), 53 woodlands, 45 wetlands (including 2 Provincially Significant Wetlands), 5 valleylands, and 33 significant wildlife habitats. Many of the significant wildlife habitats (30) have been presumed significant for the purposes of this report; however, site specific surveys following approved methods will be conducted to confirm significance prior to the construction phase.	Investigation and Evaluation of Significance (see Natural Heritage Assessment Report) indicates that there are 225 significant natural features within 120 m of the Project Location. Significant features found within 120m of the Project location include 2 Areas of Natural and Scientific Interest (ANSI), 59 woodlands, 41 wetlands (including 2 Provincially Significant Wetlands), 5 valleylands, and 118 significant wildlife habitats. Many of the significant wildlife habitats (115) have been presumed significant for the purposes of this report; however, site specific surveys following approved methods will be conducted to confirm significance prior to the construction phase.	
Draft Design and Operations Report	Section 5.2.2	With the exception of additional pre-construction monitoring for 22 potential open country bird breeding habitats and 9 potential bat maternity roost habitats	Revised: With the exception of additional pre-construction monitoring for 112 potential wildlife habitats	
	Section 5.2.2		Added: or committed to within the Environmental Impact Study	
	Section 5.6.5.1		Added: The estimated maximum daily quantity of waste generated will be approximately 20 gallons (2 kitchen garbage bags)	
	Table 8		Updated: Updates to table 8 for sections 5.2 to reflect	

Summary of Report Revisions



Report	Section of Report	Report Date: August, 2012	Report Date: September, 2012	Report Date: November 2012
			revisions as listed above	
	Appendix C		Added: Water Supply Feasibility and Effects Assessment	
	Section 3.2.3		The collector substation will accommodate an isolation switch, circuit breaker, step-up power transformer(s), distribution switch-gear, instrument transformers, communication equipment, SCADA equipment, protection and control equipment, grounding and revenue metering (conforming to IESO market rules)..	Revised: The collector substation will accommodate isolation switch(es), circuit breaker(s), step-up power transformer(s), distribution switch-gear(s), capacitor banks, instrument transformers, communication equipment, SCADA equipment, protection and control equipment, grounding transformers and revenue metering (conforming to IESO market rules), substation grounding and a control building.
Draft Decommissioning Plan Report	Section 2.7.2	SVRCA	Revised: SVCA	
	Table 1		Reference to report sections in Table 1: Section 2.2 Section 2.3 Section 2.8	Revised: Section 2.6 Section 2.7 Section 2.8
Draft Wind Turbine Specifications Report	Appendix A	Appendix A: Acoustic Emissions Data (Provided under Separate Cover for Agency Review)	Appendix A: Included Acoustic Emissions Data under Appendix A	
Natural Heritage Site Investigation Report	5.1 – Table 2.	- Wetland assessment dates	Added: - Wetland IDs for survey dates with wetland assessments - Additional survey dates	

Summary of Report Revisions



Report	Section of Report	Report Date: August, 2012	Report Date: September, 2012	Report Date: November 2012
	5.2	- General description of ANSIs	Added: - Descriptions of Greenock Swamp Life Science ANSI and Glamis Bog Life Science ANSI	
	5.4		Added: - Paragraph including survey dates range and summary survey methods	
Natural Heritage Site Investigation Report	5.6.1			Added: - Reference to Significant Wildlife Habitat Technical Guide
	5.6.1 – Table 4.	- References to OMNR Significant Wildlife Habitat Technical Guide and OMNR Significant Wildlife Habitat Ecoregion 6E Criterion Schedule: Addendum to SWHTG	Added: - Updated 'Methods' column for habitats Removed: - All references to OMNR Significant Wildlife Habitat Technical Guide	Updated: - 'Criteria' and 'Methods' columns for habitats
	5.6.2 – Table 5.	- References to OMNR Significant Wildlife Habitat Technical Guide and OMNR Significant Wildlife Habitat Ecoregion 6E Criterion Schedule: Addendum to SWHTG	Added: - Updated 'Methods' column for habitats Removed: - All references to OMNR Significant Wildlife Habitat Technical Guide	Updated: - 'Criteria' and 'Methods' columns for habitats
	5.6.3 – Table 6.	- References to OMNR Significant Wildlife Habitat Technical Guide and OMNR Significant Wildlife Habitat Ecoregion 6E Criterion Schedule: Addendum to SWHTG	Removed: - All references to OMNR Significant Wildlife Habitat Technical Guide	
	5.6.3 – Table 7.		Added - Reference to OMNR Significant Wildlife Habitat Ecoregion 6E Criterion Schedule: Addendum to SWHTG (2012)	
	5.6.4 – Table 8.	- References to OMNR Significant Wildlife Habitat Technical Guide and OMNR	Removed: - All references to OMNR Significant Wildlife Habitat	

Summary of Report Revisions



Report	Section of Report	Report Date: August, 2012	Report Date: September, 2012	Report Date: November 2012
		Significant Wildlife Habitat Ecoregion 6E Criterion Schedule: Addendum to SWHTG	Technical Guide	
Natural Heritage Site Investigation Report	5.6.4 – Figures 2- 19.		Updated: - Figures	
	6.1 – Table 9.		Updated: - Figure reference numbers	
	6.2 – Table 10.		Added: - Several new woodlands Updated: - ELC communities, Functions column - Inclusion communities not mapped	
	6.2 – Figures 20- 36.		Updated: - Figures	
	6.3			Updated: - Wetland assessment details
	6.3 – Table 11.		Added: - New wetland Removed: - Several wetlands Updated: - Several communities have been complexed - ELC communities, 'Distance to Project Components' column - Inclusion communities not mapped	Updated: - 'Distance to Project Components' column
	6.4 – Table 12.		Updated: - 'Size' column, ELC communities, 'Distances to Project Components' column	
	6.5.1	- References to OMNR Significant Wildlife Habitat Technical Guide and OMNR Significant Wildlife Habitat Ecoregion 6E Criterion Schedule:	Removed: - All references to OMNR Significant Wildlife Habitat Technical Guide	

Summary of Report Revisions



Report	Section of Report	Report Date: August, 2012	Report Date: September, 2012	Report Date: November 2012
		Addendum to SWHTG		
Natural Heritage Site Investigation Report	6.5.1 – Table 13.		Removed: - Several habitats Updated: - 'Rationale' column	
	6.5.2	- References to OMNR Significant Wildlife Habitat Technical Guide and OMNR Significant Wildlife Habitat Ecoregion 6E Criterion Schedule: Addendum to SWHTG	Removed: - All references to OMNR Significant Wildlife Habitat Technical Guide	
	6.5.2 – Table 14.		Updated: - 'Rationale' column	Updated: - 'Rationale' column
	6.5.3	- References to OMNR Significant Wildlife Habitat Technical Guide and OMNR Significant Wildlife Habitat Ecoregion 6E Criterion Schedule: Addendum to SWHTG	Removed: - All references to OMNR Significant Wildlife Habitat Technical Guide	
	6.5.3 – Table 15.		Updated: - 'Rationale' column	
	6.5.4	- References to OMNR Significant Wildlife Habitat Technical Guide and OMNR Significant Wildlife Habitat Ecoregion 6E Criterion Schedule: Addendum to SWHTG	Removed: - All references to OMNR Significant Wildlife Habitat Technical Guide	
Natural Heritage Site Investigation Report	6.5.5	- References to OMNR Significant Wildlife Habitat Technical Guide and OMNR Significant Wildlife Habitat Ecoregion 6E Criterion Schedule: Addendum to SWHTG	Removed: - All references to OMNR Significant Wildlife Habitat Technical Guide Updated: - Number of candidate habitats - Habitat mapping	
	6.5.5 – Table 16.		Added: - New candidate habitats	Updated: - Number of candidate habitats - 'Criteria

Summary of Report Revisions



Report	Section of Report	Report Date: August, 2012	Report Date: September, 2012	Report Date: November 2012
				Rationale' column - 'Size' column - 'Distance to Project Location' column - Figure references
	6.5.5 – Table 17.		Added: - Generalized descriptions for new habitats Updated: - Criteria Rationale column	Updated: - 'Criteria Rationale' column
	7.0 – Table 18.		Added: - New woodlands, wetlands, wildlife habitats - New generalized habitats Removed: - Individual wetlands which have been complexed Updated: - Distances for wetlands which have been complexed	Updated: - 'Distance to Closest Turbine' column - 'Distance to Closest Other Project' column - 'Distance to Project Infrastructure with an Operational Effect' column
	7.0 – Table 19.		Updated: - Number of wetlands, habitats, woodlands	
	7.0			Added: - Rationale for when specific significant wildlife habitat studies will be conducted
	7.0 – Table 20.		Updated: - 'Status Based on Site Investigation' column	
	8.0		Updated: - New references	
Natural Heritage Evaluation of Significance Report	4.0 – Table 1.		Added: - New woodlands, wetlands, wildlife habitats - New generalized	Updated: - 'Distance to Closest Turbine' column - 'Distance to

Summary of Report Revisions

Report	Section of Report	Report Date: August, 2012	Report Date: September, 2012	Report Date: November 2012
			habitats Removed: - Individual wetlands which have been complexed Updated: - Distances for wetlands which have been complexed	Project Infrastructure with an 'Operational Effect' column
	5.1 – Table 2.	- Wetland assessment dates	Added: - Wetland IDs for wetland assessment dates - Additional survey dates	
	5.3		Updated: - Number of woodlands	
	5.3 – Table 3.		Updated: - 'Standards of Significance' column	
	5.4		Added: - Wetland function assessment methods paragraph	
	5.6.1		Added: - Rows for new habitats Updated: - 'Evaluation Methods' and 'Standards of Significance' columns	
Natural Heritage Evaluation of Significance Report	5.6.1 – Table 5			Updated: - 'Evaluation Methods' column
	5.6.2 – Table 6.		Updated: - 'Evaluation Methods' and 'Standards of Significance' columns	Updated: - 'Evaluation Methods' column
	5.6.3 – Table 7.		Added: - Rows for new habitats Updated: - 'Evaluation Methods' and 'Standards of Significance' columns	Updated: - 'Evaluation Methods' column
	5.6.4 – Table 9.	- Included references to 'The Significant Wildlife Habitat Technical Guide Decision Support System (OMNR	Removed: - References to 'The Significant Wildlife Habitat Technical Guide Decision Support System	

Summary of Report Revisions



Report	Section of Report	Report Date: August, 2012	Report Date: September, 2012	Report Date: November 2012
		2011c)', 'OMNR Significant Wildlife Habitat Ecoregion 6E Criterion Schedule: Addendum to SWHTG (2012)', and 'OMNR Significant Wildlife Habitat Technical Guide Appendix Q (2000)'	(OMNR 2011c)' and 'OMNR Significant Wildlife Habitat Technical Guide Appendix Q (2000)'	
	6.0		Updated: - Number of woodlands	
	6.0 – Figures 2-18		Updated: - Figures	
	6.0 – Table 10.		Added: - New woodlands Updated: - 'Composition' column, 'Distance to Project Location' column, 'Ecological Function' column, Figure numbers,	
Natural Heritage Evaluation of Significance Report	7.0		Updated: - Number of wetlands	
	7.0 – Table 11.		Added: - New wetland Removed: - Individual wetlands which have been complexed Updated: - 'Composition' column, 'Distance to Project Location' column, 'Ecological Function' column, Figure numbers - Newly complexed wetlands	Updated: - 'Distance to Project Location' column
	8.0 – Table 12.		Updated: - 'Composition' column, 'Distance to Project Location' column	
	9.0			Added: - Reference to provincial

Summary of Report Revisions



Report	Section of Report	Report Date: August, 2012	Report Date: September, 2012	Report Date: November 2012
				standards of significance
	9.0 – Figures 19-67		Updated: - Figures	
	9.1		Updated: - Number of seasonal concentration areas	
	9.2		Updated: - Number of specialized wildlife habitats - Significance of habitats	
Natural Heritage Evaluation of Significance Report	9.3		Updated: - Number of habitats for species of conservation concern - Significance of habitats - Figure numbers and habitat mapping	
	9.3 – Table 13.		Added: - New habitats Removed: - Several habitats Updated: - 'Evaluation Results' column	Updated: - 'Evaluation Results' column - 'Significance' column - 'Distance to Project Location' column - 'Size' column
	9.4	- Included references to 'The Significant Wildlife Habitat Technical Guide Decision Support System (OMNR 2011c)' and 'OMNR Significant Wildlife Habitat Technical Guide Appendix Q (2000)'	Removed: - References to 'The Significant Wildlife Habitat Technical Guide Decision Support System (OMNR 2011c)' and 'OMNR Significant Wildlife Habitat Technical Guide Appendix Q (2000)' Added: - References to 'SWH Ecoregion 6E Criterion Schedule Addendum (OMNR 2012a)'	
	10.0 – Table 14.		Added: - New habitats - Generalized rows for	Updated: - 'Distance to Closest Turbine'

Summary of Report Revisions



Report	Section of Report	Report Date: August, 2012	Report Date: September, 2012	Report Date: November 2012
			new habitats Removed: <ul style="list-style-type: none"> - Individual wetland which have been complexed - Some habitats Updated: <ul style="list-style-type: none"> - Significance of several woodlands - Distances columns 	column <ul style="list-style-type: none"> - 'Distance to Closest Other Project' column - 'Distance to Project Infrastructure with an Operational Effect' column
	Appendices		Added: <ul style="list-style-type: none"> - Added appendices for new habitat survey methods Updated: <ul style="list-style-type: none"> - Appendix numbers 	Updated: <ul style="list-style-type: none"> - Appendix X: Number of monitoring stations - Appendix X: Mapping
Natural Heritage Environmental Impact Study	3.0 – Table 1.		Added: <ul style="list-style-type: none"> - New habitats (including generalized) Removed: <ul style="list-style-type: none"> - Individual wetlands which have been complexed Updated: <ul style="list-style-type: none"> - Distances, significance columns for several natural features 	Updated: <ul style="list-style-type: none"> - 'Distance to Closest Turbine' column - 'Distance to Closest Other Project Infrastructure' column - 'Distance to Project Infrastructure with an Operational Effect' column
	3.0 – Figures 2-67		Updated: <ul style="list-style-type: none"> - Figures 	
	4.1 – Table 2.		Updated: <ul style="list-style-type: none"> - Number of watercourse crossing locations 	Updated: <ul style="list-style-type: none"> - 'Extent of Effect' column
	4.1 – Table 3.	<ul style="list-style-type: none"> - Effect of watercourse crossings by cabling 	Updated: <ul style="list-style-type: none"> - Number of watercourse crossing locations Added: <ul style="list-style-type: none"> - Effect of watercourse crossings by new roads or road widening 	

Summary of Report Revisions



Report	Section of Report	Report Date: August, 2012	Report Date: September, 2012	Report Date: November 2012
	5.2		Added: - Valleyland overlap with project area	
	5.2 – Table 7.		Added and Removed: - Various natural feature IDs Updated: - Mitigation measures, performance objectives, as well as monitoring and contingency plans	Added: - Additional wetland (Feature ID) Updated: - 'Mitigation Measures' column - 'Performance Objectives, Monitoring, and Contingency Plans' column
Natural Heritage Environmental Impact Study	5.3.1		Updated: - Number of overlapping habitats	
	5.3.1 – Table 8.		Updated: - Survey methods for additional habitats	Updated: - 'Potential Negative Effects' column - 'Pre-construction Surveys' column - 'Mitigation Measures' column - 'Performance Objectives, Monitoring and Contingency Plan' column
	5.3.2 – Table 9			Updated: - 'Potential Negative Effects' column - 'Mitigation Measures' column - 'Performance Objectives, Monitoring and Contingency Plans' column
	5.3.3		Updated: - Number of habitats	

Summary of Report Revisions



Report	Section of Report	Report Date: August, 2012	Report Date: September, 2012	Report Date: November 2012
	5.3.3 – Table 10.	<ul style="list-style-type: none"> - no identification of amphibian habitats which do and do not require pre- and post-construction surveys 	Added: <ul style="list-style-type: none"> - New wildlife habitats - Mitigation measures, performance objectives, as well as monitoring and contingency plans for new wildlife habitats - Annotations for amphibian breeding habitats which do not require pre- and post-construction surveys 	Updated: <ul style="list-style-type: none"> - 'Potential Negative Effects' column - 'Pre-construction Surveys' column - 'Mitigation Measures' column - 'Performance Objectives, Monitoring and Contingency Plans' column
	5.3.4 – Table 11			Updated: <ul style="list-style-type: none"> - 'Performance Objectives, Monitoring and Contingency Plans' column
Natural Heritage Environmental Impact Study	6.1			Added: <ul style="list-style-type: none"> - Reference to provincial standards of significance
	6.1 – Table 12.		Added: <ul style="list-style-type: none"> - New wildlife habitats 	Updated: <ul style="list-style-type: none"> - 'Generalized Methods' column
	6.2 – Table 13.		Added: <ul style="list-style-type: none"> - New mitigation measures for new wildlife habitats - New applicable wildlife habitat IDs Updated: <ul style="list-style-type: none"> - 'Objectives' column 	Updated: <ul style="list-style-type: none"> - 'Mitigation Measure' column - 'Objective(s)' column - 'Location(s)' column
	6.3 – Table 14.		Added: <ul style="list-style-type: none"> - New wildlife habitats 	Updated: <ul style="list-style-type: none"> - 'Generalized Methods' column - 'Location(s)' column
	Appendices		Added: <ul style="list-style-type: none"> - New appendices (survey methods) for new habitats 	Updated: <ul style="list-style-type: none"> - Appendix IX: Number of monitoring stations - Appendix IX: Mapping

Updates to all REA Reports:

Various sections revised to provide additional clarity regarding microwave tower, junction boxes and commercial operation lifespan. See reports for detailed revisions.

Armow Wind

Fact Sheet / August 2012

Owner	SP Armow Wind Ontario LP
Location	Municipality of Kincardine, Ontario
Turbine Model	Siemens SWT-2.3-101
Number of Turbines	Approximately 90
Project Capacity	180 MW
Power Equivalent	55,000 homes
Target Construction Start	Third Quarter 2013
Target Operation Start	Fourth Quarter 2014
Construction Jobs	Up to 200
Permanent Jobs	Up to 15
Estimated Tax Revenue	\$500,000 annually



SP Armow Wind Ontario LP is a joint venture between Pattern and Samsung, proposing the construction of the Armow Wind project, which will be located within the Municipality of Kincardine. Once complete, the 180 MW Armow Wind project will produce clean and renewable energy equivalent to the needs of approximately 55,000 Ontario homes, while helping the Province meet its renewable energy goals and diversify homegrown energy sources.

SP Armow Wind Ontario LP initiated the Renewable Energy Approval (REA) process for Armow Wind in November 2011 with the issuance of a Notice of Proposal and Project Description Report. Pattern and Samsung will host multiple open house events to provide the community with opportunities to meet the project team, learn about the proposed Armow Wind project and the REA process, and allow the public to ask questions and provide comments about the project.

The Armow Wind project will create many economic development benefits for the Kincardine region, including the creation of development, construction and ongoing permanent employment positions and a direct and significant capital infusion from tax and project royalty revenues to the community at large.

The clean electricity produced by the Armow Wind project will offset more than 655,000 tonnes of carbon dioxide and 1,356,000,000 liters of water each year compared to electricity generated by coal. This is roughly the equivalent of removing 116,000 cars from the roads of Ontario each year and meeting the daily fresh water needs of 11,000 people.

Please visit with us in our local office at 322 Lambton Street in Kincardine, or contact us at (519) 396-9433 or info@armowwind.com. We are interested in receiving your feedback on the Armow Wind project. Your ideas are important in helping us collaborate with the community and make Armow Wind a renewable energy project we can all be proud of.



SAMSUNG RENEWABLE ENERGY INC.

ABOUT PATTERN

Pattern Energy Group LP is one of North America's leading independent wind and transmission companies. Our mission is to provide our customers with clean, renewable energy, which we seek to achieve by developing, constructing, owning and operating projects that are built for lasting success.

Pattern commenced operations in June of 2009 as one of the most experienced and best-capitalized renewable energy and transmission development companies in the United States when a private equity fund managed by Riverstone Holdings LLC, an energy and power-focused private equity firm with the largest renewable energy fund in the world, and our Executive Management Team purchased our thriving energy business and development pipeline to form Pattern.

The Pattern team employs more than 100 highly-skilled scientists, legal and financial professionals, engineers, and construction and operations experts located in San Francisco, Houston, San Diego, New York and Toronto. We are all devoted to a common purpose: developing high performance renewable energy and transmission projects.

Pattern has 525 MW of wind projects in operation, including our 138 MW St. Joseph Wind Farm in southern Manitoba. We are growing and building on our current development pipeline, which includes over 4,000 MW of wind projects and multiple transmission projects in the United States, Canada and Latin America.

ABOUT SAMSUNG C&T CORPORATION

Founded in 1938, Samsung C&T is the mother company of the Samsung Group, South Korea's largest conglomerate with interests in electronics, chemicals, finance, and numerous other fields. Today, the company's two business groups – Trading & Investment and Engineering & Construction – are involved in a broad and growing portfolio of businesses, delivering creative, integrated business solutions to customers worldwide through a network of over 100 offices in 44 countries. Both business groups have achieved many landmark accomplishments over the years in preparation for such an opportunity - among them, launching one of Korea's first solar energy projects and building the world's tallest skyscraper.

Samsung C & T, Korea Electric Power Corporation (KEPCO) and Pattern Energy plan to build and operate the world's largest renewable energy cluster in Southern Ontario. Samsung is proud to be part of an endeavour that will bring not just clean energy to Ontario households but many new jobs. Samsung was selected by the Ontario Government for its rapidly expanding expertise in the alternative energy field, but also for the proven track record of constructing projects of similar scale from planning and financing through to execution. Samsung and its partners intend to take advantage of Ontario's talented workforce and hire locally.

Samsung C&T is an emerging global leader in new and renewable energy solutions with projects in Canada, the United States, Costa Rica, Korea, France, Italy, Greece, and Turkey.

Wind energy benefits you.



"As fossil fuels become scarce, their price can only increase. Wind energy costs are stable because fuel isn't part of the equation."

Natural gas – a rapidly depleting, non-renewable resource – is being used more and more to generate electricity, even though it's better suited for other uses such as home heating and cooking. Increasing demand for natural gas has helped drive prices up 400% in the last 5 years.²

Studies have consistently shown that increased use of wind energy will actually result in lower prices to consumers for natural gas³ – and help conserve that resource for future generations in the process.

Environmentally and economically sound, free from the increasing cost of fossil fuels, wind has a lot to offer Canadians. Wind farms can be built quickly – faster than many other types of power plants – and can meet our growing need for electricity in cities, towns and rural areas.

With wind energy, the cost of electricity is predictable because there are no escalating fuel costs. Investing in wind also helps us offset our use of other precious resources. That's why wind energy is a great choice for today and tomorrow.

Making the connection.

Energy without fuel.

Unlike many forms of conventional energy, which are susceptible to the increasing cost of fuel, wind energy relies on no fuel at all. Think about it. The only thing that fuels a wind farm is the wind – free and limitless.

This means that once a wind farm project is built, the price of electricity is set and it stays at that price for the lifespan of the wind turbines – approximately 20-30 years. Of course the wind is limitless and will outlast the lifespan of the turbines themselves. When they are decommissioned, newer and more efficient models of wind turbines may take their place, ensuring our ability to harvest this clean and fuel-free resource well into the future.

Conserving natural gas.

Our supply of natural gas is increasingly limited and, despite rising prices, drilling for gas is challenged to keep pace with demand and more and more of Canada's natural gas resources are located in environmentally sensitive and protected areas.

The increased use of natural gas for the production of electricity is one of the major reasons supply is tightening. But natural gas is not as efficient in creating electricity⁴ as it is in heating homes or providing fuel for stoves and other activities. So why not put this precious resource to better use or save it for generations to come? Wind energy can help. More wind energy coming on line will alleviate some of the pressures on natural gas.



Birds, bats and wind energy.



"It is estimated that more than 10,000 migratory birds are killed in Toronto each year between the hours of 11:00 p.m. and 5:00 a.m. in collisions with brightly lit office towers."^{1,3}



Studies show that modern wind farms with sensitive siting have no significant adverse effect on bird populations. The wind energy industry is investing in closely monitoring this important issue and continues to work vigilantly to avoid any significant impact.

Wind energy is emission-free and can help offset the effects of climate change. Wind farms can also be developed with respect for habitats – addressing two significant threats to birds and all other forms of wildlife.

Making way for birds and bats.

How birds and wind turbines interrelate.

There are a few ways that wind turbines might interfere with birds – one is the potential impact to their natural habitat, another is through possible collisions with the turbines themselves. A well-sited wind farm goes a long way towards minimizing the risk to birds and brings about a natural and healthy co-existence between wind energy and avian creatures of all stripes.

A study reviewing the impact of wind farms on birds in the US, found that generally, only 2 birds per turbine per year ever die in collisions with wind turbines.¹

Bear in mind that this is far less than the millions of deaths per year associated with birds crashing into buildings and windows, and the many millions of deaths associated with birds colliding with vehicles.

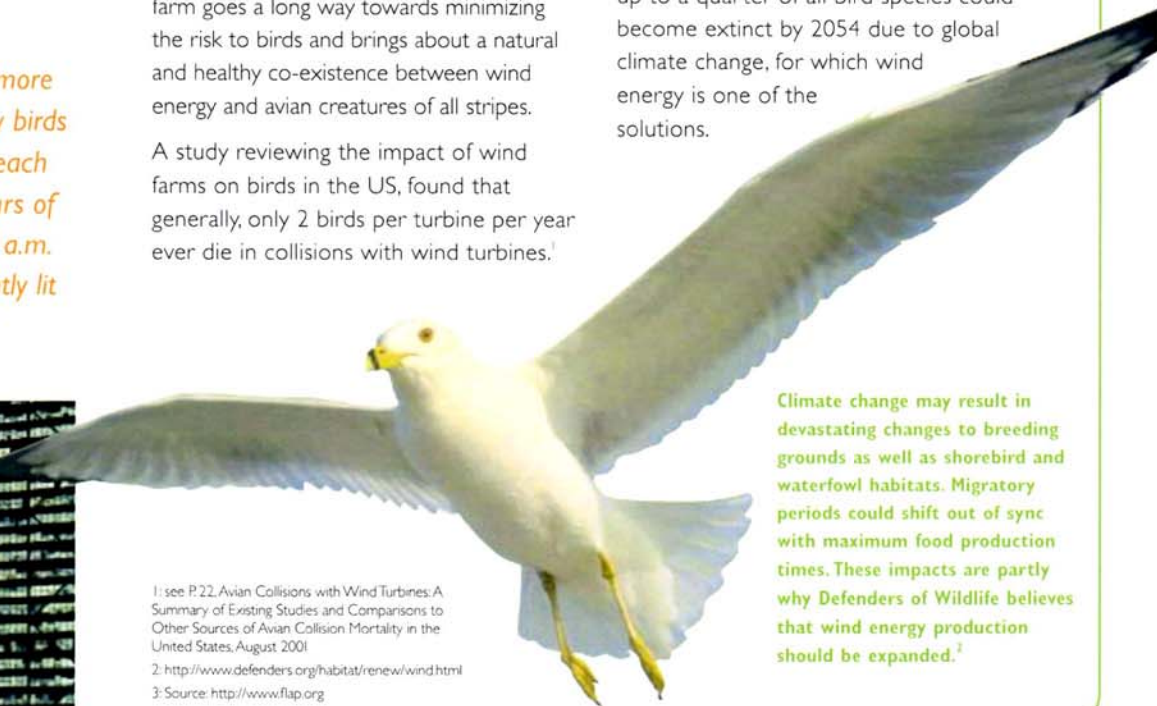
A real concern for birds is noted in the 2004 study in *Nature* that estimated that up to a quarter of all bird species could become extinct by 2054 due to global climate change, for which wind energy is one of the solutions.

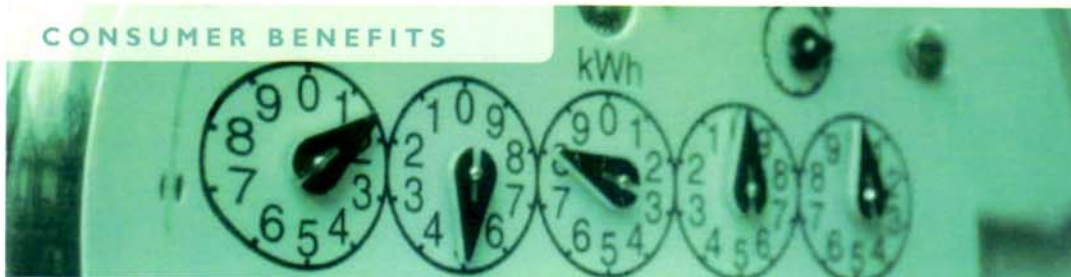
Climate change may result in devastating changes to breeding grounds as well as shorebird and waterfowl habitats. Migratory periods could shift out of sync with maximum food production times. These impacts are partly why Defenders of Wildlife believes that wind energy production should be expanded.²

1: see P.22, Avian Collisions with Wind Turbines: A Summary of Existing Studies and Comparisons to Other Sources of Avian Collision Mortality in the United States, August 2001

2: <http://www.defenders.org/habitat/renew/wind.html>

3: Source: <http://www.flap.org>





Wind fits with today's use of energy.

Wind farms can be built to a variety of scales. Smaller scale projects provide Canadians with the opportunity to have a diverse and well-distributed power supply. Compare that to other forms of electricity that are generated in large scale power plants. The chance of brown or black outs increases when we depend on a single large power plant. Having many smaller power producers on line is an ideal way to reduce this risk.

Another benefit of distributed energy is the ability to locate a wind farm close to transmission lines that aren't being used to full capacity. Transmission lines represent a major investment in infrastructure, so it's wise to use them as efficiently as possible. Electricity also loses power when it travels long distances, so the ability to locate wind farms closer to areas of demand is an additional benefit. Energy is precious; we don't want to waste it.

Energy when we need it.

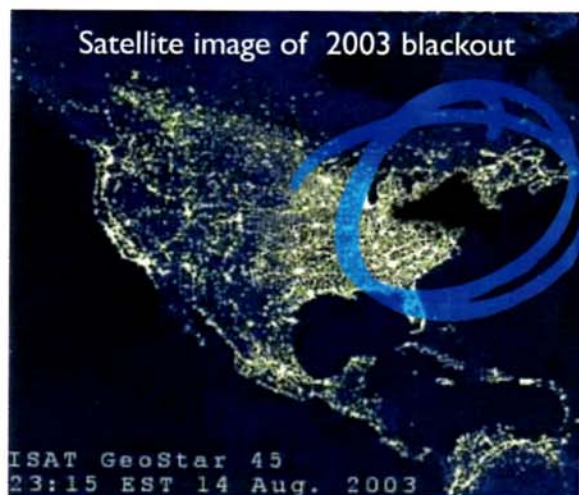
In Canada, we are most dependent on energy in the winter months, when it's cold. Luckily for us, the wind also blows hardest in these cold winter months meaning that wind energy production hits its peak just as our critical demand for energy does. Just another way wind energy can be there for us when we need it most.

Cold winter winds are also denser than winds in warmer seasons. Denser winds contain more energy, so provide even more power potential when we need it most.

Think of throwing a hardball or a whiffle ball as hard as you can. The dense hardball travels much farther because it has more kinetic energy.



Satellite image of 2003 blackout



The "cascading failures" of the August 14, 2003 blackout affected a 9,300 square mile area and 50 million people. It took just 3 minutes to shut down 21 power plants.

Several nuclear plants were not restarted for days, due to the extensive and time-consuming restart procedures they must go through to ensure safe operation.

In contrast, wind plants were able to start up nearly immediately after the safety of the grid was assured.⁵

CASE STUDY

Austin Energy

GreenChoice® program is a huge success with consumers¹

Sign Up for GreenChoice®
Due to overwhelming demand, GreenChoice®
currently working on obtaining more

When Austin Energy, the publicly owned utility in Austin Texas, launched their GreenChoice® program in 2000, customers had the option of purchasing green power at a premium price – but a price that is now guaranteed to remain stable through June 30, 2015. Their decision to opt for long-term stability paid off in the fall of 2005, when escalating natural gas prices pushed Austin Energy's conventional electricity costs higher than their GreenChoice® power pricing.

Long-term, fixed price contracts for green energy were negotiated with power producers that include the wind farms in McCamey and Sweetwater Texas. Austin Energy purchases 100% of the electricity produced by these 120 turbines – enough to power 35,000 Austin homes. Austin Energy, in turn, provides power at a fixed price to more than 7,000 retail customers and over 400 corporate customers – saving them about US \$670,000 annually.

Due to an overwhelming demand, Austin Energy's GreenChoice® program is now fully subscribed leaving the utility searching for more clean energy for waiting customers.

Canadian utilities are following Austin's example. For a list of companies across Canada that sell green power we invite you to visit:
www.canwea.ca/en/GreenPower.html

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1: Source: http://www.naturalgas.org/overview/uses_electrical.asp

2: Source: Canadian Association of Petroleum Producers

3: Easing the Natural Gas Crisis: Reducing Natural Gas Prices through Increased Deployment of Renewable Energy and Energy Efficiency, Wisser & Bolinger

4: Source: Austin Energy (<http://www.austinenenergy.com>)

5: Source: National Association of State PIRGs

Bats and Wind Energy Cooperative (BWEC)

Bat research is underway

Lessons learned.

Lessons were learned from one of the first major wind farm projects in North America. Established in the 1970s, Altamont Pass was problematic for birds. As turbines at Altamont are replaced, newer, fewer and bigger models take their place, making air space around the wind turbines safer for birds.

Today, the wind energy industry has put procedures in place to enhance our understanding of birds and how they interrelate with wind turbines. The modern wind farm undergoes a series of environmental assessments before being approved. In this process, the proposed site will be monitored and bird populations evaluated. What kinds of birds are on site? What are their habits, flight patterns? Do they nest in the area or simply fly through? Questions like these are answered in an effort to better understand on-site bird populations and to mitigate their potential interactions with wind turbines. Once built, further monitoring takes place to better understand the ongoing relationship between birds and the wind farm.

Watching out for wildlife.

There is an emerging concern about the impact certain wind farms might have on bat populations. As of today, bats and their interactions with wind turbines are far less understood than those of birds.

The wind energy industry has taken a proactive approach to working on this important issue. In the US, conservationists, industry officials and federal agencies are joining forces to address this, as yet, little understood relationship between bats and wind energy. In Canada, we are starting to do the same.

The wind energy industry is very interested in learning more about bats to address any potential problems.⁴



Bat behaviour in general, and collisions with wind turbines specifically, is largely understudied. To improve our understanding of this interaction, the Bats and Wind Energy Cooperative (BWEC) was formed in 2003.

BWEC is an alliance of Bat Conservation International, the US Fish and Wildlife Service, the American Wind Energy Association and the National Renewable Energy Laboratory of the US Department of Energy.

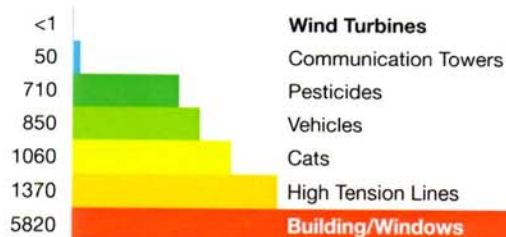
During the fall of 2004, BWEC researchers conducted the most detailed studies ever performed on bat fatalities at wind sites. The primary goal of this research was to improve fatality search methods and observe bat/turbine interactions. Research techniques included video and thermal imaging which provided new insights on flight, predation and roosting behaviours. This was the first time these observations were made in the rotor-swept zone of operating turbines.

This and on-going research by BWEC is rapidly advancing our understanding of bat fatalities at wind farms and is only possible with the continued support of the wind energy industry.

To review this, and other research, including the study mentioned above, please visit:
<http://www.batcon.org/home/index.asp?idPage=55&idSubPage=30>

Causes of Bird Fatalities⁵

Number per 10,000 Fatalities



Today's comprehensive site assessment studies and better data on migration routes have reduced bird collisions with wind turbines to levels far below other common causes of fatalities.



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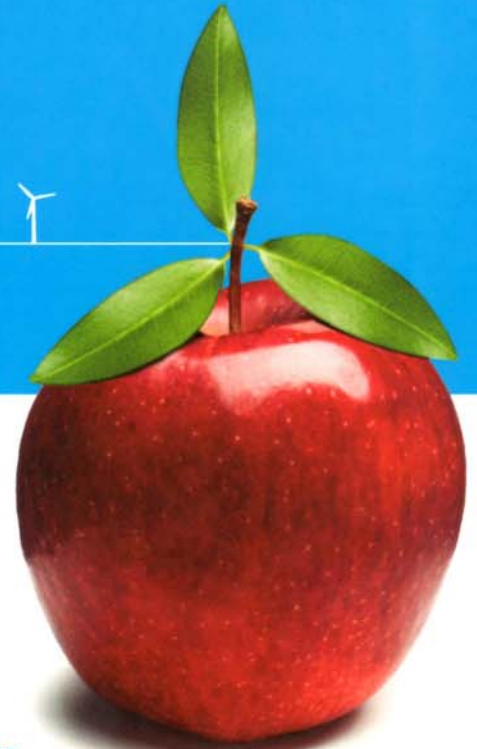
⁴: http://www.nationalwind.org/workgroups/wildlife/publications_catalog.pdf
⁵: Source: A Summary and Comparison of Bird Mortality from Anthropogenic Causes with an Emphasis on Collisions, Erickson, et al



WIND FACTS

HEALTH

Wind energy is generating clean electricity, new jobs and economic development opportunities in communities across the country. While wind energy has enjoyed growing success in many countries for several decades, it is a relatively new contributor to the power system here in Canada. As such, it is natural for people to ask questions. As a responsible industry, we are committed to ensuring Canadians have the most up-to-date factual information on wind energy.



Wind Energy: Providing Clean and Safe Power

A growing body of peer-reviewed scientific evidence clearly indicates there is no direct link between wind turbines and health effects in humans.

One of the most thorough examinations of the issue to date is a report released in December 2009 by an expert panel of medical doctors, audiologists, and acoustical professionals. The panel, established by CanWEA and the American Wind Energy Association, reviewed existing scientific literature on the perceived health effects of wind turbines and concluded there is "nothing unique" about the sounds they emit and no evidence they could plausibly have direct adverse physiological effects.

(continued on next page)

"According to the scientific evidence, there isn't any direct causal link between wind turbine noise and adverse health effects."¹

-Dr. Arlene King, Ontario's Chief Medical Officer of Health



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Ontario's Chief Medical Officer of Health and the National Public Health Institute in Quebec reached the same conclusion in their own independent reviews of available evidence.

Responsible siting of projects and meaningful community engagement will address any sound impacts for neighbouring homes and communities. Ontario, for example, has the most stringent regulations in Canada with its requirement that turbines be at least 550 metres from dwellings.

Wind power for clean air.

While operating, wind turbines are powered by wind, producing no greenhouse gasses or pollution.

WHAT DO THE EXPERTS SAY?

"The body of accumulated knowledge provides no evidence that the audible or sub audible sounds emitted by wind turbines have any direct adverse physiological or health effects."

Dr. Robert McCunney, Pulmonary Division Specialist in Occupational and Environmental Medicine, Massachusetts General Hospital, Wind Turbine Sound and Health Effects: An Expert Panel Review

"The infrasound generated by wind turbines is not of sufficient intensity to cause health problems, or even a nuisance."

National Public Health Institute of Québec study, 2009

"Ontario doctors, nurses and other health professionals support energy conservation combined with wind and solar power, to help us move away from coal."

2011 advertising campaign sponsored by the Ontario College of Family Physicians, Registered Nurses Association of Ontario, the Asthma Society of Canada and the Ontario Lung Association

Interested in learning more? These links will take you to PDFs:

[Wind Turbine Sound and Health Effects: An Expert Panel Review](http://www.canwea.ca/pdf/talkwind/Wind_Turbine_Sound_and_Health_Effects.pdf)

(www.canwea.ca/pdf/talkwind/Wind_Turbine_Sound_and_Health_Effects.pdf)

[Executive Summary, Conclusions and Panel Member Biographies](http://www.canwea.ca/pdf/talkwind/Wind_Turbine_Sound_and_Health_Effects-Executive_Summary.pdf)

(www.canwea.ca/pdf/talkwind/Wind_Turbine_Sound_and_Health_Effects-Executive_Summary.pdf)

[The Potential Health Impacts of Wind Turbines](http://www.health.gov.on.ca/en/public/publications/ministry_reports/wind_turbine/wind_turbine.pdf) (report by Ontario Chief Medical Officer of Health)

(www.health.gov.on.ca/en/public/publications/ministry_reports/wind_turbine/wind_turbine.pdf)

[Wind Turbines and Public Health](http://www.inspq.qc.ca/pdf/publications/1015_EoliennesSantePublique.pdf) (study by National Public Health Institute of Québec)

(www.inspq.qc.ca/pdf/publications/1015_EoliennesSantePublique.pdf)

¹ The Potential Health Impacts of Wind Turbines. (Ontario Chief Medical Officer of Health, May 2010)



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WIND FACTS

PRICING

Wind energy is generating clean electricity, new jobs and economic development opportunities in communities across the country. While wind energy has enjoyed growing success in many countries for several decades, it is a relatively new contributor to the power system here in Canada. As such, it is natural for people to ask questions. As a responsible industry, we are committed to ensuring Canadians have the most up-to-date factual information on wind energy.



Wind Energy: A Reliable and Affordable Source of Power

Wind is an affordable source of new energy supply that protects against unpredictable fuel and carbon costs.

Any new source of electricity generation is going to cost more than the current generating plants, built and paid for decades ago, that now supply most of Canada's electricity. Among today's options, wind energy stacks up well. Wind is extremely competitive with new installations of coal, hydro, and nuclear power, when the cost of health and environmental impacts are considered.^{1, 2}

The price we pay for wind today, though, is only one part of its value proposition.

Wind turbines do not use fossil fuels for producing electricity; this means that once a wind farm is built, the price of the electricity it produces is set and remains at that level for the entire life of the wind farm. In a time of increasing price volatility of traditional sources of energy, the price stability from wind farms

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provides important protection for consumers. There is no guarantee, for example, that natural gas will remain at today's low prices over the long term. Natural gas prices vary over time with changes in supply and demand – just a few years ago electricity from natural gas-fired projects was more expensive than electricity from wind.

Because wind requires no fuel, produces very little waste and consumes barely any water during operation, it also provides a hedge against the risk and uncertain costs of complying with future greenhouse gas emission restrictions and other environmental regulations.

Jurisdictions in Canada and around the world have developed strategies for capturing the value that wind energy brings to a power system. Feed-in tariffs (FIT), used successfully in countries like Germany, Spain, and France, are a well-established way of creating a stable market for renewable energy investment by providing predictable revenue to wind producers and increasing their access to financing. Ontario's FIT program is the first of its kind in North America, and is helping attract billions of dollars in new investment to the province.

WHAT DO THE EXPERTS SAY?

In 2010, the Ontario Power Authority paid electricity resource costs of \$317 million for conservation programs, and \$269 million for renewables. That is a lot of money – but you must realize that it is recovered over a total Ontario consumption in 2010 of 142 terawatt hours (that's 142,000,000,000 kWh), which amounts to 0.4 cents per kWh (split roughly equally between conservation and renewable subsidies). So the cost of conservation and all the renewable subsidies in 2010 amounted to 0.4 cents of the 13 cents we paid for a kWh in our homes.³

"Once the investment is made, you have a secure price for that power over many, many years. So we're looking for certainty in the electricity supply. This is one way to take out some of the volatility in the marketplace."

Nova Scotia Premier Darrell Dexter, March 2010

The California Energy Commission calculates that a new gas-fired combined cycle power plant has a levelized cost of operation of \$115 per MWh.⁴ Add \$20/MWh to cover the estimated cost of environmental and health damages⁵ and the total is \$135/MWh – exactly the same as Ontario's feed-in tariff rate for onshore, non-community based wind energy.

Interested in learning more?

The Oil Drum, an energy information website, analyzes the cost of wind, the price of wind, the value of wind (www.theoil Drum.com/node/5354). Lazard's Levelized Cost of Energy Analysis (www.blog.cleanenergy.org/files/2009/04/lazard2009_levelizedcostofenergy.pdf) and the World Economic Forum's report on Green Investing 2011 (www.weforum.org/reports/green-investing-2011) compare the cost of some generating technologies.

Sources:

1. Mining coal, mounting costs: The life cycle consequences of coal. Centre for Health and The Global Environment, Harvard Medical School, January 2011
2. Behind the switch: pricing Ontario electricity options, The Pembina Institute, July 2011
3. The True Cost of Renewable Energy and Conservation, Environmental Commissioner of Ontario, March 2011. <http://www.eco.on.ca/blog/2011/03/22/the-true-cost-of-renewable-energy-and-conservation/>
4. Comparative Costs of California Central Station Electricity Generation. (California Energy Commission, January 2010). Table 4, page 3
5. Cost Benefit Analysis: Replacing Ontario's Coal-Fired Electricity Generation. (DSS Management Consultants, RWDI Air Inc; April 2005), page ii.



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WIND FACTS

PROPERTY VALUES

Wind energy is generating clean electricity, new jobs and economic development opportunities in communities across the country. While wind energy has enjoyed growing success in many countries for several decades, it is a relatively new contributor to the power system here in Canada. As such, it is natural for people to ask questions. As a responsible industry, we are committed to ensuring Canadians have the most up-to-date factual information on wind energy.



Wind Energy: Providing Significant Local Economic Benefits

There are a number of factors that impact property values and it is difficult to isolate the potential impact of any single variable. What we do know is that multiple studies have consistently found no evidence that wind energy projects around the world are negatively impacting property values. In fact, wind energy projects provide new sources of stable revenue for municipalities and landowners in the form of taxes and lease payments.

A 2010 study conducted in Chatham-Kent, Ontario, found there was no statistically relevant relationship between the presence of a wind project and negative effects on property values.¹

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A similar analysis by the US Department of Energy's Lawrence Berkeley National Laboratory found that proximity to wind energy facilities does not have a pervasive or widespread adverse effect on the value of nearby homes. Researchers examined 7,500 single-family property sales between 1996 and 2007, covering a time span from before the wind farms were announced to well after construction and operation.²

A 2010 study looking at property values near the 396 MW Twin Groves Wind Farm in Illinois found prices were negatively affected **before** the wind farm was built, but rebounded **after** it was in place.³

WHAT DO THE EXPERTS SAY?

"The Board finds there is no evidence to allow the Board to conclude that since the construction of the wind farm properties on what [the landowner] defines as the west side of the Island have sold for less than properties on the east side."

Assessment Review Board. Commission de révision de l'évaluation foncière.
File No: WR 113994. Municipality: Township of Frontenac Islands

"Based on the data sample and analysis presented here, no evidence is found that home prices surrounding wind facilities are consistently, measurably, and significantly affected by either the view of wind facilities or the distance of the home to those facilities."

The Impact of Wind Power Projects on Residential Property Values in the United States: A Multi-Site Hedonistic Analysis

"In the study area, where wind farms were clearly visible, there was no empirical evidence to indicate that rural residential properties realized lower sales prices than similar residential properties within the same area that were outside the viewshed of a wind turbine."

Wind Energy Study – Effect on Real Estate Values in the Municipality of Chatham-Kent

"During the operational stage of the wind farm project, when property owners living close to the wind turbines actually had a chance to see if any of their concerns materialized, property values rebounded."

Wind Farm Proximity and Property Values: A Pooled Hedonistic Regression Analysis of Property Values in Central Illinois

Sources:

1. Wind Energy Study - Effect on Real Estate Values in the Municipality of Chatham-Kent (Canning Consultants Inc. and John Simmons Realty Services Ltd., February 2010)
2. The Impact of Wind Power Projects on Residential Property Values in the United States: A Multi-Site Hedonistic Analysis (Ben Hoen, Ryan Wiser, Peter Cappers, Mark Thayer, and Gautam Sethi, December 2009)
3. Wind Farm Proximity and Property Values: A Pooled Hedonistic Regression Analysis of Property Values in Central Illinois (Jennifer L. Hinman, May 2010)



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The sights and sounds of wind.



"Tour of the windmills was a surprise and very informative. Great exhibit lovely place"
From the visitor guest book in the interpretive centre of the Wind Energy Institute of Canada

People have a lot of questions about wind turbines and what they look and sound like. Are they really big? How much sound do they make? What will it look like when a wind farm goes up in my community?

Far from being disinterested, developers want to answer these questions and more because building wind farms that address the needs and wishes of local communities is the way to build an industry that benefits all Canadians.

It's not just the view – it's the vision that counts.

The eye of the beholder.

Let's face it. There's no hiding a wind turbine. They are 30 stories tall and tend to be set in clusters. Having said that, many people find beauty and elegance in these sleek and modern structures. Many of these people are residents who live closest to wind farms.

Studies in Denmark and in other European countries where wind farms are prevalent show that proximity to the nearest turbine seems to have a surprising effect on people's attitudes. Residents who live closer than 500 meters to the nearest wind turbine tend to be even more positive about wind energy than people sited further away.¹

Designing for the future.

Developers recognize that visual impacts are a concern for the community. That's why so much effort goes into the planning stages of a wind energy project. Developers are always looking for new and innovative ways to reduce impacts and gain the consent of the community.

There are computer modelling programs that use Geographic Information Systems (GIS) technology to show residents exactly what the landscape will look like once the farm is installed. These programs provide the community with visual answers to their questions. Residents get to see the farm from different perspectives, including how it may look from the local community centre or church – or even someone's living room window.

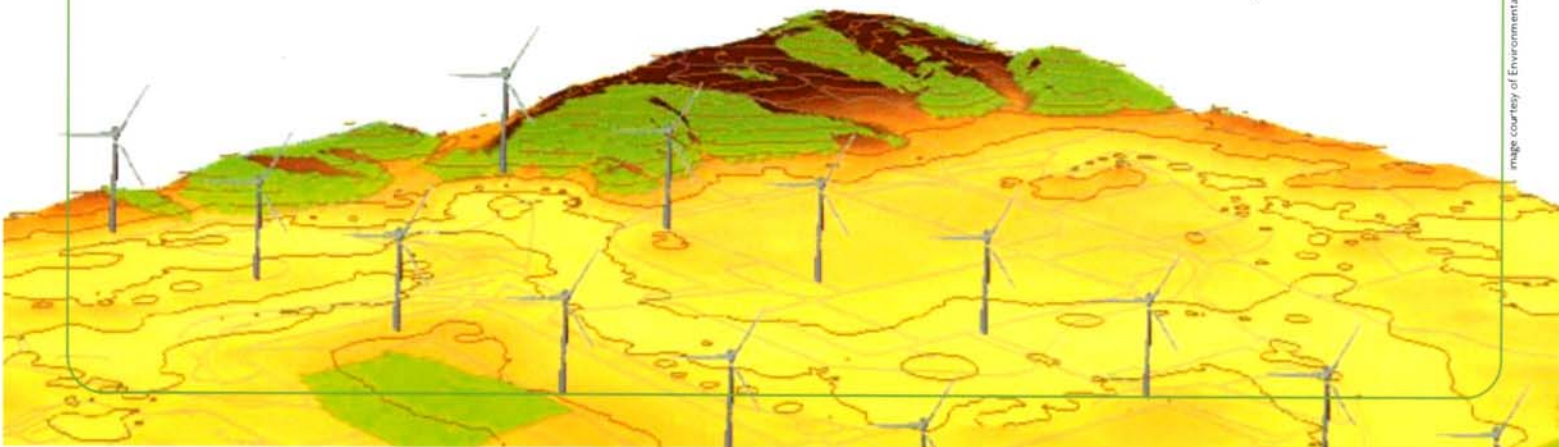




photo courtesy of Vision Quest

CASE STUDY

Wind Energy Institute of Canada, PEI

Site draws 60,000 visitors annually



Wind farms and popular culture.

Where can wind turbines and wind farms be seen today?

If you live near a wind farm, you can always visit. If you don't, you'd be surprised at where wind turbines are turning up. Look closely and you'll see them in TV ads, music videos and in other forms of popular culture. The wind turbine has even made it onto the 51¢ postage stamp from Canada Post!



Noise reduction.

Are modern wind turbines noisy? The answer is no. Any mechanical device has the potential for mechanical noise – the sound that is emitted when two parts rub together. The good news is that this type of sound has virtually disappeared from today's well-engineered modern turbine.

In fact, turbines are so quiet that it's possible to carry on a normal conversation at the base.² At 300 meters from the base, the sound they make has been electronically measured and compared to a whispering voice.

Wind turbines operate under windy conditions, the harder the wind blows the faster the turbines spin. However, much of the sound from the blades is masked by the sound of the wind itself and of the accompanying sound of rustling leaves in nearby trees and shrubs.³

photo courtesy of WEIC



Good science constantly helps us discover new information and unexpected results.

The Atlantic Wind Test Site was established in 1980 and by summer 2006 had evolved into the Wind Energy Institute of Canada (WEICan) – a research and testing facility for wind turbine technology. It is funded 70% by Natural Resources Canada and 30% by PEI Energy Corporation.

This site is home to the most diverse mix of wind turbine designs you'll find anywhere on the planet. Small wind turbines; large capacity turbines; giant "egg beater" vertical axis turbines – and all have generated one completely unexpected result – **tourism!**

The almost universal comment from the 60,000 visitors this site attracts each year is their astonishment at how quiet and how beautiful these wind turbines are.

Rave reviews don't end there. Because of the space constraints for WEICan, wind turbines are closer to local dwellings and roadways than would be permitted with present siting guidelines. Despite this, there has not been a single complaint from local residents. On the contrary, locals take great pride in 'their' wind plant and regularly hike along the access roads. To find out more about WEICan, please visit: www.weican.ca

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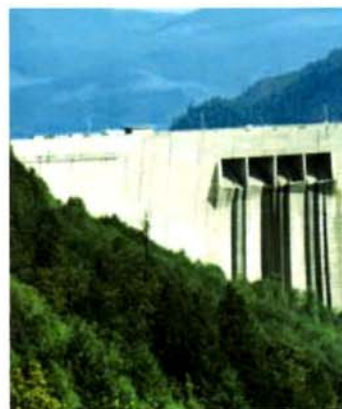
1: Andersen et al. (1997). Rapport om hvordan en dansk kommune blev selvforsynende med ren vindenergi, og skabte ny indkomst til kommunens borgere. Nordvestjysk Folkecenter for Vedvarende Energi, Bishop et Proctor (1994).
2: http://www.wvea.org/pubs/factsheets/WE_Noise.pdf
3: <http://www.bwea.com/ref/noise.html>

WIND POWER IS RELIABLE

Wind power is here.



"Wind has an availability factor of 98% – much higher than conventional forms of energy production."¹



Wind power is determined by more than just how and when the wind blows. Wind energy is the culmination of years of studying the wind and perfecting the technology that harnesses it.

Wind is reliable and has the power to make a significant contribution to Canada's energy needs. In Denmark, 20% of electricity demand is currently met by wind energy. With our abundant resource, there's no reason why we couldn't follow their lead – and the Canadian wind energy industry is here to capture that potential.

As long as there is wind, there will be wind power.

Changing winds.

Everyone knows that the wind is variable. Sometimes it blows, other times it doesn't. So how can wind power be a reliable source of energy? The answer to that lies in how we plan for variability.

Most turbines are located in sites where there's enough wind to produce electricity 70-80% of the time. Naturally, the amount of electricity produced varies with the wind. The way we manage for this variability is to locate wind farms in different geographical areas so that turbines can take advantage of different prevailing winds. The fact is, the wind will never stop blowing everywhere at once – even within a single wind farm, it's unlikely that all the turbines stop spinning at one time. With Canada's large and varied wind resource, there's no doubt that the wind can power us well into the future.

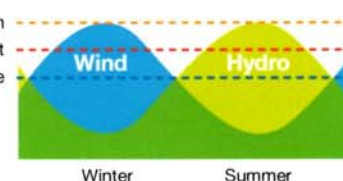
The power of two.

In Canada, we would never rely on wind turbines alone to meet the entire country's electricity needs. Instead, we use wind in conjunction with other forms of compatible energy production.

One example is wind and hydro-electric. These two sources of energy are a natural fit. In the winter, wind is at its peak, allowing hydro to store energy for use when wind productivity is lower. Hydro dams can be closed relatively quickly allowing water reserves to build when peak wind is in full swing.

In the spring and fall, hydro is at its peak production and wind energy serves as its supplement. It's interesting to note how wind energy can help us better manage our precious water resources.

Peak seasonal power production
Average of wind/hydro complement
Average of wind or hydro alone





"The variability of wind matches the variability of demand. Generally wind is strongest in cold-weather months when our demand for electricity is highest."^{1,2}

Capturing the energy of wind.

Estimating energy productivity is done through a calculation called capacity factor. If a power plant produced at full capacity 100% of the time, it would have a capacity factor of 100%. Of course, wind is variable, so it doesn't have a 100% capacity factor – but neither does any other form of energy. No energy source, conventional or otherwise, works 100% of the time. It's simply impossible. There are periods when power plants shut down for maintenance and repairs. There are times when resources run low or when unexpected outages occur.

One of the greatest attributes of wind is that it blows hardest – and therefore generates more electricity – in the winter. Wind power offers an opportunity to add more green energy to the grid and to add it during the coldest months of the year, when demand is heavy.

Yes, it's true; the wind blows some of the places all of the time, and all of the places some of the time – but it can't blow everywhere at once.

Wind is variable, but with good site selection, wind farms have access to strong and steady winds.

As of June, 2006, Canada's installed capacity was 1,049 MW – enough to power about 315,000 Canadian homes.

Wind turbines are reliable.

Wind-generated power is a reliable source of electricity. Wind turbines have one of the highest availability factors – a term that refers to the reliability of the turbines and the percentage of time that a plant is ready to generate energy. Wind has an availability factor of 98% – much higher than conventional forms of energy production.

Maintenance issues are also much smaller on a wind farm. At some conventional power plants, the entire plant may have to be shut down for repairs whereas at a wind farm maintenance takes place one turbine at a time.

Enhanced technology and design improvements have also played a part in increasing the reliability of wind power allowing turbines to generate electricity in all but the most extreme weather conditions. Plus wind forecasting technology has the potential to make wind energy more predictable and more reliable than ever before.



CASE STUDY

North Cape Wind Farm, PEI

Owner/operator:
PEI Energy Corporation



On line since 2001, PEI Energy Corporation's North Cape Wind Farm – sited in one of Canada's windiest locations – has an installed capacity of 10.56 MW. With a capacity factor of 40%, it generates about 35,000 MWh annually – enough to supply 3% of PEI's electricity requirements, or about 5,000 PEI homes.

Together, with other wind farms, PEI will have 52 MW of installed wind capacity by mid 2007.

It's estimated that PEI could develop 200 MW of wind energy by 2015. PEI currently imports over 90% of its electricity from New Brunswick. By exporting excess wind energy during periods when production exceeds demand, it's feasible that PEI could net out as an energy self-sufficient province.

Purchasing agreement: North Cape Wind Farm's power is sold to Maritime Electric Company Limited for distribution. Maritime Electric can sell the power through their Green Power Program, which allows customers to purchase it at a premium price. This green power premium is passed along to PEI Energy Corporation. If the electricity available under this program becomes fully subscribed, then additional wind powered generators may be installed on PEI.



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Canadian Wind Energy Association
Powering Canada's future naturally

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CanWEA acknowledges the contribution of Natural Resources Canada.

1: Source: http://www.awea.org/faq/tutorial/wwt_basics.html

2: Source: <http://www.windpower.org/en/tour/grid/season.htm>

BLOWING SMOKE

Correcting Anti-Wind Myths in Ontario



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ONTARIO SUSTAINABLE ENERGY ASSOCIATION

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INTRODUCTION

Ontario's communities must be more involved in the benefits and management of wind power projects. A \$2.3 trillion¹ dollar race is unfolding around the world over the next decade to see who will gain the investment and jobs from the global clean energy shift now well underway. The degree to which Ontario secures the buy-in of its citizens will determine whether it will remain a leader in this race and in securing the benefits, or whether it will fall behind and be stuck with an old, polluting economy.

There is no doubt that the building of a wind power facility brings change to where it is located. Some people see the aesthetics of windmills as hopeful and beautiful while others see them as intrusive and ugly. Some benefit from rent or jobs related to the project, while others nearby do not. Taken together, the change, particularly when rapid, can bring controversy. This is now true in parts of Ontario.

Yet into these controversies has stepped a small group of anti-wind activists who have taken advantage of local concern to spread misinformation and fear. They have claimed, with no scientific backing, that there are health impacts. They have claimed, counter to the evidence, that wind power doesn't work or doesn't have benefits. They have succeeded in creating a misinformed backlash against wind power that now jeopardizes jobs, investment and environmental progress in Ontario.



A big part of the response to this situation must come from better practices by the Ontario government and wind power companies. More community-owned power projects must emerge to spread greater benefits to local communities. Earlier and better consultation with local communities must take place as projects are designed and implemented. Environmental assessments must be robust, and facility siting decisions done well. Communities must be real partners in development.

Another part of the response, however, must be to correct the record regarding the misinformation now being spread by anti-wind activists. Communities will not be able to make informed decisions while they are subjected only to a litany of fear-based arguments by those who simply want to shut down the industry. Ontario will not be able to be a leader in clean energy if it is held hostage by those whose only answer is "no."

This report aims to correct the main myths of the anti-wind activists, using credible scientific, mainstream sources to counter the collection of unfounded and unproven opinions promoted by those with only one agenda, to stop wind power.

Whether you live in a local community with a wind power project, are a member of a local council, are a member of the media or are simply an interested party, we hope you will take the time to research the issues for yourself so that you can come to your own informed opinion. Our future depends on getting it right.

Myth 1: **Health impacts**

Reality: **Repeated studies around the world have found no scientific evidence of health impacts from wind power projects.**

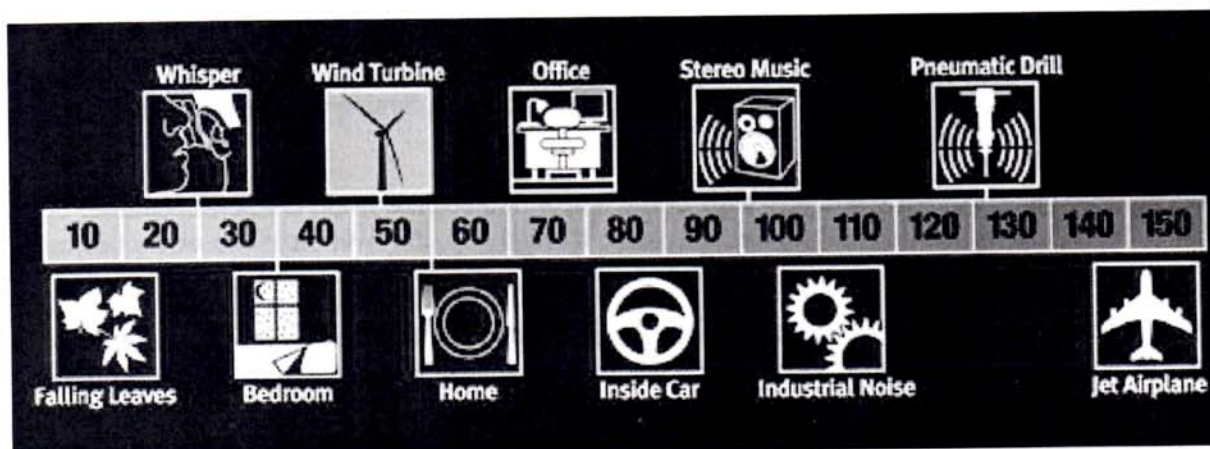


The use of windmills dates back to Persia as early as 200 BC. Many think of the picturesque Dutch windmills used to drain the Rhine delta in the 14th century. The first electricity generating windmills were installed in 1887 in the U.K. and the U.S.. By 1900 Denmark had about 2,500 windmills in service. Around World War I, American windmill makers were producing 100,000 units a year for water pumping on farms and ranches. In 2010 there were enough installed windmills worldwide to produce 430 terrawatt (TW) hours per year, more than the total electricity demand of the U.K..³

In short, people have been living around and using all kinds of windmills for many generations. All of these windmills through history, whether for electricity or otherwise, have made a sound when turning. Now, though, anti-wind activists are alleging that the sounds of windmills lead to health impacts.

Ontario's current setbacks establishing a distance of at least 550m (six football fields long) between windmills and residences are designed to limit a person hearing windmill sounds to under 40 decibels (dB), comparable to indoor background sound, and a level that the World Health Organization says is below the level at which impacts on sleep occur.⁴ This is not to say, however, that people cannot hear the sound of wind power installations, or that weather-related events like temperature inversions can't help project sounds further away.⁵ Even with the setbacks, good siting decisions must still be made in consultation with the community, and the wind industry must keep developing quieter blades.

Comparison of everyday noises to utility-scale turbine sounds CREDIT: PEMBINA INSTITUTE, 2009



Even at a distance, some people still find the sound “annoying,” and those perceptions deserve respect. Studies show, however, that perceptions vary from person to person, depending on their other feelings about windmills. A comprehensive study in Sweden and the Netherlands found that four to 10 per cent of interviewees expressed annoyance at windmill sound levels of 35 to 45 dB, but that this was heavily influenced by whether or not people found the windmills visually ugly (more annoyed) or whether they benefitted from them financially (less annoyed).⁶ This speaks to the need to ensure that communities should both better benefit from and work together with local wind power projects.

A more granular anti-wind argument concerns alleged health impacts from “low frequency sound” and “infrasound” – those sounds that we find hard to hear and which are everywhere in the environment, coming from rivers, the wind itself and also from human sources like cars. Yet, after an extensive review, Ontario’s Chief Medical Officer of Health concluded that “there is no scientific evidence...to indicate that low frequency sound generated from wind turbines causes adverse health effects.”⁷ This finding is echoed in scientific reviews done in the U.S., Australia, and Europe.

“It is clear that some people respond negatively to the noise qualities generated by the operation of wind turbines, but there is no peer-reviewed, scientific data to support a claim that wind turbine are causing disease or specific health conditions.”

— Evaluation done for **WISCONSIN PUBLIC SERVICE COMMISSION** ³⁰

While it is important to remain open to new information, it is also important that the information be subject to rigorous scientific analysis, and not taken as fact because it appears on the Internet.

Another issue seized on by anti-wind activists is “shadow flicker” from blades turning in the sunshine that can occur for about 30 minutes at sunrise or sunset when the conditions allow.⁸ Flickering shadows or light from all sources affects about five per cent of people who suffer from epilepsy, but the frequency of the flickering needs to be above 2.5 to 3 hertz - well above the rate of flickering associated with windmills turning.⁹

Finally, there are allegations of harm from electromagnetic fields (EMFs) from windmills. While the World Health Organization (WHO) does recognize adverse impacts from human exposure to very high levels of EMFs, such high levels are not associated with windmills.¹⁰ In its extensive study of electromagnetic fields, the WHO has not found any evidence to conclude that exposure to low level electromagnetic fields is harmful to human health.¹¹

Myth 2: **Viability**

Reality: **Wind power has been successfully used for decades and the world is rapidly scaling up its use because it works, particularly in light of climate change.**



The first large windmill to feed electricity into the grid did so in 1941 in Vermont.¹² The first modern wind farm was installed in New Hampshire in 1980.¹³ Since that time, about 80 countries have installed wind power projects amounting to almost 200 gigawatts (GW) of capacity¹⁴ – for reference, Canada's installed electricity capacity from all sources is 125 GW. Worldwide, wind power has been the fastest growing source of power generation for several years.¹⁵

Yet, despite all this, anti-wind activists claim that wind power isn't viable. That's certainly news to those thousands of engineers and utility managers around the world who have been successfully using wind power for decades.

A big part of the anti-wind activists' argument regarding viability is that the wind does not blow all the time – the power is intermittent. While this is true, the fact that wind power is part of an overall electricity system connected to multiple wind projects in different places, other electricity sources, and other jurisdictions who can trade electricity means that intermittency can be planned for and dealt with. Indeed, it is being successfully dealt with in countries like Denmark, Germany, and Spain which already have much higher levels of wind power on their grids than Ontario does.

Ontario's Independent Electric System Operator concluded that the province could reach peak wind penetration of 17 per cent with minimal system operation impacts.¹⁶ Denmark is now exploring how it can achieve 50 per cent penetration of wind power by 2025, including the use of 'storage' in district heating systems.¹⁷

Digging deeper, anti-wind activists claim that wind power must have polluting electricity sources as backup, which just isn't true. Even if it were, it's bizarre to argue for dropping the clean part of the mix, leaving only the dirty part. The reality is that every megawatt hour of wind power delivered to the grid is a megawatt hour that does not have to come from someplace else, clean or otherwise.

At about 2 per cent of Ontario's electricity output by fuel type,¹⁸ wind's intermittency is currently easily dealt with by other sources. Hydro, for example, accounts for about 20 per cent and can be used as a type of storage, drawing down water levels when wind is low and letting them build up when it is strong. Ontario could also explore pumped storage at hydro facilities, using wind power during strong wind periods to pump water back behind dams to release for power later.¹⁹ With a better tie-in to the hydro-rich Quebec grid and more electricity trading with that province, the wind-hydro synergy could improve even more. Manitoba, for example, just signed a \$4 billion deal with Minnesota to trade wind and hydro power.²⁰

Finally, anti-wind activists allege that wind power isn't viable because it is too expensive. It must be pointed out that if cost is their concern, then they should be arguing against nuclear power, currently Ontario's largest and most expensive source of power, but we rarely hear this from them.

Clean energy in Ontario is currently awarded preferential pricing under the *Green Energy Act*. Nuclear energy in Ontario receives even greater public supports from the province in the form of bailouts for billions in cost overruns. Polluting energy in Ontario does not yet pay for its health and climate impacts that show up in places like hospital costs, although both the provincial and federal governments are moving forward to impose tougher regulations on these sources. Add to this the billions of upgrades to the grid itself that Ontario is finally moving ahead with after years of neglect, and we are left with a complicated picture of what is expensive.

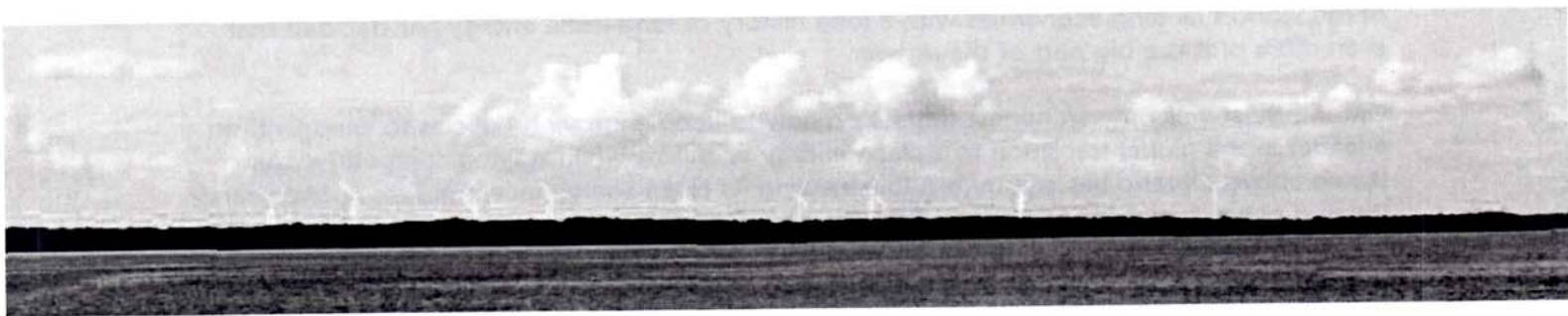
“Wind power is a proven generation technology that is working in today's electrical grids around the world.”

— UNIVERSITY OF MASSACHUSETTS, Renewable Energy Research Laboratory⁴²

So, while anti-wind activists make simplistic allegations that clean energy is responsible for rising power bills, the truth is that other factors have been much bigger drivers. Ontario's Environmental Commissioner recently analyzed the average power bill and found that clean energy incentives account for only about 0.2 cents of the typical 13 cent per kilowatt hour (kWh) that households pay for electricity, with conservation programs accounting for another 0.2 cents.²¹

Since this will go up, however, as more clean energy projects come on line, it is important to note that the Ontario government is going to review its preferential pricing for clean energy every two years.²² Other jurisdictions like Germany, France and Spain have reduced clean energy incentives over time as the industry matures and achieves technical strength and economies of scale.²³ At the same time, the global shift towards making fossil fuels bear their true costs on health and the climate will only accelerate, reducing the relative cost of alternatives like wind power. It is expected that by 2020, wind power will be cheaper than both nuclear and fossil fuels.²⁴

The future of energy will be clean. Will Ontario embrace the future?



Myth 2: **Economic & Environmental Benefits**

Reality: **Wind power is creating thousands of jobs across Ontario and letting us reduce the use of harmful fossil fuels.**



Workers in companies like DMI in Fort Erie, Siemens in Tillsonburg, or Samsung in Windsor would be oddly surprised to find that their jobs “don’t actually exist,”²⁵ as alleged by anti-wind activists. The International Brotherhood of Electrical Workers - Construction Council of Ontario is more than surprised, passionately denouncing efforts to turn the clock back on clean energy as hurting working families, estimating that related projects have resulted in several million person years of employment.²⁶

An independent study projects that 80,000 person years of employment will be created in Ontario in the wind industry between 2011 and 2018.²⁷ These jobs are diverse, ranging from component manufacturing, surveying, engineering, construction, materials supply, operations managers, repair crews, and more.

This sector offers more than a boost for Ontario’s struggling manufacturing base. It is also creating a growing field of education and research. Schools like Kingston’s St. Lawrence’s College are training the next generation of green energy experts, while programs like Repower Ontario help workers make the transition to new careers in the green energy industry.²⁸

Another argument seized on by anti-wind activists is that since clean energy incentives are paid for through electricity bills, this drives up the cost of power for industrial users overall, driving away jobs. Some in Ontario are citing the infamous “Spanish” study, a report done by a Spanish author with links to Exxon-Mobil that claimed a net job loss from renewable incentives in Spain. But the report has been thoroughly debunked by the U.S. government and others, including the right-leaning *Wall Street Journal*.²⁹

Nonetheless, respected bodies like Ontario’s Task Force on Competitiveness, Productivity and Economic Progress has flagged this issue as one to watch, and has opened a discussion about lessons from places like Germany with a longer history of promoting renewable energy than Ontario.³⁰ It must be noted, though, that the traditionally conservative Germans, under conservative Chancellor Merkel, have recently pledged to double down on renewable energy, rather than move away from it.³¹ When faced with tough choices on the future of energy, one of the world’s leading economies with a long history of renewable energy has decided that even more of it is a big part of the answer.

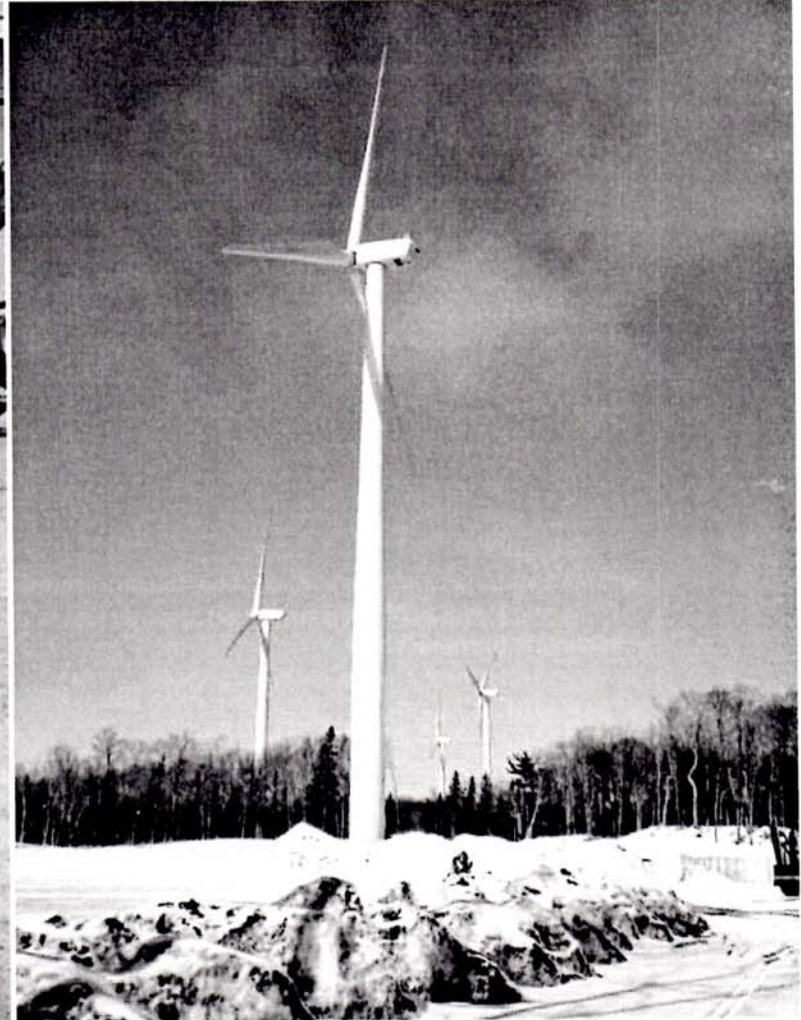
Ontario must welcome an honest debate on how to keep improving policies to keep Ontario a leader in the global transition to a clean energy economy while staying competitive. As stated above, Ontario has committed to reviewing its clean energy incentives every two years. Related policy tools also come into play. The Task Force, for example, advocates a carbon tax to drive renewable energy development and innovation.³² There is also no reason, though, why a carbon tax and clean energy incentives cannot work hand-in-hand, with revenues from the former helping to finance the latter, for example.

As noted above, every kilowatt hour of electricity from wind power is one less that may need to come from burning fossil fuels to drive turbines. The Ontario Medical Association estimates that air pollution causes thousands of premature deaths each year as well as diseases such as asthma.³³ The Ontario Centre for Climate Impacts and Adaptation Resources outlines other costs to the province in the form of increased heat days, decreases in lake water levels, more fire, drought and pests in our forests, extreme weather events, and more invasive species.³⁴

Make no mistake, the stark reality of climate change is forcing us to shift rapidly away from fossil fuels and towards renewable energy. This will also be true of our transportation system, which will necessitate the need for more electricity in that sector, while also providing a new source of storage with the widespread deployment of battery technology in electric vehicles. While Ontario must adjust its clean energy policy over time to learn from experience and to adjust to new developments, there is no turning back on the overall drive towards the deployment of renewable energy, including wind power.

“There is no end to the potential of alternative, non-polluting energy sources.”

— PRIME MINISTER STEPHEN HARPER³⁵



"Concerns about fairness and equity may also influence attitudes towards wind farms and allegations about effects on health. These factors deserve greater attention in future developments."
ONTARIO CHIEF MEDICAL OFFICER OF HEALTH³⁵

"Although opposition to wind farms on aesthetic grounds is a legitimate point of view, opposition to wind farms on the basis of potential adverse health consequences is not justified by the evidence."
DR. DAVID COLBY, Chatham-Kent Acting Medical Officer of Health³⁶

"The perception of the noise is also influenced by the attitude of the hearer towards the sound source. This is sometimes called the nocebo effect, which is the opposite of the better known placebo effect. If people have been preconditioned to hold negative opinions about a noise source, they are more likely to be affected by it."
NATIONAL HEALTH AND MEDICAL RESEARCH COUNCIL, Australian Government³⁷

"Anti-wind information is widely available for free online and relatively simplistic, while the science debunking these claims is complex and often hidden behind an academic journal's pay-walls."
Ontario Journalist ANDREA MCDOWELL³⁸

"It is clear that some people respond negatively to the noise qualities generated by the operation of wind turbines, but there is no peer-reviewed, scientific data to support a claim that wind turbines are causing disease or specific health conditions."
Evaluation done for WISCONSIN PUBLIC SERVICE COMMISSION³⁹

"The articles cited by those who are in favor of a [wind turbine] moratorium are either from non-peer reviewed journals (though some are labeled as "peer reviewed") or are misinterpreted analyses from peer reviewed journals...If there is any evidence for a moratorium, it is most likely on further use of fossil fuels, given their known and common effects on the health of our population."
DORA ANN MILLS, Maine Center for Disease Control and Prevention⁴⁰

"Wind electricity is both variable and, to some degree, unpredictable, but experience and detailed studies from many regions have shown that the integration of wind energy generally poses no insurmountable technical barriers."
INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE⁴¹

"Wind power is a proven generation technology that is working in today's electrical grids around the world."

UNIVERSITY OF MASSACHUSETTS, Renewable Energy Research Laboratory⁴²

"Renewable energy is an important new source of power generation which will help to reduce CO₂ emissions, stabilize energy costs and support long term prosperity for Canadian businesses."

RBC ROYAL BANK⁴³

"Annual income from the wind development has allowed this municipality to achieve sustainability and to reduce property taxes."

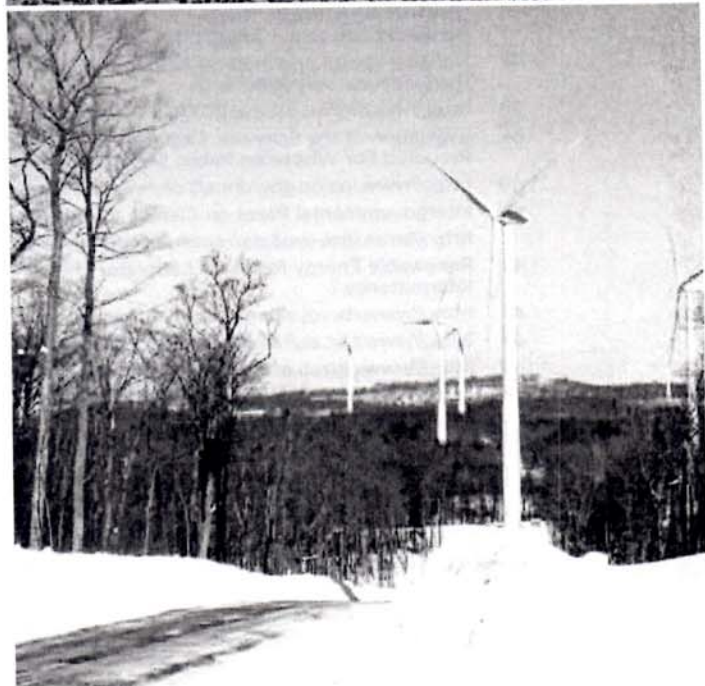
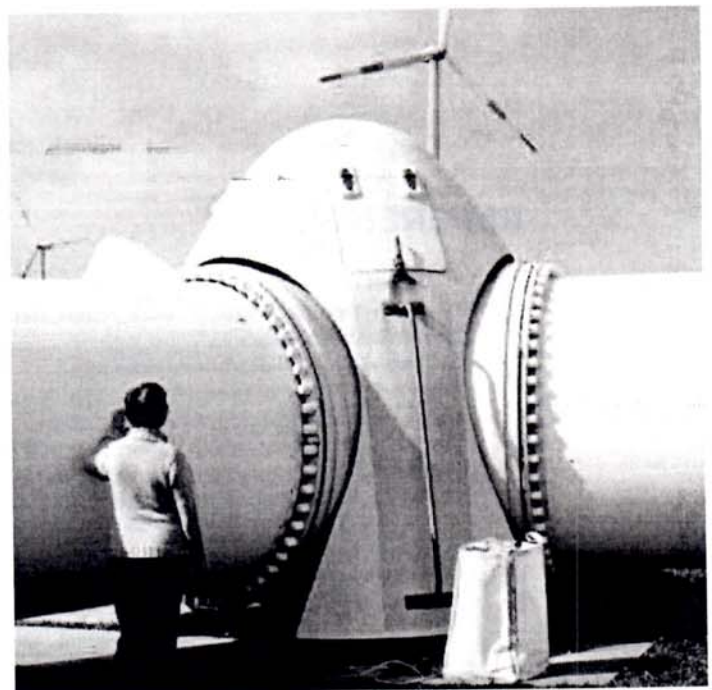
JIM VANDENHOEK, former mayor of Frontenac Islands⁴⁵

"There is no end to the potential of alternative, non-polluting energy sources."

PRIME MINISTER STEPHEN HARPER⁴⁴

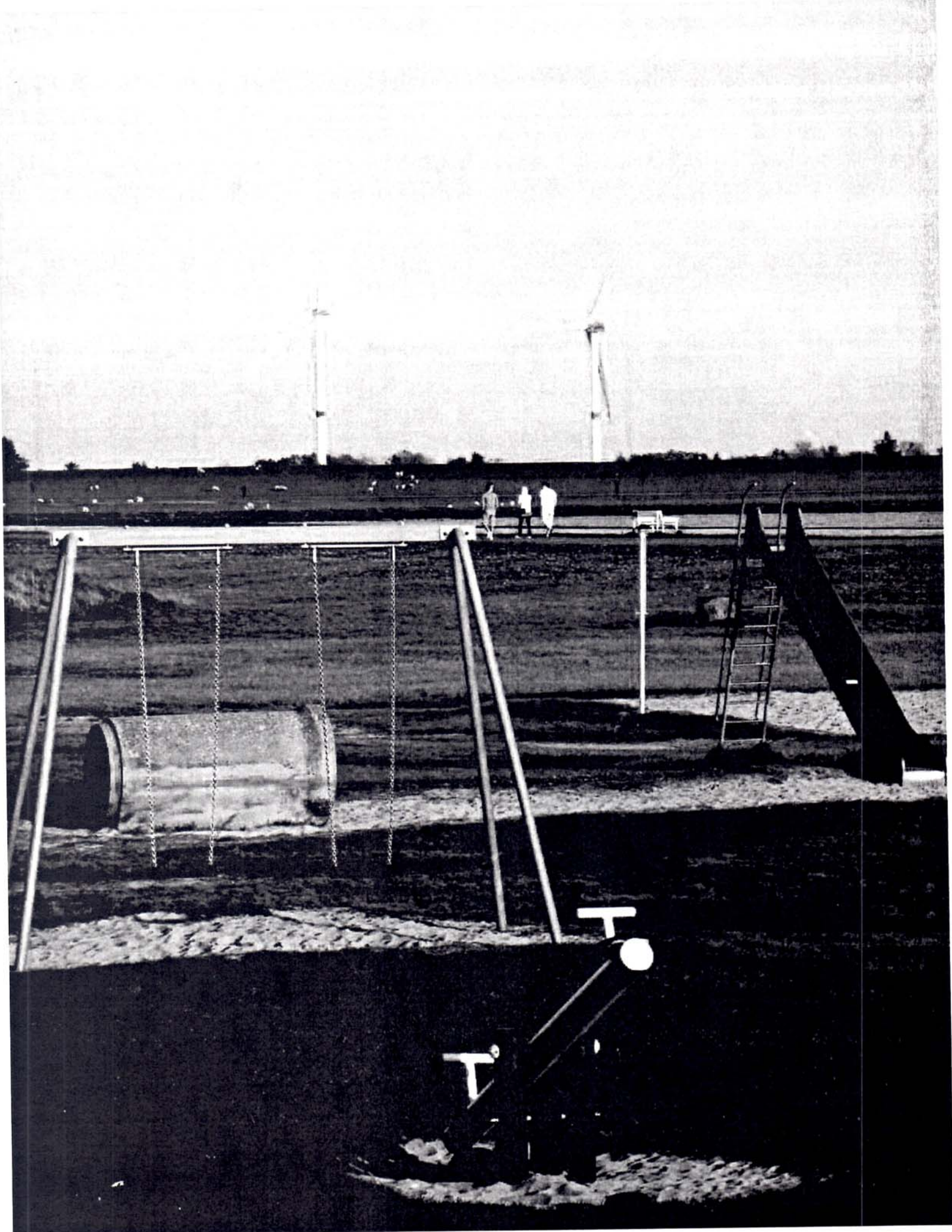
"Design of turbine blades is of course continually being improved; after all, the noise is a sign of inefficiency (rotational energy sacrificed by aerodynamic turbulence), so newer blades are likely to be quieter."

ACOUSTIC ECOLOGY INSTITUTE⁴⁵

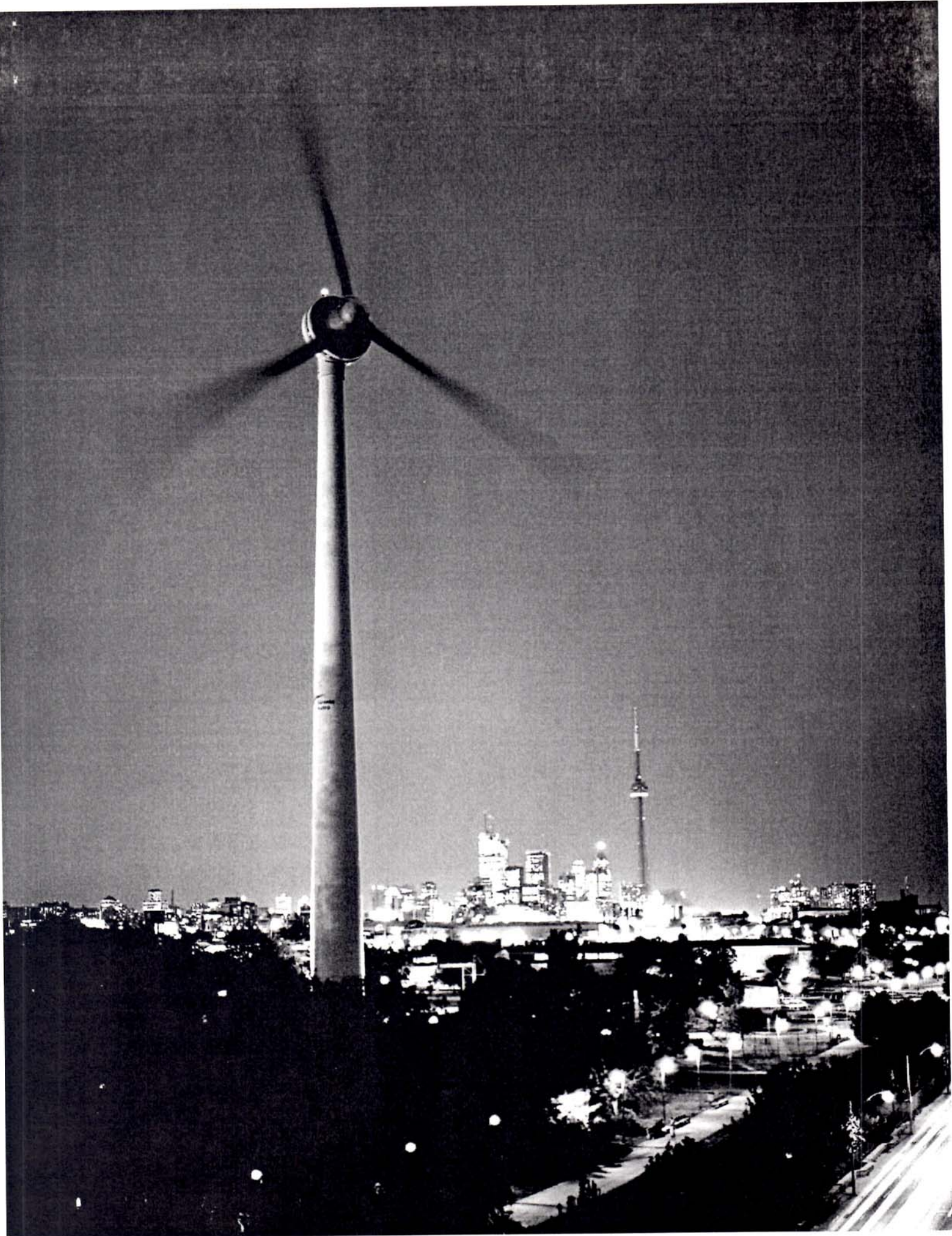


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Summer 2012



**MUNICIPAL
PROPERTY
ASSESSMENT
CORPORATION**

2012 Assessment Update

This year, MPAC will complete its second province-wide Assessment Update under the four-year cycle and phase-in program introduced by the Government of Ontario in 2008. The 2012 Current Value Assessments will reflect the January 1, 2012 legislated valuation date and will be in place for the 2013 to 2016 property tax years.

Property owners will be notified of their updated assessments when Property Assessment Notices are mailed starting in early September.

MPAC is preparing to launch an enhanced AboutMyProperty™ application this fall. The self-serve application, accessible through www.mpac.ca, will allow property owners to access detailed information about their property assessments.

Stay tuned for more information about the launch of the enhanced AboutMyProperty™ and the 2012 Assessment Update.

MPAC Welcomes New Board Members

The Minister of Finance has announced the appointment of several new members to MPAC's Board of Directors.

MUNICIPAL REPRESENTATIVES

Ken Hughes

Mr. Hughes is the Deputy City Treasurer for the City of Ottawa and the President of the Ontario Municipal Tax and Revenue Association (OMTRA).

Bob Kilger

Mr. Kilger is the Mayor of Cornwall. He previously served as a Member of Parliament from 1988 to 2004 and is currently involved in a number of community projects in Cornwall.

John Skorobohacz

Mr. Skorobohacz is the Chief Administrative Officer for the Town of Innisfil. He previously acted as Chief Administrative Officer for the City of Windsor and City Clerk for the City of Burlington.

PROPERTY TAXPAYER REPRESENTATIVES

Alf Chaiton

Mr. Chaiton is the President of Tweedsmuir Green Power Group. Previously, Mr. Chaiton was a Senior Advisor to the Mayor of Ottawa and a Senior Policy Advisor to the federal Minister of Industry, Trade and Commerce.

MPAC is accountable to the public through a 15-member Board of Directors composed of eight municipal representatives, five members representing property taxpayers and two provincial government representatives. All board members are appointed by the Minister of Finance. For more information about MPAC's Board of Directors, visit www.mpac.ca.

Property Assessment & Wind Turbines

When assessing any property, MPAC relies on the market to indicate the level of influence that a factor, such as wind turbines, may have on a property's value.

This is done through ongoing study and analysis of the market including the investigation of sales transactions. This market analysis typically reveals whether or not a factor has a negative or positive impact on a property's value.

continued on next page...



To date, MPAC's analysis of sales has indicated that the presence of wind turbines that are either abutting or in proximity to a property has neither a positive nor negative impact on its value.

On March 29, 2012, the Assessment Review Board, an independent tribunal of the Ontario Ministry of the Attorney General, released a decision respecting a property located on Wolfe Island. The Board found that based on the evidence in this case there appeared to be no evidence of any negative impact to the value of the property.

MPAC continues to monitor property values in areas where wind turbines are present and will reflect any impact to property values in the 2012 province-wide Assessment Update.

Have You Received Your 2011 MPAC Annual Report?

If you have not yet received your copy of MPAC's 2011 Annual Report, please contact your Municipal Relations Representative. You can also view the full report on our website at www.mpac.ca.



Highlights from the 2011 report include messages from MPAC's Chair and President and Chief Administrative Officer; the 2011 year in review; property assessment growth statistics; MPAC's Balanced Scorecard and Key Performance Indicators; and financial highlights.

Update on MPAC's Building Permit Exchange

INCREASING EFFICIENCIES AND DELIVERING TIMELY ASSESSMENTS

Measuring assessment growth and new development is a critical part of MPAC's core business. In 2011, MPAC added \$28.4 billion in supplementary and omitted assessments to municipal rolls. That growth represents more than \$300 million in new annual property taxes, which support the delivery of municipal services.

MPAC introduced a new process in 2011 to improve its building permit exchange with municipalities. Standardizing the process has many advantages including maximizing the addition of

assessment growth for municipalities. This supports the delivery of municipal services and results in more timely assessment information for property owners.

Building permit information provided in the standardized electronic format is uploaded significantly quicker to MPAC's database and with greater accuracy. When MPAC receives information that is not in the standard electronic format, it must be keyed in manually which is both time consuming and can result in errors. If there are any discrepancies or missing information, MPAC will then contact the municipality for clarification, which causes further delays to the process.

The new exchange process also facilitates the easy sharing of building permit updates from municipalities. These updates, which include information such as occupancy date, are a critical trigger for MPAC in determining how to effectively prioritize workload, and when it is appropriate to visit a property. This ensures that MPAC staff visit properties when construction is completed and they are occupied, allowing us to process the new assessment.

We are pleased to report that we are making progress in standardizing the new electronic process and as of May, 215 of Ontario's 414 municipalities who issue building permits were using the new standard format.

Timely and accurate property assessments are important to both MPAC and Ontario municipalities and we are working toward bringing all municipalities on board with the new process.

For more information about MPAC's building permit exchange, contact your Municipal Relations Representative.



Introducing the New mpac.ca

On May 14, MPAC launched its redesigned website at www.mpac.ca. With its improved navigation and user-friendly design, the website was designed to help MPAC meet the increased needs of its stakeholders during the 2012 Assessment Update and new accessibility guidelines for the web.

continued on next page...

The "Municipalities" section provides easy access to Municipal Connect™, propertyline™, MPAC's calendar of events, assessment products and information, and videos.

If you have any questions or comments about the website, please contact your Municipal Relations Representative.

Visit with MPAC at the Association of Municipalities of Ontario (AMO) Conference

Representatives from MPAC will be attending the 2012 AMO Annual Conference from August 19-22 in Ottawa, where MPAC Chair Dan Mathieson and President and Chief Administrative Officer Antoni Wisniowski will present to attendees. Make sure to attend the session or stop by the MPAC booth to speak with MPAC's Municipal Relations Representatives.

Unable to attend the conference? MPAC's presentation will be posted at www.mpac.ca following the conference.

New Legislation for Cemeteries Means Taxation Changes

Recent changes to the *Assessment Act* and the consolidation of two Acts into the *Funeral, Burial and Cremation Services Act* bring changes to the property tax exemption for cemeteries.

The property tax changes, intended to come into effect on January 1, 2013, require cemeteries other than religious or municipal cemeteries that engage in certain non-interment, non-scattering, bereavement-related activities, to pay property tax on the portion of land used for such purposes. These activities include on-site funeral establishments, transfer services and crematoriums established after January 1, 2002.

Religious and municipal cemeteries engaging in these bereavement-related activities will be exempt from property tax, but will be required to make a payment into their care and maintenance fund equivalent to the property tax that would be payable if the land were liable to assessment and taxation.

To help MPAC accurately value and classify these properties, a letter and questionnaire will be sent to cemetery owners

requesting information about their properties. We may also contact cemetery owners to clarify any information on the form or to schedule an on-site inspection.

Details can be found in a letter sent to Municipal Clerks, Treasurers and Tax Collectors in June by Arthur Anderson, MPAC's Director of Municipal Relations.

For more information, please contact your local Municipal Relations Representative.

MPAC IN YOUR COMMUNITY

Over the coming months, we are going to be out and about in Ontario communities and attending many conferences. Interested in having an MPAC representative attend one of your events? Contact your Municipal Relations Representative for more information.

AUGUST 19 – 22

Association of Municipalities of Ontario (AMO)
Annual Conference
Ottawa Convention Centre, Ottawa, Ontario

SEPTEMBER 9 – 12

Ontario Municipal Taxation and Revenue
Association (OMTRA)
Annual Fall Conference
Minnett, Ontario

SEPTEMBER 9 – 12

Ontario Building Officials
Association (OBOA)
Annual Meeting and Training Session
Sudbury, Ontario

A full listing of events can be found
in the municipalities section of
www.mpac.ca under "Calendar of Events."

Arthur Anderson

Director, Municipal Relations

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Time to confront the anti-wind fear campaign

Media Release, June 9, 2011

OTTAWA - Sierra Club Canada's report *The Real Truth About Wind Energy* is available again on the Club's website. The report brings together the best science on the alleged health impacts of wind turbines.

A notice of legal action caused it to be temporarily removed after 1700 downloads.

"People want to know the truth. We will not be deterred from speaking out by bullying, intimidation or attacks on our reputation," said John Bennett, Executive Director of Sierra Club Canada.

Sierra Club Canada is just the latest target of anti-wind energy groups who appear to be out to destroy the reputations of those who do not share their views.

"We have been accused of being paid-off by government and industry - which is simply not true," said Bennett. "Even our youth wing has been smeared because it's a partner in the 'High School Climate Challenge' (HSCC). The alleged crime? HSCC is a program of *Clean Air Champions* which receives funding from the Ontario Trillium Foundation.

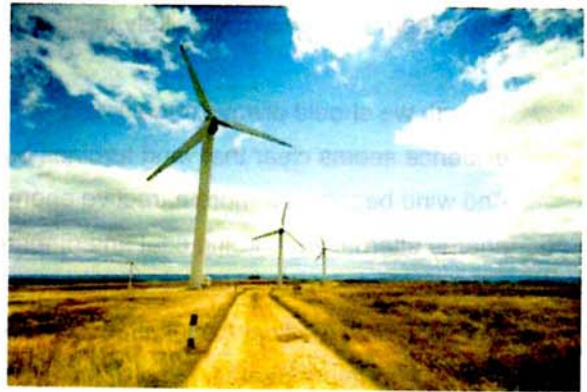
"The real public health risk is from climate change and air pollution. This week the United Nations reported that in 2010, over 42 million people lost their homes due to natural disasters, including climate change-related storms, floods and drought," said Bennett. "That's 17 million more than the year before."

Sierra Club Canada believes rural Ontarians are being frightened and confused when it comes to wind energy.

Sierra Club Canada remains strongly supportive of wind turbines but notes the importance of locating them away from residences, known migratory bird flyways and other sensitive areas.

John Bennett, Executive Director
Sierra Club Canada
(613) 291-6888
jb@sierraclub.ca

When it comes to health, wind power blows away the alternative



By David Suzuki with contributions from Dale Marshall, David Suzuki Foundation climate change policy analyst.

Wind energy is increasingly being considered a viable and attractive power source. Many countries, including the U.S., Germany, Spain, China, and India, are putting policies into place to drive the development of their wind energy industries. In Canada, the amount of wind energy being harnessed for use in our homes, offices, and factories has grown quickly over the past few years, led by Ontario with its Green Energy Act.

However, a backlash has been growing in many places where wind power is being developed. In Ontario, one of the main criticisms of wind development has been its impact on human health, mostly because of the noise that wind turbines produce. Yet, the peer-reviewed scientific research indicates that the sound from windmills, which generally falls into three categories (audible sound, low frequency, and infrasound), has little to no impact on human health.

This is especially true if windmills are built far enough away from residences. For example, the required setback in Ontario is 550 metres. At this distance, the audible sound from windmills has been found to be below 40 decibels, which is around the level of sound you'd find in most bedrooms and living rooms. Studies from the University of Massachusetts similarly found that even if the sound were audible, annoyance would be minimal.

Critics have also pointed to low frequency sound and infrasound as the source of health impacts from wind turbines. These are sounds that are either difficult to hear or inaudible to humans. However, Ontario's Chief Medical Officer of Health did a review of the scientific literature and found no evidence that low frequency sound from wind turbines causes adverse health effects.

Research from Sweden and the Netherlands may shed some light on the opposition that windmills are facing, despite the lack of evidence for human health impacts. At or just under 40 decibels, 73 per cent of

people could notice the sound and six per cent were annoyed. But those who did not like windmills or found them ugly were more likely to notice the sound and were more likely to be annoyed by it.

Though we should always remain open-minded about new and emerging research on any issue, the evidence seems clear that wind turbines built with appropriate setbacks do not constitute a health hazard. And wind becomes a more attractive energy source when you consider the health impacts of the main energy alternative, burning coal and other fossil fuels.

The Canadian Medical Association estimated that in 2008 Canada's air pollution was responsible for 21,000 premature deaths, 92,000 emergency room visits, and 620,000 visits to a doctor's office. Even if you look only at the health impacts of Ontario coal-fired power plants, the numbers are significant and startling.

When considering whether Canada needs to curtail the development of its wind resources or expand wind power in the way that Ontario's Green Energy Act proposes, we should heed the conclusion of Maine's Center for Disease Control. After dismissing the notion of a moratorium on wind development due to its health impacts, the Center's Dr. Dora Ann Mills concluded, "If there is any evidence for a moratorium, it is most likely on further use of fossil fuels, given their known and common effects on the health of our population."

As for the impacts on wildlife, that's another story. But "most scientific research shows that newer technologies and proper locating can overcome most of the threats to birds and bats. One recent study also noted that "the number of birds killed in wind developments is substantially lower relative to estimated annual bird casualty rates from a variety of other anthropogenic factors including vehicles, buildings and windows, power transmission lines, communication towers, toxic chemicals including pesticides, and feral and domestic cats."

It's never easy to find energy technologies that will satisfy everyone, but with the world facing ever-growing negative consequences of burning fossil fuels, we must weigh our options. In doing so, wind power comes out ahead. If we ensure that care is taken to use technologies with minimal environmental impact and to locate turbines in areas where effects on humans and animals are also minimal, there is no good reason to oppose wind power.

July 6, 2011

<http://www.davidsuzuki.org/blogs/science-matters/2011/07/when-it-comes-to-health-wind-power-blows-away-the-alternative/>

Answers to Frequently Asked Questions

1. What entities receive the estimated \$500,000 tax revenue from the project?

- Municipality of Kincardine, Bruce County and the Bluewater District School Board
- Wind farms provide a new tax revenue stream for local municipalities, which can be used for the benefit of all. Communities can make new choices with funding from an increased tax base, such as local initiatives like community centres, roads, park maintenance and more.

2. What is stray voltage and do we need to worry about the wind farm causing it?

- Stray voltage refers to the difference in voltage potential between two objects that a human or farm animal could make contact with at the same time, for example the barn floor and a grounded device such as a milking machine. The difference in voltage causes a nuisance shock in a human or animal that bridges the distance between the barn floor and the milking machine.
- Ground currents result from unbalanced currents on the distribution lines that serve customers electrical devices. Wind farm collector lines are not connected to customer loads and are perfectly balanced, which prevents unbalanced currents getting into the ground that could cause stray voltage.
- Wind farm contribution to stray voltage will be prevented through engineering studies and avoiding any collector lines using common poles with the utility collector system.
- In Ontario, utilities must be in compliance with stray voltage standards and investigate complaints. The wind farm will comply with all applicable health and safety standards.

3. What are electronic magnetic fields and are they a concern?

- Electromagnetic fields are a combination of invisible electric and magnetic fields. They occur both naturally (light is a natural form of EMF) and as a result of human activity. Nearly all electrical and electronic devices emit some type of EMF. The strength of the EMF decreases with the distance from the source. We have not seen any evidence that establishes a causal link between EMF and health effects to humans.
- The magnetic fields produced by the generation and export of electricity from a modern wind do not pose a threat to public health. Test results on a wind turbine showed that the magnetic field at 10 feet from the wind turbine and associated transformer was less than the magnetic field from a household appliance. No measurable magnetic field is expected at a distance of 25 feet from the turbine studied¹.
- EMF from wind farms is similar to EMF from the utility distribution system, except that the currents from the wind farm are balanced, unlike unbalanced currents from the utility power system. The wind farm collector lines will be mainly underground, not on common poles with the utility power system, so coupling between the utility power system and the wind farm collector system does not occur, effectively eliminating any electric fields.

4. How will you prevent “dirty electricity” impacts?

- The term “dirty electricity” is a new term that seems to be unique to this geographical area. It may be a term intended to describe a common characteristic of electric power

systems known as harmonics. Harmonics are created by non-linear electrical loads such as computer power supplies, florescent lights, TVs and most electrical devices.

- Harmonics can develop in wind farm collector lines when the collector lines are positioned on utility poles in parallel with utility lines that service customers. The wind farm does not plan to use common poles with the utility lines as we plan to bury our collector lines underground wherever possible.
- In Ontario, generators and utilities must be in compliance with harmonic standards and the wind farm will be designed to meet all applicable health and safety design standards.

5. How is wind energy a viable source for power since it is intermittent?

- Electricity grids are already designed to handle variability in both demand and supply. Because of the natural variations in demand, the electric grid always has more power available than it needs. During a power plant outage – whether a conventional plant or a wind plant – backup is provided by the entire interconnected utility system.
- No power plant operates 100% of the time. There are periods when power plants shut down for maintenance and repairs and times when resources run low or unexpected outages occur. At some conventional power plants, the entire plant may have shut down for repairs, whereas wind farm maintenance takes place one turbine at a time.
- The wind turbines at the Armow Wind Project are expected to generate energy between 80-90% of the time on any average year, with the maximum production usually happening during the evening and morning and in winter months, when demand for electricity is highest. Wind forecasting technology makes wind energy easier to predict and more reliable than ever before.

6. How does wind energy affect the cost of energy?

- The cost of electricity from wind energy is predictable because there are no escalating fuel costs, unlike forms of conventional energy. Wind energy costs are stable because fuel isn't part of the equation. Once a wind farm project is built, the price of electricity from the project is set for its lifespan.
- Investing in wind energy also helps us offset our use of other precious resources. Studies have consistently shown that increased use of wind energy will actually result in lower prices to consumers for natural gas – and help conserve that resource for further generations in the process.

7. Should we be worried about safety issues, such as a fire or a turbine falling over?

- To date, there are currently more than 4,500 Siemens 2.3 MW model wind turbines operating around the world, which is the same model that will be used for this project. Siemens has confirmed that there have been no incidents of turbine collapse or fires with this turbine fleet.
- The chance of a turbine collapsing is extremely rare today because of better turbine design and engineering, as well as modern technology that senses any operating errors. The turbines are equipped with technology that automatically shuts them down during very high wind speeds.

- The health and safety of the public, landowners, and personnel at our wind projects is of utmost importance to Armow Wind. The project will be monitored on-site and by a remote operations center staffed 24/7.

8. Does sound or low frequency noise from wind turbines impact human health?

- For more than thirty years people have been living near more than 50,000 wind turbines operating in Europe and more than 35,000 wind turbines operating in North America.² There is no scientific evidence indicating that wind turbines have caused any adverse health effects.³ Overall, health and medical agencies agree that the sound from wind turbines is not loud enough to cause hearing impairment and is not causally related to adverse effects.⁴ Scientific evidence to date does indicate that at the typical setback distances there is no direct health risk from wind turbine noise, including low frequency noise and infrasound.⁵
- Wind turbine sounds are not unique. Based on the levels and frequencies of the sounds, a multidisciplinary scientific advisory panel comprising of medical doctors, audiologists, and acoustical professionals concluded that there is no evidence the audible or sub-audible sounds emitted by wind turbines have any direct adverse physiological effects.⁶

For reference, two recent governmental reports:

- The Massachusetts Department of Environmental Protection in collaboration with the Massachusetts Department of Public Health convened an independent panel of experts, which concluded in January 2012 that there is no evidence for a set of health effects from exposure to wind turbines.
- The Ontario Chief Medical Officer of Health's report in 2010 concluded that scientific evidence available to date does not demonstrate a direct causal link between wind turbine noise and adverse health effects, and there is no scientific evidence that vibration from low frequency wind turbine noise causes adverse health effects.

9. What are examples of sound levels?

Sound Sources (Noise) Examples with distance	Sound Pressure Level L_p dB
Jet aircraft, 50 m away	140
Threshold of pain	130
Threshold of discomfort	120
Chainsaw, 1 m distance	110
Disco, 1 m from speaker	100
Diesel truck, 10 m away	90
Curbside of busy road, 5 m	80
Vacuum cleaner, distance 1 m	70
Conversational speech, 1 m	60
Average home	50
Quiet library	40

10. Examples of organizations supporting wind energy.

"Ontario doctors, nurses, and other health professionals support energy conservation combined with wind and solar power – to help us move away from coal."

– Ontario College of Family Physicians, Registered Nurses Association of Ontario, Canadian Association of Physicians for the Environment, Physicians for Global Survival, the Asthma Society of Canada, and the Lung Association

"With a full review of available data, including that referenced by wind opposition groups, Sierra Club Canada adds its voice to the overwhelming majority of governmental, non-governmental, scientific and environmental groups in saying that a link between wind turbines and health concerns is unfounded."

– Sierra Club Canada

"This report aims to correct the main myths of the anti-wind activists, using credible scientific, mainstream sources to counter the collection of unfounded and unproven opinions promoted by those with only one agenda, to stop wind power..."

- *Reality: repeated studies around the world have found no scientific evidence of health impacts from wind power projects.*
- *Reality: Wind power has been successfully used for decades and the world is rapidly scaling up its use because it works, particularly in light of climate change.*
- *Reality: Wind power is creating thousands of jobs across Ontario and letting us reduce the use of harmful fossil fuels."*

– Environmental Defence and the Ontario Sustainable Energy Association

"There is no end to the potential of alternative, non-polluting energy sources."

– Prime Minister Stephen Harper

"Although opposition to wind farms on aesthetic grounds is a legitimate point of view, opposition to wind farms on the basis of potential adverse health consequences is not justified by the evidence."

– Dr. David Colby, Chatham-Kent Acting Medical Officer of Health

"Renewable energy is an important new source of power generation which will help to reduce CO2 emissions, stabilize energy costs and support long term prosperity for Canadian businesses."

– RBC Royal Bank

"Annual income from the wind development has allowed this municipality to achieve sustainability and to reduce property taxes."

– Jim Vandenhoek, former mayor of Frontenac Islands

In addition, according to the Canada Wind Energy Association, The Canadian Association of Physicians for the Environment, Toronto Renewable Energy Co-operative, Pembina Institute, Bullfrog, The David Suzuki Foundation, Clean Air Alliance, Canada Auto Workers, County Sustainability Group, and Friends of Wind Ontario are all supporters of wind energy in Ontario.

11. How does wind energy compare to the health risks from coal-fired power plants?

- The process of generating energy from the wind does not produce any pollution. Wind energy doesn't contribute to smog, acid rain or climate change. An inevitable by-product of burning fossil fuels for electricity is air pollution, which can cause many forms of health impacts from respiratory disease, cancer and birth defects. When considering electricity generating options, we should consider the full range of costs – including those associated with environmental impacts like air pollution and long-term health effects.
- Conventional sources of energy also have higher environmental lifecycle costs because of all the activity it takes to turn these natural resources into electricity. For instance, coal must be extracted from the ground before shipped by truck or train or sent by pipeline to power plants for conversion into electricity. All this uses energy and creates air pollution.
- Environment Canada statistics show air pollution causes an estimated 5,000 premature deaths in Canada per year and thousands suffer from adverse health effects. Children and seniors suffer the greatest risk.
- According to Environment Canada, 18% of Canada's greenhouse gas emissions are created by burning fossil fuels to generate electricity, and nearly 12% of Canada's smog is a result of burning fossil fuels to produce electricity. The faster we bring more wind energy online, the faster we can clear the air.

12. What will happen to the soil that is excavated from the turbine sites?

- The soil that is excavated to install the turbine foundation structure will be used to backfill the foundation and redistributed around the turbine after construction. If there is excess material that is not needed for fill on project roads or other places in the project area, the soil can typically be left for the landowner to do what he/she wants with it.

13. If drainage tiles are damaged during construction, how and when are they repaired?

- There will be a survey of drainage tiles near excavation sites made before construction. Drainage tiles that are affected near the turbine sites are routed around the foundation area. Tiles cut during trenching operations are repaired within a couple of days or less. In Ontario most municipalities require a local licensed drainage contractor to do all of the repairs and dictate how the location of the cut and repair needs to be documented.

¹ "The Health Effects of Magnetic Fields Generated by Wind Turbines," Windrush, October 2004.

² e.g., Chatham-Kent Public Health Unit, 2008; Minnesota Department of Health, 2009; Australian Government, National Health and Medical Research Council, 2010; Australian Government, 2011, Massachusetts Department of Environmental Protection (MassDEP) and Massachusetts Department of Public Health (MDPH), 2012.

³ e.g., Chatham-Kent Public Health Unit, 2008; Minnesota Department of Health, 2009; Australian Government, National Health and Medical Research Council, 2010; Australian Government, 2011, Massachusetts Department of Environmental Protection (MassDEP) and Massachusetts Department of Public Health (MDPH), 2012.

⁴ e.g., Chatham-Kent Public Health Unit, 2008; Minnesota Department of Health, 2009; Australian Government, National Health and Medical Research Council, 2010; Australian Government, 2011, Massachusetts Department of Environmental Protection (MassDEP) and Massachusetts Department of Public Health (MDPH), 2012.

⁵ Ontario Chief Medical Officer of Health, "The Potential Health Impacts of Wind Turbines," May 2010.

⁶ W. David Colby, M.D., Robert Dobie, M.D., Geoff Leventhall, Ph.D., David M. Lipscomb, Ph.D., Robert J. McCunney, M.D., Michael T. Seilo, Ph.D., Bo Søndergaard, M.Sc., "Wind Turbine Sound and Health Effects An Expert Panel Review," Prepared for American Wind Energy Association and Canadian Wind Energy Association, December 2009.



2. Display Boards

Welcome

Thank you for coming to the Armow Wind Project Public Meeting

Please sign in at the front desk



We are here to:

- Answer your questions.
- Provide an opportunity to review Project information.
- Obtain your feedback on all the studies and investigations that have been conducted for the Project to date.

Please provide your contact information if you would like to receive mailings with information about our Project.

Armow Wind Project



About Samsung and Pattern

- Samsung Renewable Energy (Samsung) and Pattern Energy (Pattern) are proposing to develop a 180 megawatt (MW) wind energy Project known as the Armow Wind Project.
- Our mission is to provide customers with clean, renewable energy by developing lasting successful projects.



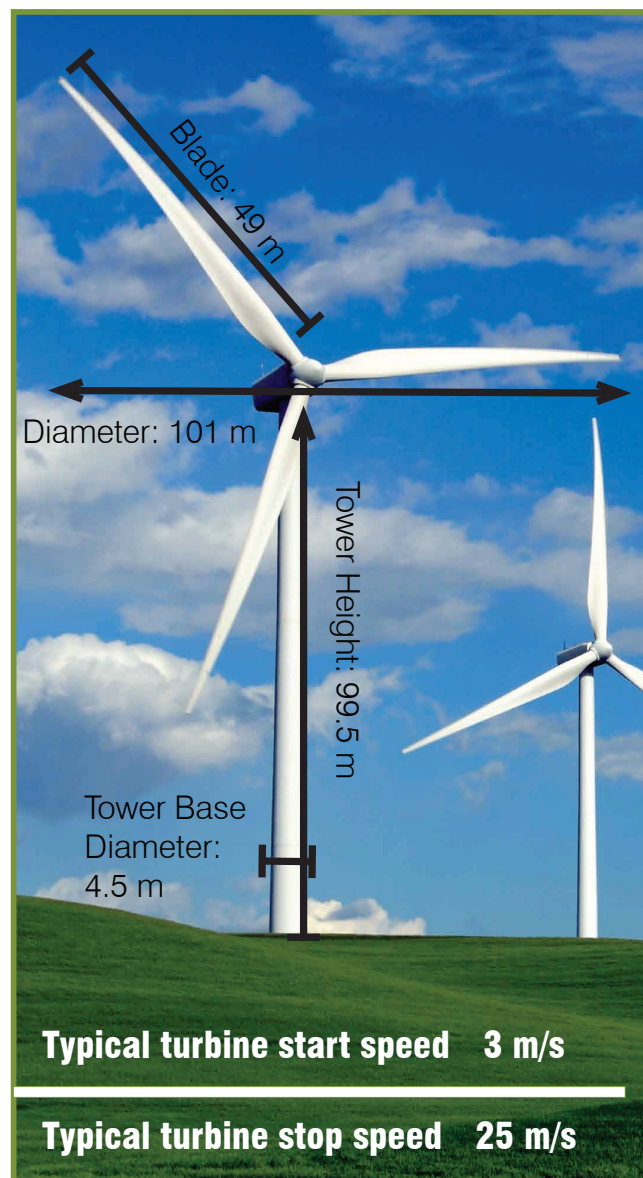
Samsung, together with some of the world's leading renewable energy companies, is making an unprecedented \$7-Billion private-sector investment in Ontario to create the largest cluster of wind and solar power anywhere on the planet. Thanks to Samsung's Green Energy Investment Agreement with the Government of Ontario, we will create 16,000 jobs, kick-start a new industry in Ontario and generate 2,500 MW of clean energy – enough to power 600,000 Ontario homes.

Pattern is one of North America's leading independent wind and transmission companies. We develop, construct, own and operate projects built for lasting success. Led by an experienced and proven management team, Pattern has projects totaling over 775 MW in operation or under construction and a development pipeline exceeding 4,000 MW of wind power and transmission projects in the United States, Canada and Latin America.



How Wind Works

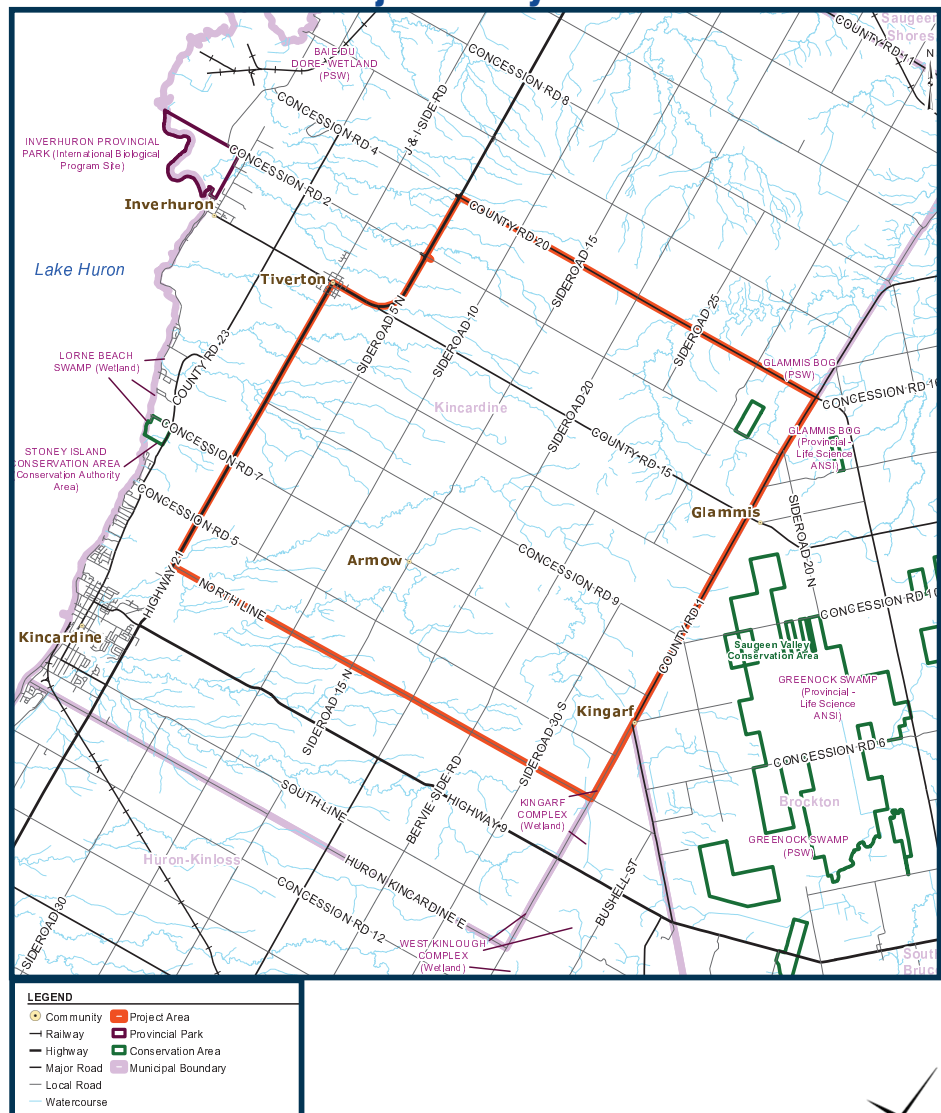
- Wind turbines capture kinetic energy in surface winds and convert it into electrical energy using large blades mounted on tall towers.
- As wind moves over turbine blades it causes “lift” - the same effect used by airplane wings.
- Lift makes the blades rotate, which turn the shaft.
- The turning shaft creates electricity within a generator, which can be sent to the power grid.
- Components include:
 - Rotors, or blades, which convert the wind’s energy into rotational shaft energy.
 - A nacelle (enclosure) containing a drive train, usually including a gearbox and generator.
 - A tower to support the rotor and drive train.
 - Electronic equipment such as controls, electrical cables, ground support and equipment.



Project Location

- The Project is located in the Municipality of Kincardine, Bruce County, Ontario and is located on approximately 18,800 hectares of land.
- Project lands are predominantly agricultural with beef cattle as the predominant livestock.
- The Project consists of approximately 90 wind turbine generators with a total installed nameplate capacity of 180 MW.
- This Project location was established based on interest expressed by local landowners, its proximity to transmission lines, and its excellent wind resource.

Project Study Area



Project Layout

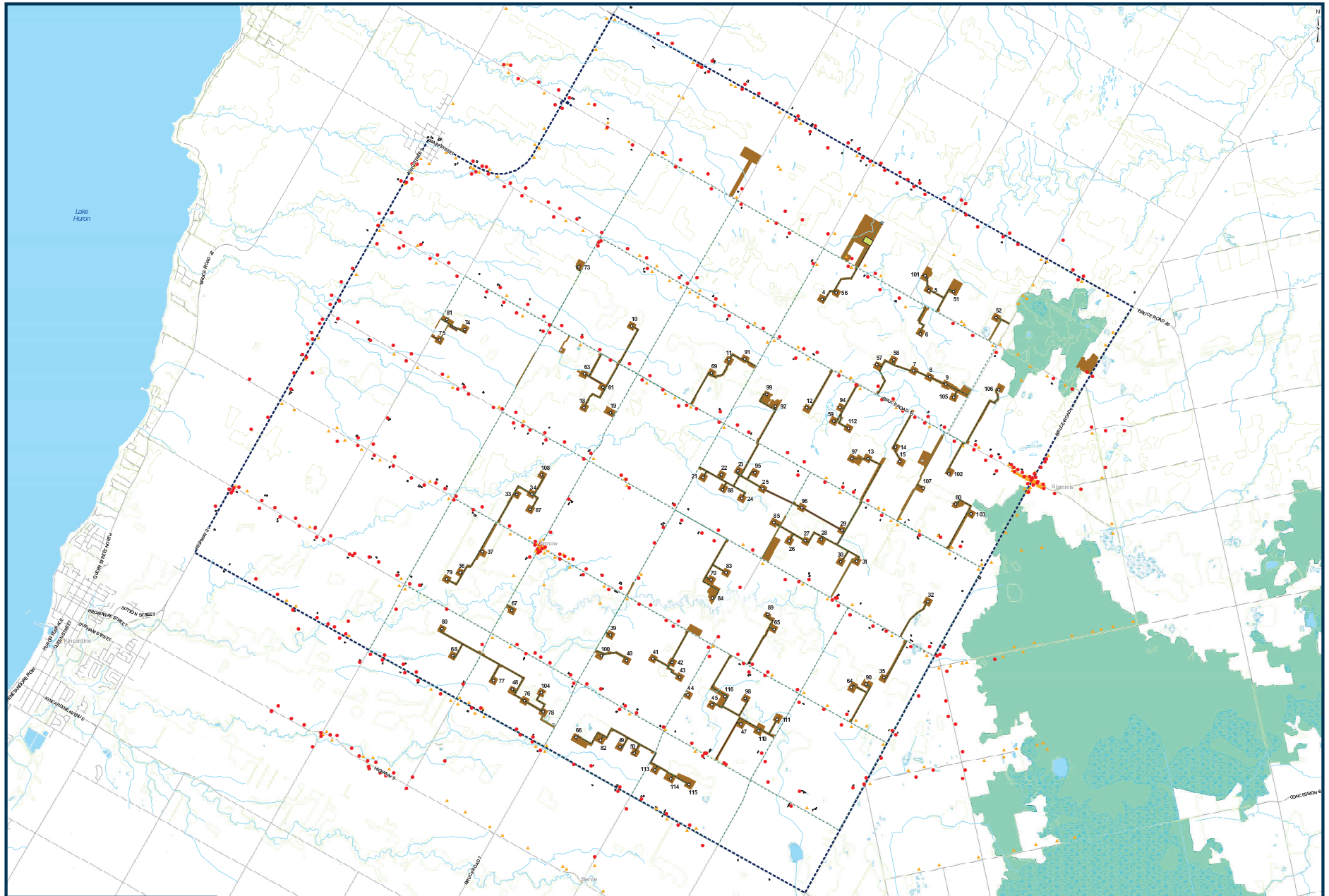
Draft Site Plan Report

- On August 21, 2012, Samsung and Pattern provided the draft Site Plan report for public review.
- The draft Site Plan report shows the following in the Project Study Area or within 300 metres of this Area:
 - Buildings.
 - Proposed turbine locations.
 - Electrical collector lines.
 - Collector substation.
 - Wind turbine access roads.
 - Utility corridors.
 - Rights-of-way and easements.
 - Existing turbines within 2 kilometres of noise receptors.
 - Noise receptors within 2 kilometres of the proposed turbine locations.



Armow Wind Project

Project Layout

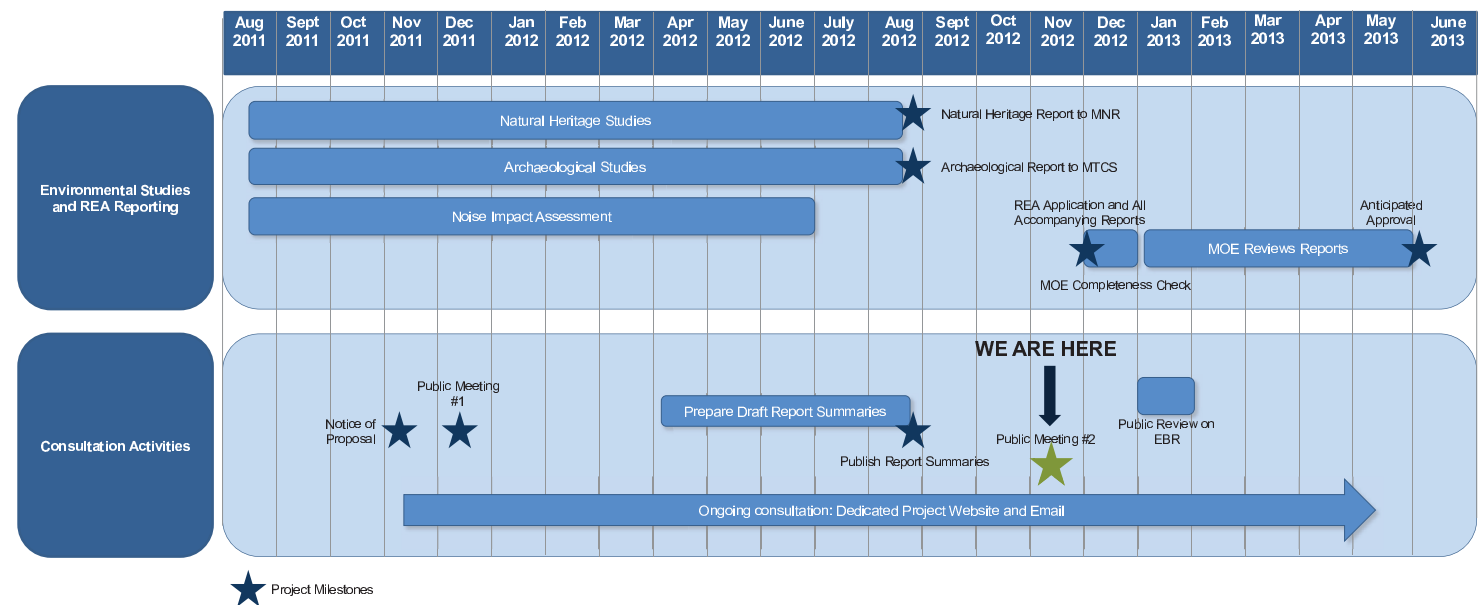


- LEGEND**
- Proposed Turbine Location
 - Access Road to Tower
 - Proposed 100' Buffer Zone (100')
 - Substation
 - Nearest Receptor
 - Existing Receptor
 - Vacant Lot Receptor
 - Access Road
 - Temporary Road / Crane Walk
 - Proposed Offshore Location
 - Water course
 - Road
 - Emergency Study Area
 - Project Location
 - Building
 - ANSI International Standard Life Support
 - Wetland Area
 - Water body
 - Wetland

REA Process

- Before construction can begin, the Armow Wind Project must apply for and be granted a Renewable Energy Approval (REA) by the Ministry of the Environment (MOE).
- The REA process is governed by Ontario Regulation 359/09, as amended by O. Reg 195/12.
- The REA process is an environmental approvals process requiring that Samsung and Pattern carry out extensive studies of the potential effects of the Project on, not limited to but including:
 - Natural Heritage: plants, water and animals (specifically birds and bats).
 - Cultural Heritage: archaeology and built heritage.
 - Noise.
- The REA process also requires that the proponents consult with community members, municipalities and Aboriginal communities.

REA Schedule



Report Revisions

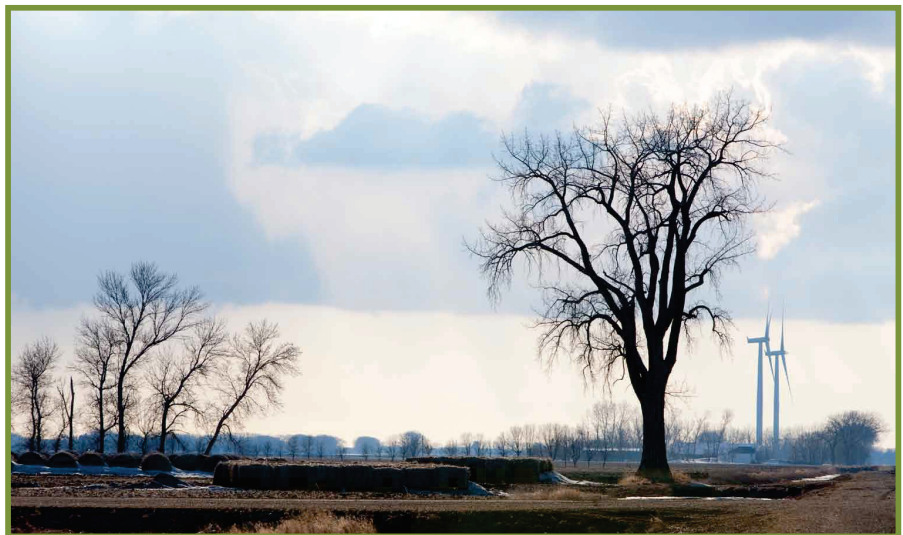
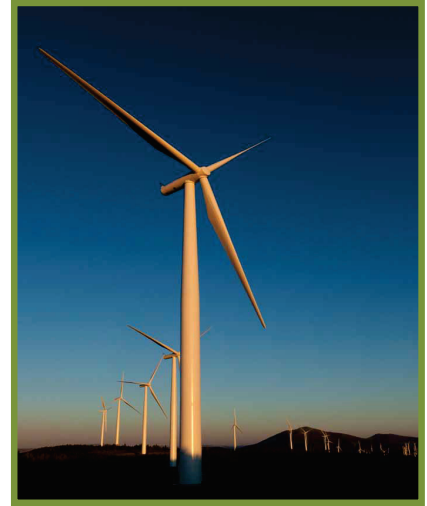
Since the release of the Draft REA Reports in August 2012, revisions have been made to the draft Reports. The revisions are listed below and more information about each revision is available at the beginning of each draft REA Report available for review.

Report	Sections Revised
Project Description Report	▪ 1.1, Table 6
Construction Plan Report	▪ 4.0, 4.2.1, 4.2.2, 4.3.3.3, Table 8
Design and Operations Report	▪ 3.2.3, 4.4.1, 5.2, 5.2.1, 5.2.2, 5.6.5.1, Table 8, Appendix C
Decommissioning Report	▪ 2.7.2
All above REA Reports	▪ Various sections revised to provide additional clarity regarding microwave tower, junction boxes and commercial operation lifespan. See reports for detailed revisions
Natural Heritage Reports	▪ Various sections revised to support comments received by the Ministry of Natural Resources. Letter of Confirmation received by the MNR on October 26, 2012. See reports for detailed revisions.
Wind Turbine Specifications Report	▪ Appendix A

Environmental Benefits

Benefits of Wind Power

- Clean, economical, and is a sustainable resource.
- Modern wind power generating equipment is efficient, highly reliable and environmentally friendly.
- Renewable energy will help reduce dependence on other forms of electricity generation that contribute to greenhouse gas emissions and poor air quality such as coal.
- Wind power generation can help reduce the amount of carbon dioxide, sulfur dioxide, and nitrogen oxides that are produced by other forms of electricity generation.
- Having wind as part of Ontario's diverse energy sources makes sense from both a cost and energy security perspective.



Job Creation

Job Creation

Construction

- Will create up to 200 jobs during the construction phase.
- The Project will require:
 - Subcontractors experienced in civil work (grading, excavation, and concrete), electrical work and mechanical assembly.
 - Construction managers, electricians, heavy equipment operators and general labourers for assembly and civil work.



Operation

- Will create up to 15 permanent jobs during operations, and business for subcontractors.
- Maintenance personnel generally need to be proficient mechanics or electrical/electronic technicians.

Manufacturing

- This Project is part of the Samsung Green Energy Investment Agreement, which is committed to the establishment of four manufacturing facilities in the Province of Ontario. The manufacturing facilities will create:
 - 900 or more jobs at 4 manufacturing facilities.
 - 550 or more jobs in the steel industry, etc (excluding construction, operation and maintenance jobs).



Siemens Plant

Jobs Creation

Siemens is Here Looking for YOU!

We are currently looking to fill the following positions:

- Up to 300 green collar jobs at our Tillsonburg Turbine Blade Manufacturing Plant.
- 6 local (Kincardine area) full-time wind turbine technicians.

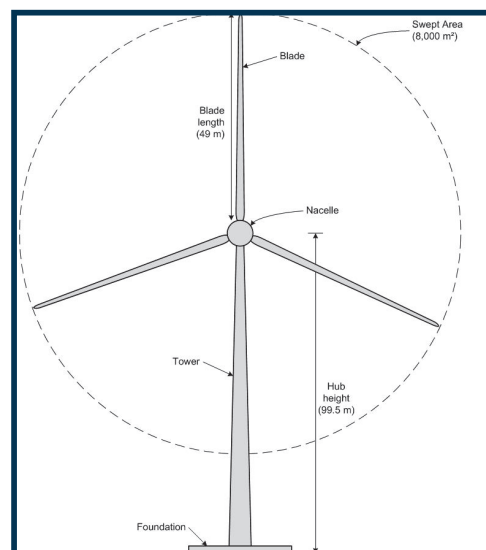
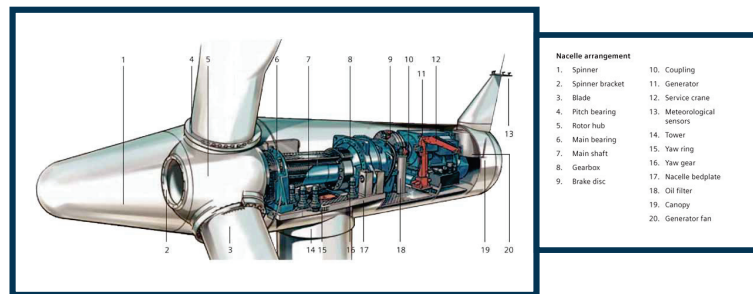
We have job descriptions for all available positions here today for you to take home and consider a career with us.



First Blade Produced December 19,
2011

Wind Turbine Specifications

- The Project will use the Siemens SWT-2.3-101 Wind Turbine
- The underground portion foundations for these turbines is up to 20 metres in diameter and the underground portion is approximately 4.5-5 metres in diameter
- The Siemens SWT-2.3-101 Wind Turbine has a Nominal Power rating of 1.8 to 2.3 MW
- The Hub Height of the Turbine is 99.5 metres and has a rotor diameter of 101 metres
- The 'cut-in wind speed' or when the Wind Turbines begin spinning is 3 metres per second
- the 'cut-out wind speed' or when the Wind Turbines will automatically stop spinning is 25 metres per second



Current Activites

Current Project Related Activites Include:

- Property line surveying.
- Geotechnical analysis of soils to determine how Project foundations should be built.
- Evaluation of ground materials (soils).
- Ongoing consultation through the Project website (www.armowwind.com), the Project Office, community events and through Public Meetings such as this.
- Transportation study to examine transportation infrastructure and use to assist in developing the transportation management plan (in coordination with the Municipality of Kincardine and Bruce County).
- Interconnectivity study to evaluate the impact of the proposed interconnection on the transmission system.



Typical Geotechnical Analysis Machine



Typical Survey Equipment

Construction Activities

Site Preparation

- Staking and surveying, clearing and grubbing.
- Preparation of construction staging areas (4 hectares).

Construction of Facility

- Construction of gravel access roads (7-15 metres with shoulder).
- Installation of foundations for turbines (approximately 20 metre diameter).
- Base preparation for substation (approximate footprint of 200 x 150 metres).
- Wind turbine , substation and interconnection installation.
- Installation of Operations Building and Maintenance Facility.
- Installation of collector lines.
- Testing and commissioning.

Site Restoration

- All construction materials and temporary facilities will be removed and disposed of properly.
- Top soil will be backfilled where appropriate to achieve proper drainage.
- Re-vegetation to occur, where needed.

Traffic and Roads

- Coordination with municipalities and local roads superintendents.
- Only designated transportation routes will be followed.
- Proper signage for detours will be promptly displayed.
- Traffic controllers and police escorts will be used as necessary.

Safety

- Fencing and signs will be used to mark off construction zones.

The potential effects during the construction phase will mainly be related to dust, noise and traffic congestion.

Dust will be mitigated through using best management practices including dust suppressants, implementing a speed limit and re-vegetating cleared areas as soon as possible.

Noise will be mitigated by keeping all equipment in good repair and not exceeding noise limits specified by the Ministry of the Environment.

Traffic congestion will be mitigated by developing a traffic management plan in coordination with the Municipality of Kincardine, the County of Bruce and other stakeholders.

Typical Wind Project Components



Typical Collector Line Trench

- Pad-mounted transformers 'step-up' the electricity generated by the wind turbine (690 volts) to the collector line voltage (34.5 kV).



Typical Pad-mounted Transformer



Typical Junction Box

- A microwave tower may be located with the substation.



Typical Microwave Tower

Typical Interconnection



Typical Substation

- The Project will use 34.5 kV collector lines.
- Up to 132 kilometres of underground and/or overhead collector lines will be located in public right of way and up to 60 kilometres of underground collector lines on private lands.
- Junction boxes can contain equipment related to splices, junctions, cable splices and disconnect switches.
- Interconnection infrastructure to connect Project Substation to Hydro One network.
- May include 3-4 overhead pole structures, circuit switch gear and a line tap.
- The substation brings together all the collector lines at 34.5 kV then 'steps up' to 230 kV.

Operation Activities

- Real-time monitoring of the Project will occur locally and remotely to maintain the performance and safety of the wind turbines.
- Local staff combined with an Operational Control Centre (OCC) provide 24/7 coverage of the Project.
- Performance and reliability are maintained through a state-of-the-art Supervisory Control and Data Acquisition (SCADA) system.
- Weekly and monthly proactive maintenance activities occur throughout the life of the Project.
- An Emergency Response and Communications Plan is outlined in the Design and Operations Report.
- Typical Project lifespan (commercial operation) is 20 years.
- Following the term of the agreement, a decision will be made to extend the life of the facility or to decommission.

Post-construction monitoring of potential environmental impacts will be completed for at least 3 years at this facility.

The potential effects during the operation phase will mainly be related to wildlife and noise.

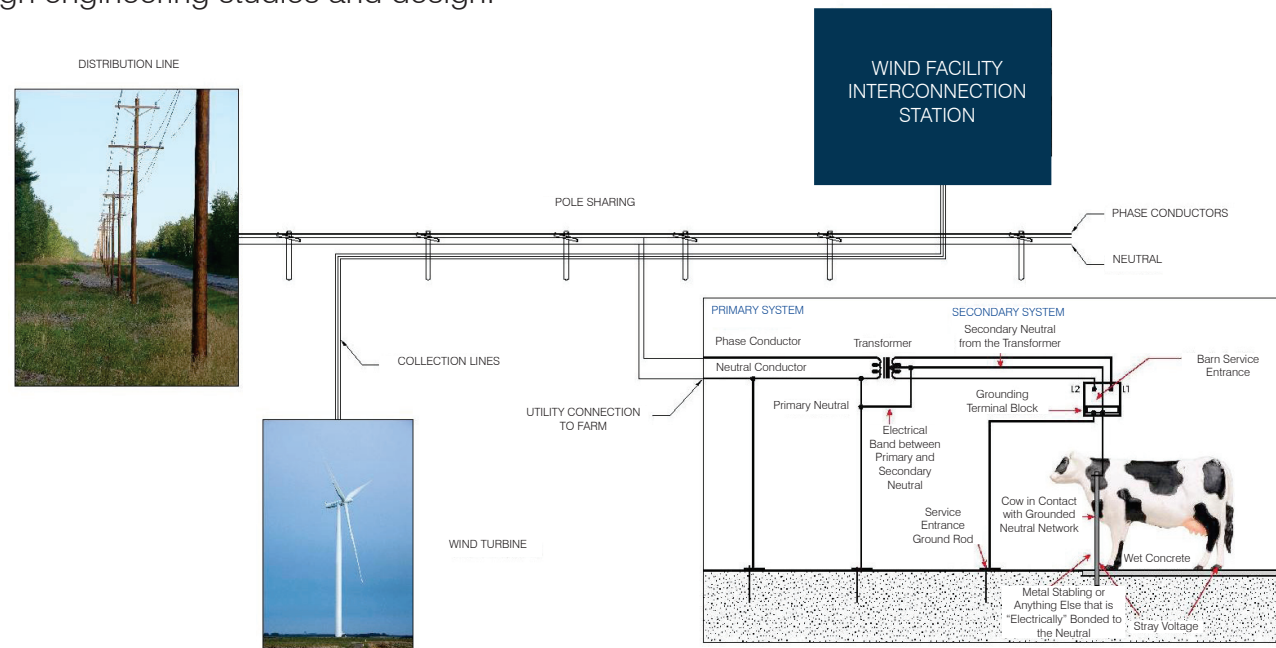
Wildlife effects will be mitigated through lighting that is least likely to attract birds and/or bats. A meeting will be held with the Ministry of Natural Resources to detail the outcomes of the post-construction monitoring.

Noise will be mitigated by following Ontario regulations for minimum setbacks and turbines will be monitored remotely or from an operations centre. In addition any noise complaints that are received will be addressed through the Communications Plan.



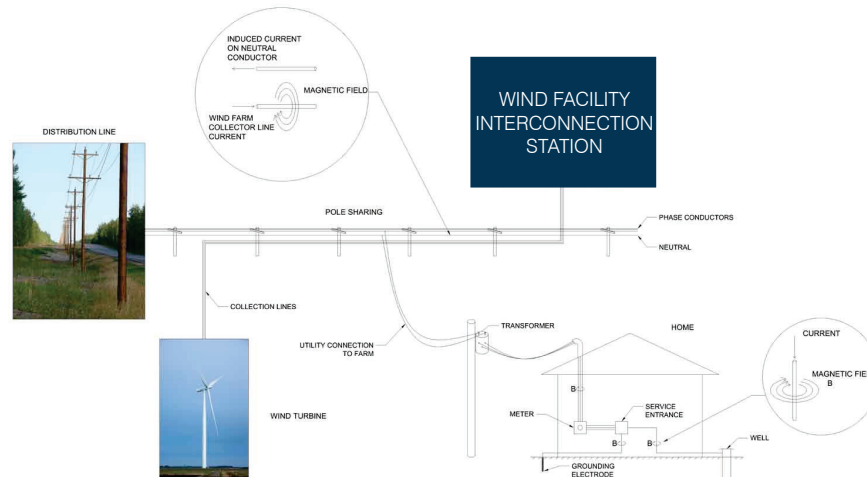
Stray Voltage

- Stray Voltage refers to the difference in voltage potential between two objects that a human or farm animal could make contact with at the same time.
- In Ontario, utilities must be in compliance with stray voltage standards and must investigate stray voltage complaints, this Project will abide by these requirements.
- Neutral voltage (the current which runs through the neutral circuit conductor, which is connected to ground) cannot exceed 10 volts and utility contribution to animal contact voltage must be less than 0.5 volts.
- Wind facility contribution to stray voltage can be prevented through engineering studies and design.
- Possible stray voltage sources:
 - Elevated voltage on the utility neutral (pole sharing only).
 - Farm wiring.
 - Earth return currents under lines with unbalanced phase currents.
- Possible wind facility contribution to stray voltage:
 - Induced voltage on utility neutral line.
 - Earth return currents.



Electromagnetic Fields (EMF)

Electromagnetic fields (EMF) are a combination of invisible electrical and magnetic fields. They occur both naturally (e.g., light is a natural form of EMF) and as a result of human activity. Nearly all electrical devices emit some type of EMF. The strength of EMF decreases with distance squared. For example, the field measured 2 metres away from the source will be 4 times weaker than the field measured 1 metre from the source. The field measured 4 metres away will be 16 times weaker, etc.



- International Commission on Non-Ionizing Radiation Protection (ICNIRP) has published “*Guidelines for Limiting Exposure to Time-Varying Electric and Magnetic Fields*”.
- Engineering study and design will ensure that wind facility contribution to EMF (see figure) will be well below these limits.

- Some common electromagnetic fields:
 - The Earth’s magnetic field.
 - Light.
 - Radio waves.
 - Microwaves.
 - X-rays.
- Possible wind facility contribution to EMF:
 - Wind turbines themselves are not a significant source of EMF.
 - EMF is emitted by current flowing through power lines connecting the wind turbines to the power system; this is the same for all power lines.
 - EMF produced by wind facility currents can cause currents to flow in the distribution system neutral (pole sharing only).

Decommissioning Activities

- It is anticipated that the Project will have a commercial operation lifespan of 20 years, which can be extended further with proper maintenance, component replacement and repowering.
- At the end of the Project's operational life, all components will be shut down and isolated from external electrical lines.
- The Proponent is responsible for all aspects of the decommissioning of the Project including the associated costs.
- Activities involved in decommissioning include:
 - Removal of the wind turbines for re-use or disposal.
 - Removal of foundations and any access roads not wanted for future farming purposes to a depth suitable for ploughing (approximately 1.0 metre).
 - Replacement of topsoil to a depth of surrounding undisturbed lands.
 - Former agricultural lands will be restored to allow agricultural activities to continue.
 - Minimizing environmental impacts related to decommissioning activities through the use of best management practices.



Community Benefits

- Community commitments for the life of the Project as determined in a benefits program designed in collaboration with community members.
- Job creation of up to 200 jobs during the construction phase and up to 15 jobs during operations.
- Significantly contributes to the tax base annually with approximately \$500,000 benefitting:
 - Municipality of Kincardine.
 - Bruce County.
 - Bluewater District School Board.
- This Project will help support the local economy by making use of local goods and service providers during the construction and operation phases (e.g., local restaurants, hotels).
- Through land lease agreements with landowners, the Project will provide additional income for farmers.



Sponsorship

Samsung and Pattern feel that the Kincardine community is a key partner in this Project. As part of our interest in being a long-term partner of the community Armow will contribute approximately \$100,000 to your community in 2012 including sponsorships or donations to:

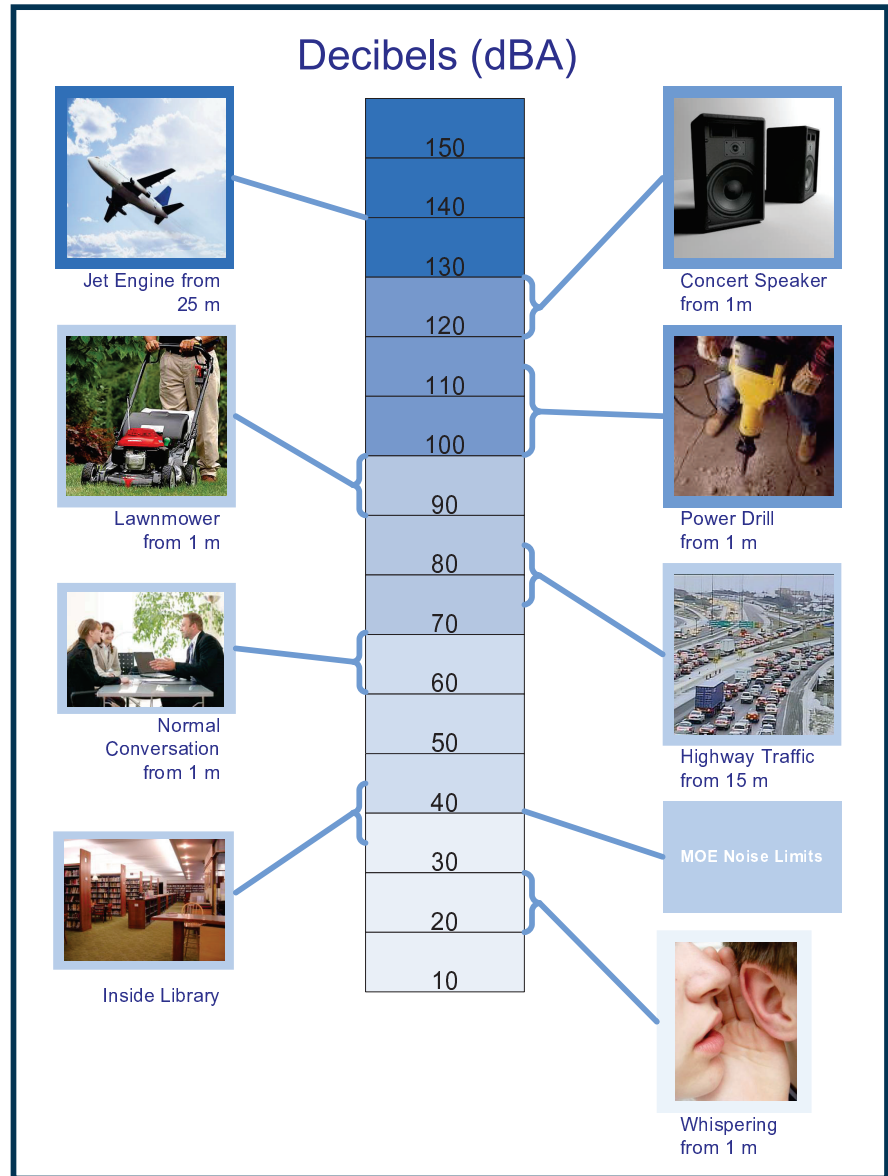
- The Penetangore Watershed Group.
- The Kincardine Women's Triathlon.
- The Fish Kincardine Salmon Derby.
- The Kincardine Scottish Festival & Highland Games.
- The Bluewater Summer Playhouse.
- The Tiverton Agricultural Society.
- The Kincardine Chamber of Commerce.
- Women's House Serving Bruce & Grey.
- The Kincardine Bulldogs.
- The Kincardine Family Health Team Cardiac Rehabilitation Unit.
- Community Living Kincardine & District.
- Elgin Market Public School.
- Kincardine & Community Health Care Foundation.
- Royal Canadian Legion Kincardine Branch 183.



Sound - dBA Scale

Renewable Energy Approval Sound Requirements

- Turbines must be placed greater than 550 metres from the closest sound receptor.
- Sound levels must adhere to the Ministry of Environment guidelines.



- As with all other sound-generating activities (e.g., airports, highways, industry, nuclear plants, gas turbines) the Ontario Government requires that wind projects meet specific regulations with respect to sound.
- Unlike all other sound-generating activities, wind projects must consider cumulative sound impacts from all wind projects within 5 kilometres.

Noise Study

Step 1

- Identify points of reception - dwellings (typically houses) that are within 2 kilometres of the wind turbines.

Step 2

- Obtain wind turbine specifications and noise emission ratings from the manufacturer.

Step 3

- Using an initial wind turbine layout, predict the noise levels generated at points of reception using a noise prediction model to ensure allowable limits are not exceeded. The noise model is designed in accordance with standards set by the Ministry of the Environment (MOE).

Step 4

- Using the noise model results, revise the turbine layout as necessary to ensure that the final turbine layout meets all applicable noise guidelines.
- MOE will assess the application for completeness and then undertake a technical review to determine whether to issue an approval.



Visualizing Sound



Consultation and Engagement

Samsung and Pattern believe Aboriginal and Public input is an important part of the REA process. All Consultation and Engagement activities will be reflected in the Consultation Report which is submitted with the REA application.

Key Consultation and Engagement Milestones



Property Values

“In the study area, where wind farms were clearly visible, there was no empirical evidence to indicate that rural residential properties realized lower sale prices than similar residential properties within the same area that were outside the viewshed of a wind turbine”

Canning, G., and L.J. Simmons. (February 2010). Wind Energy Study Effect of Real Estate Values In the municipality of Chatham-Kent. Canning Consultants Inc. & John Simmons Realty Services Ltd. Prepared for the Canadian Wind Energy Association

“Research collected data on almost 7,500 sales of single family homes situated within 10 miles of 24 existing wind facilities in nine different U.S. states. The conclusions of the study are drawn from eight different hedonic pricing models as well as both repeat sales and sales volume models.

The various analyses are strongly consistent in that none of the models uncovers conclusive evidence of the existence of any widespread property value impacts that might be present in communities surrounding wind energy facilities. Specifically, neither the view of the wind facilities nor the distance of the home to those facilities is found to have any consistent, measurable, and statically significant effect on home sales prices.

Although the analysis cannot dismiss the possibility that individual homes or small numbers of homes have been or could be negatively impacted, it finds that if these impacts do exist, they are either too small and/or too infrequent to result in any widespread, statistically observable impact.”

Hoen, B., Wiser, R., Cappers, P., Thayer, M., and G. Sethi. (December 2009). The impact of Wind Power Projects on Residential Property Values in the United States: A Multi-Hedonic Analysis. Ernest Orlando Lawrence Berkeley National Laboratory. Prepared for the Office of Energy Efficiency and Renewable Energy

Human Health

Health and Wind Power

- Many studies have been conducted world-wide to examine the relationship between wind turbines and possible human health effects (e.g., audible/inaudible noise, shadow flicker, electromagnetic fields (EMF)).

Audible/Inaudible Noise:

- Ontario's Chief Medical Officer of Health (May 2010) conducted a review of the scientific literature related to wind turbines and public health. The review concluded that:
 - "While some people living near wind turbines report symptoms such as dizziness, headaches, and sleep disturbance, the scientific evidence available to date does not demonstrate a direct causal link between wind turbine noise and adverse health effects. The sound level from wind turbines at common residential setbacks is not sufficient to cause hearing impairment or other direct health effects, although some people may find it annoying."*

Shadow Flicker

- Scientific evidence suggests that shadow flicker from wind turbines does not pose a risk of photo-induced seizures; modern wind turbines simply don't rotate at a speed that has been linked to this condition (generally less than 20 rpm vs. over 60 rpm).

*Chatham-Kent Public Health Unit, 2008; Australian Government, National Health and Medical Research Council, 2010; Australian Government, 2011; Massachusetts Department of Environmental Protection (MassDEP) and Massachusetts Department of Public Health (MDPH), 2012.



Human Health

Electromagnetic Fields (EMF)

- Health Canada (2010) has stated:
 - *"You do not need to take action regarding daily exposures to electric and magnetic fields at extremely low frequencies. There is no conclusive evidence of any harm caused by exposures at levels found in Canadian homes and schools, including those located just outside the boundaries of power line corridors."*

General Human Health Concerns

- Overall, health and medical agencies agree that when sited properly, wind turbines are not causally related to adverse effects*.
- Reports of annoyance by people living around wind turbines appear to be more related to variables like personal attitude and whether a person can see a turbine from their home and not a turbine-specific variable like noise.
 - "Ontario doctors, nurses, and other health professionals support energy conservation combined with wind and solar power – to help us move away from coal."**
- Scientists and medical experts around the world continue to publish research in this area. In fact, Health Canada will be undertaking a study of wind turbine projects across the country, with results expected in 2014. It is important to note that Health Canada has not called for a moratorium on new wind projects across Canada while they undertake their research. Through our health consultants, Armow Wind is committed to keeping informed on this issue.

**Ontario College of Family Physicians, Registered Nurses Association of Ontario, Canadian Association of Physicians for the Environment, Physicians for Global Survival, the Asthma Society of Canada, and the Lung Association.



Archaeology and Heritage

- Archaeological potential is established by determining the likelihood that archaeological resources may be present.
- The Ontario Ministry of Culture, Tourism and Sport's criteria for archaeological potential include:
 - Distance to water sources.
 - Soil texture and drainage.
 - Glacial geomorphology.
 - General topographic variability.
- For areas where archaeological potential is confirmed, field work must be conducted around all areas disturbed by the Project.

Field investigations discovered:

- 16 Pre-contact Aboriginal sites (all were found to be campsites).
- 20 historic Euro-Canadian sites

- Field work has been conducted and involves walking ploughed fields at 5-metre intervals through the Project Area.
- Artifacts are identified visually and locations are logged.
- Where diagnostic artifacts (artifacts that identify a site's age) are discovered they are collected and catalogued at the laboratory.
- If an archaeological site of cultural value is discovered, further assessments will be required.
- 36 sites were identified in the Stage 2 Archaeological Assessment.
- 12 sites were recommended for Stage 3 Archaeological Assessment; but, all 12 are located outside of the proposed turbine and infrastructure layout impact area so no Stage 3 field work is required in relation to the Project.

Archaeology and Heritage

Below is a sample of some of the many artifacts found during site investigations.



Pocket Watch Cover



Projectile Point



Dog Tag



Plastic Comb



Mouth Harp



White Clay Pipe Stem



Painted Ironstone



Machine Cut Nail



Chipping Detritus



Wire Drawn Nail



Edged Whiteware



Transfer Painted Pearlware

Natural Heritage

- The Project Area is dominated by active agricultural activities, with some woodlands, wetlands, and open fields in the area.
- A detailed review of available background information, including online and published resources, as well as discussions with knowledgeable agencies, including the Ministry of Natural Resources, Bird Studies Canada, and Environment Canada, has been initiated.
- During field monitoring, biologists examined all habitat within a minimum of 120 metres of the proposed Project to identify:
 - Woodlands.
 - Wetlands.
 - Valleylands.
 - Significant Wildlife Habitat.
- As part of the ongoing field monitoring, several field studies have been completed to date, including:
 - Vegetation Mapping.
 - Amphibian Surveys.
 - Bat Habitat Assessments and Bat Maternity Colony Exit Surveys.
 - Avian Studies.
 - Wildlife Habitat Assessments.



Natural Heritage reports required for this Project:

- Records Review Report.
- Site Investigation Report.
- Evaluation of Significance Report.
- Environmental Impact Study.

Monitoring of potential post-construction environmental impacts will be completed for at least 3 years at the Armow facility.

Water Bodies

- The majority of the watercourses within the Project Area are currently used for agricultural drainage, however natural channels are also present.
- During the field monitoring, aquatic biologists examined all water features within a minimum of 120 metres of the Project.
- Major natural watercourses within the Project Area include:
 - Kincardine Creek.
 - Willow Creek.
 - North Penetangore River.
- Several other watercourses have been identified through fieldwork conducted for the Project.
- For any water bodies within 120 metres of the Project location, a detailed Environmental Impact Study has been completed to identify and mitigate potential impacts.



Typical Drainage Ditch



Typical Wetland

Birds and Bats

Birds

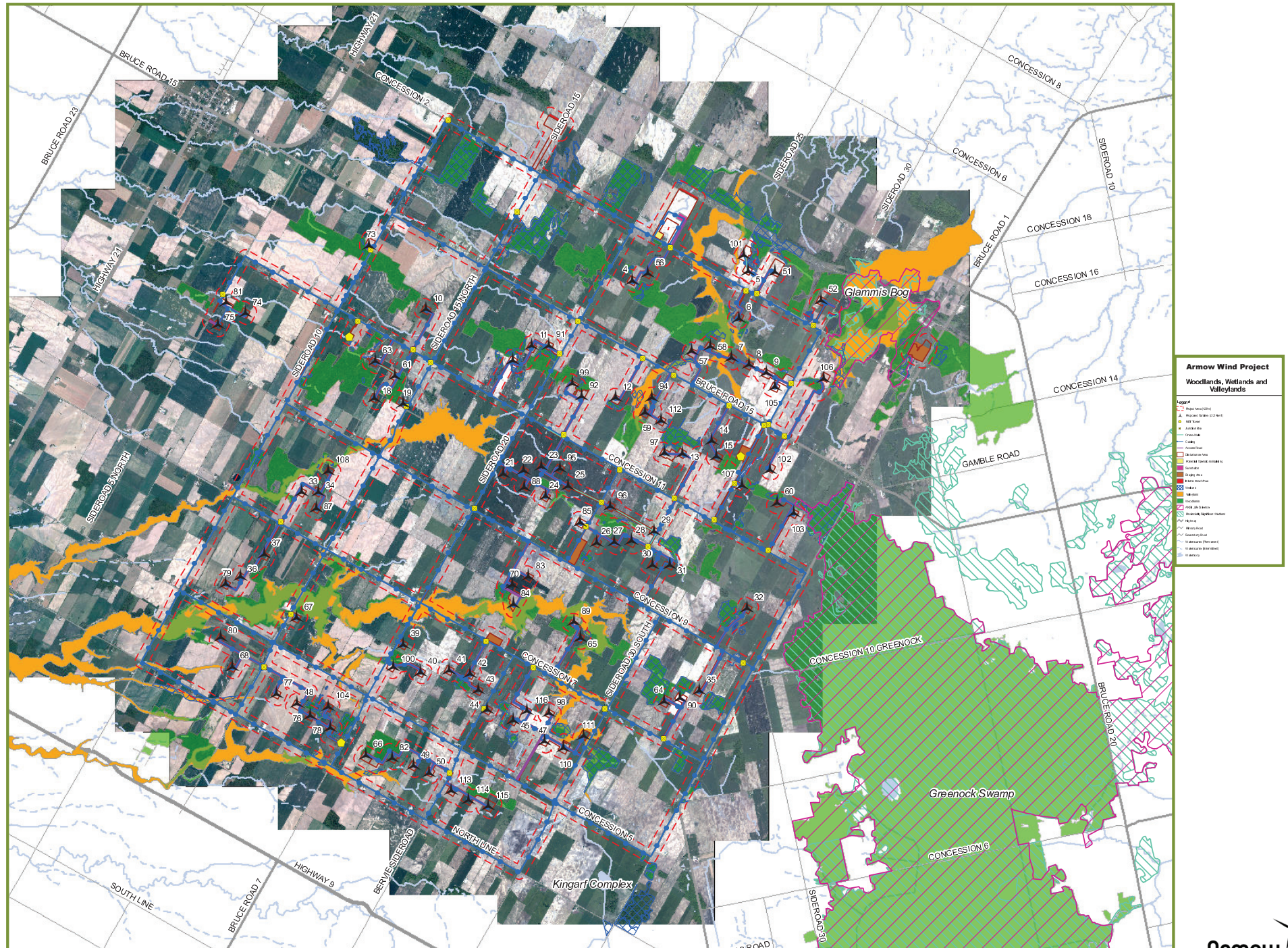
- Baseline avian studies have been ongoing within this Project Area since 2008 and have focused on several important study periods and survey types.
- During the field monitoring, biologists examined bird habitat types within a minimum of 120 metres of the Project location, including:
 - Waterfowl stopover and staging areas.
 - Raptor wintering areas.
 - Waterfowl nesting areas.
 - Open country bird breeding habitats.
- Study results from the Project Area will be compared to provincial standards for determining Significant Wildlife Habitat.
- An Environmental Impact Study has been conducted for all significant bird habitats within 120 metres of the Project location.



Bats

- Baseline acoustic bat surveys were initiated within the Project Area in August 2009 to assess fall bat migration and activity patterns.
- In accordance with current provincial guidelines, bat habitat assessments were conducted within the Project Area in 2012 to identify candidate bat maternity colonies.
- Visual surveys were conducted at all candidate bat maternity colonies to identify bats that may be exiting or entering candidate roost trees.
- Study results from the Project Area will be compared to provincial standards for determining significant wildlife habitat.
- An Environmental Impact Study has been conducted for all significant bat habitats within 120 metres of the Project location.

Natural Heritage Features



Armow Wind Project

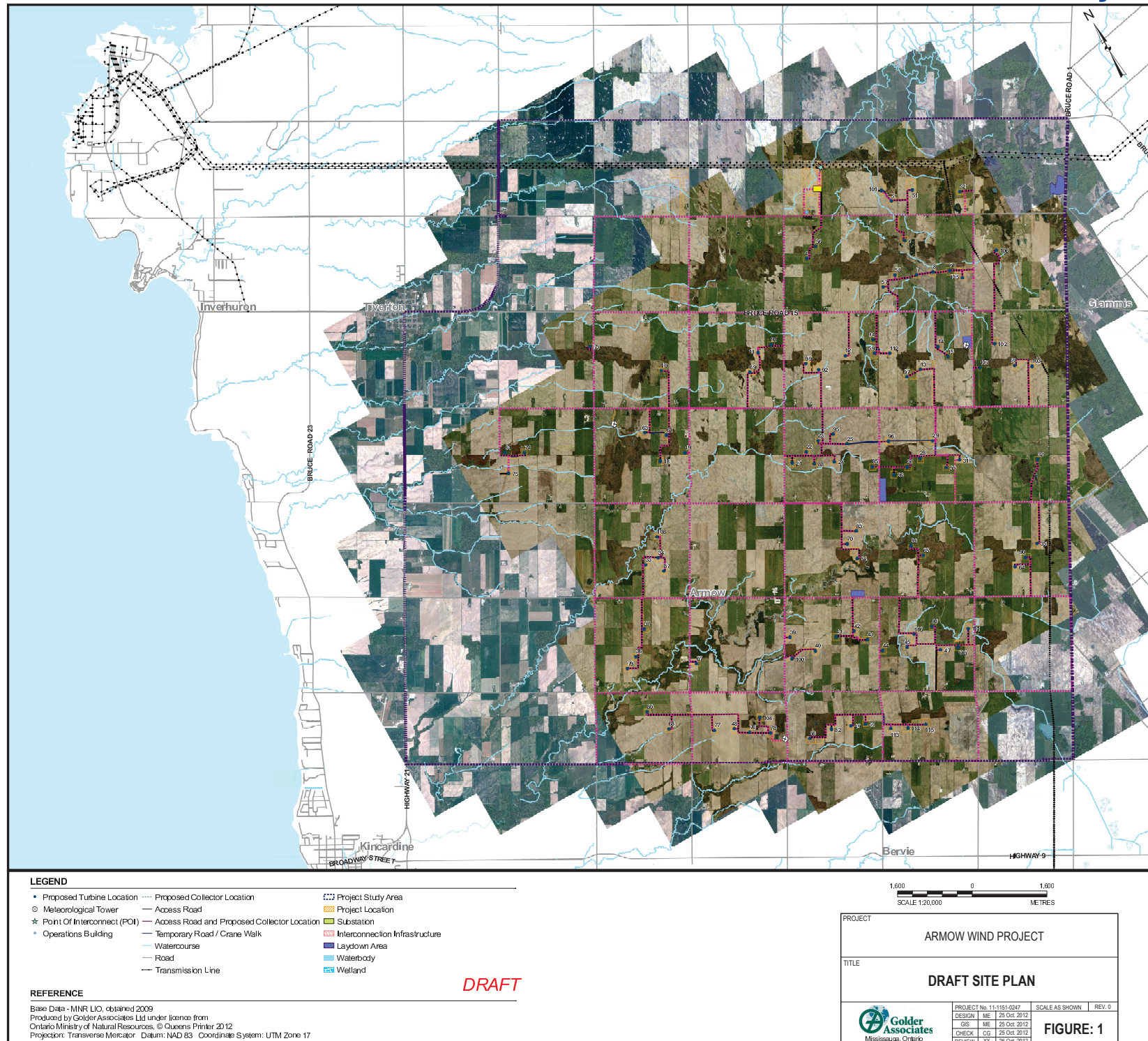


Adjustment to T059 Position



Impact on Non-Participating Receptors within 1.5 km

Non-Participating Receptor ID	Impact
R229	▪ 9 m Closer
R228	▪ 8 m Closer
R227	▪ 13 m Closer
R223	▪ 17 m Closer
R222	▪ 16 m Closer
R221	▪ 15 m Closer
R151	▪ 15 m Farther
R152	▪ 18 m Farther
R153	▪ 18 m Farther
R154	▪ 18 m Farther
R801	▪ 18 m Farther



Consultation and Engagement

Samsung and Pattern believe Aboriginal and Public input is an important part of the REA process. All Consultation and Engagement activities will be reflected in the Consultation Report which is submitted with the REA application.

Key Consultation and Engagement Milestones



Thank You

Thank you for coming to the Armow Wind Project Public Meeting

Next steps:

- Summarize and respond to comments received at this Public Meeting.
- Finalize REA reports.
- Submit REA reports as part of the REA application.
- MOE reviews submitted REA reports.
- Public review on Environmental Registry.
- Minister's decision.

**To learn more about the Project
or to provide feedback, please
visit our website or contact:**

www.armowwind.com

519-396-9433

info@armowwind.com

**We value your feedback and
would like to hear what you
think**

Please enjoy the beverages and snacks and kindly complete a comment sheet before you leave so that we can take your feedback into consideration.

If you have not signed in at the registration desk please do so before you leave.



Armow Wind Project



3. Sample Comment Form

Armow Wind Project

Open House, November 12, 2012

Best Western Governor's Inn



Please take a moment to fill out this questionnaire and place it in the box provided, or mail it to the address below. Your input is important. Comments will become part of the public record.

1. How did you learn about this Public Open House (please check all that apply)?

- | | |
|---|----------------------------------|
| <input type="checkbox"/> Newspaper Advertisement | <input type="checkbox"/> Website |
| <input type="checkbox"/> Personal Letter or Email | |
| <input type="checkbox"/> Word of Mouth | |
| <input type="checkbox"/> Other: | |

2. What was your main reason for attending this Public Open House?

3. Did this Public Open House meet your information needs?

- | | | |
|------------------------------|-----------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> Somewhat | <input type="checkbox"/> No |
|------------------------------|-----------------------------------|-----------------------------|

Please explain:

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Name: _____	
Street Address: _____	
City/Province: _____	
Postal Code: _____	Email: _____

Golder Associates Ltd.
2390 Argentia Rd.
Mississauga, ON
L5N 5Z7



APPENDIX E

Aboriginal Engagement Materials and Documentation



1. Director's Aboriginal Communities List and Confirmation Email

Ministry of the Environment

Environmental Assessment and
Approvals Branch

2 St. Clair Avenue West
Floor 12A
Toronto ON M4V 1L5
Tel.: 416 314-8001
Fax: 416 314-8452

Ministère de l'Environnement

Direction des évaluations et des
autorisations environnementales

2, avenue St. Clair Ouest
Étage 12A
Toronto ON M4V 1L5
Tél. : 416 314-8001
Téléc. : 416 314-8452



March 1, 2011

MOE File #: SW-10-WF-0118

Paul Austin
Communications Manager
Acciona Renewable Energy Canada
36 Toronto Street
Suite 290
Toronto ON M5C 2C5

Dear Mr. Austin:

RE: Director's Aboriginal Communities List - Acciona Arrow Wind Energy Project

The Ontario Ministry of the Environment (Ministry) has reviewed the information provided in the *Draft of the Project Description Report (PDR)* received for the *Acciona Arrow Wind Energy Project*. The Ministry has reviewed the anticipated environmental effects of the project (as described in the PDR) relative to its current understanding of the interests of aboriginal communities in the area.

In accordance with section 14 of Ontario Regulation 359/09 "Renewable Energy Approvals under Part V.0.1 of the Act" (O. Reg. 359/09) made under the *Environmental Protection Act*, please find below the list of aboriginal communities who, in the opinion of the Director:

- i) have or may have constitutionally protected aboriginal or treaty rights that may be adversely impacted by the project (s.14(b)(i)):

Aboriginal Community Common Name: Reserve Name: Contact Information:
Saugeen Ojibway Nation Jake Linklater Case Manager Saugeen Ojibway Nation Environment Office RR 5 Wiarton ON N0H 2T0 Phone (519)534-5507 Fax (519)534-5525

Saugeen First Nation Chief Randall Kahgee RR 1 Southampton ON N0H 2L0 Phone (519) 797-2781 Fax (519) 797-2978
Chippewas of Nawash Unceded First Nation Chief Ralph Akiwenzie 135 Lakeshore Blvd. RR 5 Warton ON N0H 2T0 Phone (519) 534-1689 Fax (519) 534-2130
Historic Saugeen Métis 204 High Street, Box 1492 Southampton ON N0H 2L0 Phone (519) 483-4000

OR

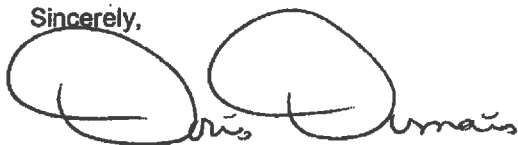
ii) otherwise may be interested in any negative environmental effects of the project (s.14(b)(ii)):

Great Lakes Métis Council (formerly Grey-Owen Sound Métis Council) Ray Racicot, President 380 9th Street East Owen Sound ON N4K 1P1 Phone (519) 370-0435
Métis Nation of Ontario Consultation Unit 500 Old St. Patrick St, Unit 3 Ottawa ON K1N 9G4

NOTE: None of the foregoing should be taken to imply approval of this project or the contents of the PDR. This letter only addresses the requirement of the Director to provide a list of aboriginal communities to you as required pursuant to section 14 of O. Reg. 359/09. You should also be aware that information upon which the above list of aboriginal communities is based is subject to change. Aboriginal communities can make assertions at any time, and other developments, for example the discovery of Aboriginal archaeological resources, can occur that may require additional aboriginal communities to be notified. Should this happen, the Ministry will contact you. Similarly, if you receive any feedback from any aboriginal communities not included in this list, as part of your consultation, the Ministry would appreciate being notified.

Please contact Narren Santos at (416) 314-8442 should you have any questions or require additional information.

Sincerely,

A handwritten signature in black ink, appearing to read 'Doris Dumais', with a large, stylized circular flourish at the beginning.

Doris Dumais
Director – Approvals Program
Environmental Assessment and Approvals Branch

cc: Mansoor Mahmood, Renewable Energy Team, Ministry of the Environment
Joe de Laronde, Aboriginal Affairs Branch, Ministry of the Environment

Gurski, Chris

From: Gurski, Chris
Sent: Thursday, November 29, 2012 9:47 AM
To: Gurski, Chris

From: Guido, Sandra (ENE) [<mailto:Sandra.Guido@ontario.ca>]
Sent: Thursday, December 15, 2011 1:39 PM
To: Callum, Ian; b.edwards@samsungrenewableenergy.ca; Jody.Law@patternenergy.com
Cc: Santos, Narren (ENE); Mahmood, Mansoor (ENE)
Subject: FW: Request for confirmaton on validity of previous AB list = revised draft PDR for the Armow Wind Project

Hi Brian, Jody and Ian,

The revised PDR submitted for the Armow Wind Project was reviewed and we can confirm that the original Aboriginal Community List provided to you in February 2011 remains the same.

If you have any questions, please feel free to contact me at the number below.

Thank you,
Sandra

Sandra Guido
Senior Program Support Coordinator
Service Integration Unit
Environmental Approvals Access and Service Integration Branch
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A Toronto ON M4V 1L5
Tel: 416.327.4692 Fax: 416.314.8452
sandra.guido@ontario.ca

From: Callum, Ian [mailto:Ian_Callum@golder.com]
Sent: November 08, 2011 2:05 PM
To: Santos, Narren (ENE)
Cc: Garcia-Wright, Agatha (ENE); Dumais, Doris (ENE); Jody Law; B Edwards; kim.sachtleben@patternenergy.com; kc1206.kim@samsung.com; SP Ontario - Armow; Ciccone, Anthony; Da Silva, Danny (Mississauga); Clinch, Rachelle
Subject: Draft Project Description Report for the Armow Wind Project

Good afternoon Narren,

On behalf of SP Armow Wind Ontario LP ("SP Ontario"), a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC and Samsung Renewable Energy Inc., please find attached the Draft Project Description Report ("PDR") for the Armow Wind Project. The proposed Project was formerly known as the Armow Wind Power Project, an 80 MW wind facility being developed by Acciona Renewable Energy Canada Holdings Inc. In August, 2011, Acciona sold all lease holdings of the former Armow Wind Power Project to the SP Ontario Wind Ontario LP.

The Project Area illustrated in the Acciona Draft PDR remains unchanged. Accordingly, SP Ontario is requesting confirmation of the Director's List of Aboriginal Communities that was provide to Acciona and which has been attached for your convenience.

The Draft PDR will be made available to the public on November 11th, 2011. Acknowledging how soon from now this is, it would be greatly appreciated if you could provide us with any concerns about the completeness of the PDR prior to this date.

Lastly, please confirm if you would like a hardcopy of the PDR for your records.

Much appreciated,

Ian

Ian Callum (MSc, BSc) | Environmental Assessment Project Manager | Golder Associates Ltd.
2390 Argentia Road, Mississauga, Ontario, Canada L5N 5Z7
T: +1 (905) 567 6100 ext. 1524 | C: +1 (416) 303-9646 | F: +1 (905) 567 6561 | E: Ian_Callum@golder.com |
www.golder.com

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Please consider the environment before printing this email.

Chris Gurski (Honours B.A.) | Public Consultation Coordinator | Golder Associates Ltd.
2390 Argentia Road, Mississauga, Ontario, Canada L5N 5Z7
T: +1 (905) 567 4444 | D: +1 (905) 567 6100 Ext. 1557 | F: +1 (905) 567 6561 | E: Chris_Gurski@golder.com |
www.golder.com

Work Safe, Home Safe

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2. Cover Letters Accompanying Draft Project Description Report



SP Armow Wind Ontario LP
9th Floor, 55 Standish Court
Mississauga, Ontario L5R 4B2
Canada

November 8, 2011

President Archie Indoe
Historic Saugeen Métis
204 High Street, Box 1492,
Southampton, Ontario, N0H 2L0

Re: Notice of a Proposal to Engage in a Renewable Energy Project for the Armow Wind Project

Dear President Archie Indoe:

As you may know, SP Armow Wind Ontario LP, a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC and Samsung Renewable Energy Inc. (the Developer) is now leading the proposed Armow Wind Project (the Project). This letter is to inform you that we are commencing the Renewable Energy Approval (REA) process for this Project. Please find our combined Notice of Proposal to Engage in Renewable Energy Project and Public Meeting on the reverse of this letter and on the Project website (www.armowwind.com).

The proposed Project, formerly known as the Armow Wind Power Project was under development by Acciona Renewable Energy Canada Holdings Inc. (Acciona). In August 2011, Acciona sold all lease holdings of the Project to the Developer. The Developer is proposing to expand the nameplate capacity of the Project within the same Project Area.

The proposed Project would produce up to a maximum nameplate of 180 MW of electricity. The total number of turbines will be dependent on the individual MW generation capacity of each turbine. Once the turbine model has been selected, the layout design and number of turbines will be finalized and presented during the consultation process. Other components associated with the Project include:

- A collector substation (where the project will connect to the transmission grid);
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As part of the formal notification process, we are also providing you with two draft copies of the draft Project Description. Please feel free to make one of them available at your Band Office so that the wider community has a chance to review the document. Any comments or questions can be sent directly to us at the addresses below.

This Project is situated near your community and we understand you may have concerns about how the Project will affect you. We are requesting that you identify any Aboriginal or treaty rights that you feel may be affected by the Project. We would like to discuss any concerns you may have and any information you can provide about how the Project may affect your community. We are committed to meet in person or over the telephone at your convenience.

Additionally, we are hosting a public meeting in Kincardine to provide information about the Project, answer questions, and record comments and concerns. The meeting will be a drop-in open house to allow community members to review the information on their own time. The date and location of the public meeting can be found on the reverse of this letter.

We look forward to your participation in this Renewable Energy Approval process. If you have any questions or comments regarding the Project, please feel free to contact us at info@armowwind.com or using the contact information provided below.

Yours very truly,

Brian Edwards, Project Developer
Samsung Renewable Energy Inc.
55 Standish Court
Mississauga, ON L5R 4B2
Phone: 905-501-5667

Jody Law, Project Developer
Pattern Renewable Holdings Canada ULC
100 Simcoe St. Suite 105
Toronto, ON M5H 3T4
Phone: 416-263-8029

NOTICE OF A PUBLIC MEETING AND PROPOSAL
by SP Armow Wind Ontario LP to Engage in a Renewable Energy Project

Project Name: Armow Wind Project (the "Project")

Project Location: The Project proposed to be situated in the Municipality of Kincardine, Bruce County, Ontario, approximately 3 kilometres from Lake Huron and approximately 2 kilometres northeast of Kincardine. The figure below identifies the proposed area within which the Project will be located.

Dated at: Bruce County this, the 8th of November, 2011.

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Date: Tuesday, December 13, 2011

Time: 4 p.m. to 8 p.m.

Location: Best Western – Governor's Inn, 791 Durham Street, Kincardine, Ontario

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2390 Argenta Road
Mississauga, Ontario, L5N 5Z7
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Email: Ian_Callum@golder.com





SP Armow Wind Ontario LP
9th Floor, 55 Standish Court
Mississauga, Ontario L5R 4B2
Canada

November 8, 2011

Chief Scott Lee
Chippewas of Nawash Unceded First Nation
135 Lakeshore Blvd., RR 5
Wiarton, Ontario, N0H 2T0

Re: Notice of a Proposal to Engage in a Renewable Energy Project for the Armow Wind Project

Dear Chief Scott Lee:

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Brian Edwards, Project Developer
Samsung Renewable Energy Inc.
55 Standish Court
Mississauga, ON L5R 4B2
Phone: 905-501-5667

Jody Law, Project Developer
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100 Simcoe St. Suite 105
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NOTICE OF A PUBLIC MEETING AND PROPOSAL
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Phone: 905-567-4444
Fax: 905-567-6561
Email: Ian_Callum@golder.com





SP Armow Wind Ontario LP
9th Floor, 55 Standish Court
Mississauga, Ontario L5R 4B2
Canada

November 8, 2011

Chief Randall Kahgee
Saugeen First Nation
RR 1
Southampton, Ontario, N0H 2L0

Re: Notice of a Proposal to Engage in a Renewable Energy Project for the Armow Wind Project

Dear Chief Randall Kahgee:

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Yours very truly,

Brian Edwards, Project Developer
Samsung Renewable Energy Inc.
55 Standish Court
Mississauga, ON L5R 4B2
Phone: 905-501-5667

Jody Law, Project Developer
Pattern Renewable Holdings Canada ULC
100 Simcoe St. Suite 105
Toronto, ON M5H 3T4
Phone: 416-263-8029

NOTICE OF A PUBLIC MEETING AND PROPOSAL
by SP Armow Wind Ontario LP to Engage in a Renewable Energy Project

Project Name: Armow Wind Project (the "Project")

Project Location: The Project proposed to be situated in the Municipality of Kincardine, Bruce County, Ontario, approximately 3 kilometres from Lake Huron and approximately 2 kilometres northeast of Kincardine. The figure below identifies the proposed area within which the Project will be located.

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2390 Argenta Road
Mississauga, Ontario, L5N 5Z7
Phone: 905-567-4444
Fax: 905-567-6561
Email: Ian_Callum@golder.com





SP Armow Wind Ontario LP
9th Floor, 55 Standish Court
Mississauga, Ontario L5R 4B2
Canada

November 8, 2011

Alden Barty
Métis Nation of Ontario
355 Cranston Crescent,
Midland, Ontario, L4R 4K6

Re: Notice of a Proposal to Engage in a Renewable Energy Project for the Armow Wind Project

Dear Alden Barty:

As you may know, SP Armow Wind Ontario LP, a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC and Samsung Renewable Energy Inc. (the Developer) is now leading the proposed Armow Wind Project (the Project). This letter is to inform you that we are commencing the Renewable Energy Approval (REA) process for this Project. Please find our combined Notice of Proposal to Engage in Renewable Energy Project and Public Meeting on the reverse of this letter and on the Project website (www.armowwind.com).

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Yours very truly,

Brian Edwards, Project Developer
Samsung Renewable Energy Inc.
55 Standish Court
Mississauga, ON L5R 4B2
Phone: 905-501-5667

Jody Law, Project Developer
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NOTICE OF A PUBLIC MEETING AND PROPOSAL
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Project Name: Armow Wind Project (the "Project")

Project Location: The Project proposed to be situated in the Municipality of Kincardine, Bruce County, Ontario, approximately 3 kilometres from Lake Huron and approximately 2 kilometres northeast of Kincardine. The figure below identifies the proposed area within which the Project will be located.

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SP Armow Wind Ontario LP
9th Floor, 55 Standish Court
Mississauga, Ontario L5R 4B2
Canada

November 8, 2011

Jocelyn Keeshig
Saugeen Ojibway Nation Environment Office
RR 5
Wiarton, Ontario, N0H 2T0

Re: Notice of a Proposal to Engage in a Renewable Energy Project for the Armow Wind Project

Dear Jocelyn Keeshig:

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Ian Callum, Project Manager
Golder Associates Ltd
2390 Argentia Road
Mississauga, Ontario, L5N 5Z7
Phone: 905-567-4444
Fax: 905-567-6561
Email: Ian_Callum@golder.com





3. Covers Letters accompanying Draft Site Plan Report



SP Armow Wind Ontario LP
9th Floor, 55 Standish Court
Mississauga, Ontario L5R 4B2
Canada

Patsy McArthur
Secretary- Treasurer
Historic Saugeen Métis
204 High Street, Box 1492,
Southampton Ontario
N0H 2L0

August 9, 2012

RE: Notice of a Draft Site Plan Report for a Renewable Energy Project for the Armow Wind Project

Dear Patsy McArthur:

As you may know, SP Armow Wind Ontario LP, a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC and Samsung Renewable Energy Inc. (the "Proponent") is proposing to develop the Armow Wind Project (the "Project") located in Bruce County, 3 km from Lake Huron, approximately 2 km northeast of Kincardine, Ontario.

We are continuing the process of applying for a Renewable Energy Approval (REA) for this Project, and are currently issuing a Draft Site Plan Report (the "Report"). Copies of the Report will be available for public review on August 11, 2012 at the Tiverton and Kincardine branches of the Bruce County Public Library (56 King Street, Tiverton and 727 Queen Street, Kincardine) and Bruce County and Kincardine municipal offices (30 Park Street, Walkerton and 1475 Concession 5, Kincardine), and will be available on the Project website (www.armowwind.com). The Report will also be available at the main offices of the Métis Nation of Ontario Lands, Resources and Consultation Office (355 Cranston Cr., Midland), the Saugeen Ojibway Nation (35 Lakeshore Rd., Wiarton), the Saugeen First Nation (6493 highway 21, R.R.#1, Southampton), the Chippewas of Nawash Unceded First Nation (R.R.#5, Wiarton), The Great Lakes Métis Council (380 9th Street East, Owen Sound) and the Historic Saugeen Métis (204 High St., Box 1492, Southampton). The Notice of the Draft Site Plan Report was first published in the Kincardine News on August 7, 2012.

The proposed Project, described in the Report, will produce up to a maximum nameplate capacity of 180 megawatts (MW). Upon public distribution of the Draft Site Plan Report, turbine locations and associated infrastructure for the purposes of the REA application will be considered fixed. Other proposed Project infrastructure includes the following:

- A collector substation (where the Project will connect to the transmission grid);
- Access roads (developed to access turbines for construction and maintenance);
- Collector lines (to move electricity from the turbines to the substation);
- Laydown areas and temporary construction work spaces (for construction equipment); and,
- Meteorological towers (to collect data on wind direction and speed).

We look forward to your participation in the REA process. If you have any questions or comments regarding the Project, please feel free to contact us at info@armowwind.com or using the contact information provided below.

Sincerely,

Brian Edwards, Project Developer
Samsung Renewable Energy Inc.
55 Standish Court
Mississauga, ON L5R 4B2
Phone: 519-396-9433

Jody Law, Project Developer
Pattern Renewable Holdings Canada ULC
100 Simcoe St. Suite 105
Toronto, ON M5H 3T4
Phone: 519-396-9433



SP Armow Wind Ontario LP
9th Floor, 55 Standish Court
Mississauga, Ontario L5R 4B2
Canada

Jessica Nadjiwon-Smith
Band Administrator
Chippewas of Nawash Unceded First Nation
135 Lakeshore Blvd, RR # 5
Wiarton Ontario
N0H 2T0

August 9, 2012

RE: Notice of a Draft Site Plan Report for a Renewable Energy Project for the Armow Wind Project

Dear Jessica Nadjiwon-Smith:

As you may know, SP Armow Wind Ontario LP, a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC and Samsung Renewable Energy Inc. (the "Proponent") is proposing to develop the Armow Wind Project (the "Project") located in Bruce County, 3 km from Lake Huron, approximately 2 km northeast of Kincardine, Ontario.

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Sincerely,

Brian Edwards, Project Developer
Samsung Renewable Energy Inc.
55 Standish Court
Mississauga, ON L5R 4B2
Phone: 519-396-9433

Jody Law, Project Developer
Pattern Renewable Holdings Canada ULC
100 Simcoe St. Suite 105
Toronto, ON M5H 3T4
Phone: 519-396-9433



SP Armow Wind Ontario LP
9th Floor, 55 Standish Court
Mississauga, Ontario L5R 4B2
Canada

Janet Root
Band Administrator
Chippewas of Saugeen First Nation
6493 Highway 21, RR #1
Southampton Ontario
N0H 2L0

August 9, 2012

RE: Notice of a Draft Site Plan Report for a Renewable Energy Project for the Armow Wind Project

Dear Janet Root:

As you may know, SP Armow Wind Ontario LP, a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC and Samsung Renewable Energy Inc. (the "Proponent") is proposing to develop the Armow Wind Project (the "Project") located in Bruce County, 3 km from Lake Huron, approximately 2 km northeast of Kincardine, Ontario.

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Sincerely,

Brian Edwards, Project Developer
Samsung Renewable Energy Inc.
55 Standish Court
Mississauga, ON L5R 4B2
Phone: 519-396-9433

Jody Law, Project Developer
Pattern Renewable Holdings Canada ULC
100 Simcoe St. Suite 105
Toronto, ON M5H 3T4
Phone: 519-396-9433



SP Armow Wind Ontario LP
9th Floor, 55 Standish Court
Mississauga, Ontario L5R 4B2
Canada

Alden Barty
Coordinator, lands and resources
Métis Nation of Ontario
355 Cranston Crescent,
Midland Ontario
L4R 4K6

August 9, 2012

RE: Notice of a Draft Site Plan Report for a Renewable Energy Project for the Armow Wind Project

Dear Alden Barty:

As you may know, SP Armow Wind Ontario LP, a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC and Samsung Renewable Energy Inc. (the "Proponent") is proposing to develop the Armow Wind Project (the "Project") located in Bruce County, 3 km from Lake Huron, approximately 2 km northeast of Kincardine, Ontario.

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Sincerely,

Brian Edwards, Project Developer
Samsung Renewable Energy Inc.
55 Standish Court
Mississauga, ON L5R 4B2
Phone: 519-396-9433

Jody Law, Project Developer
Pattern Renewable Holdings Canada ULC
100 Simcoe St. Suite 105
Toronto, ON M5H 3T4
Phone: 519-396-9433



SP Armow Wind Ontario LP
9th Floor, 55 Standish Court
Mississauga, Ontario L5R 4B2
Canada

Jake Linklater
Office Coordinator
Saugeen Ojibway Nation
35 Lakeshore Rd,
Wiarton Ontario
N0H 2T0

August 9, 2012

RE: Notice of a Draft Site Plan Report for a Renewable Energy Project for the Armow Wind Project

Dear Jake Linklater:

As you may know, SP Armow Wind Ontario LP, a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC and Samsung Renewable Energy Inc. (the "Proponent") is proposing to develop the Armow Wind Project (the "Project") located in Bruce County, 3 km from Lake Huron, approximately 2 km northeast of Kincardine, Ontario.

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Sincerely,

Brian Edwards, Project Developer
Samsung Renewable Energy Inc.
55 Standish Court
Mississauga, ON L5R 4B2
Phone: 519-396-9433

Jody Law, Project Developer
Pattern Renewable Holdings Canada ULC
100 Simcoe St. Suite 105
Toronto, ON M5H 3T4
Phone: 519-396-9433



4. Confirmation of Receipt of the draft Site Plan Report

CONFIRMATION OF RECEIPT

For the SP Armow Wind Ontario LP Armow Wind Project

UPON RECEIPT, PLEASE COMPLETE BOXES/BLANK LINES:

Date Received: <i>August 10 2012.</i>

Name: <i>Susan Schank</i>
Organization: <i>Great Lakes</i>
Position: <i>Metis Council</i>
Signature: <i>Susan Schank</i>

Documents Received (please check boxes):	
0 – Draft Site Plan Report	<input checked="" type="checkbox"/>

CONFIRMATION OF RECEIPT

For the SP Armow Wind Ontario LP Armow Wind Project

UPON RECEIPT, PLEASE COMPLETE BOXES/BLANK LINES:

Date Received: Aug 10, 2017

Name:
Organization: SAUGEEN RABO
Position: COUNCIL
Signature: [Signature]

Documents Received (please check boxes):
0 - Draft Site Plan Report <input checked="" type="checkbox"/>

(3 copies) dropped off at Saugeen First Nation Administration (No. 29)

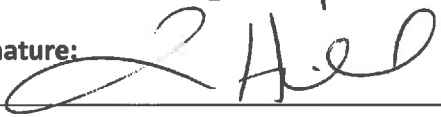
- Saugeen First Nation
- Chippewas of Nawash Unceded First Nation
- Saugeen Ojibway Nation

CONFIRMATION OF RECEIPT

For the SP Armow Wind Ontario LP Armow Wind Project

UPON RECEIPT, PLEASE COMPLETE BOXES/BLANK LINES:

Date Received: Aug 10. 12

Name: Tina Hill
Organization: Saugeen Mts
Position: Bookkeeper
Signature: 

Documents Received (please check boxes):	
0 – Draft Site Plan Report	<input checked="" type="checkbox"/>



Detailed Results

Tracking no.: 537727209823		Select time format: 12H
<div><div>Delivered</div><div><div>Delivered</div><div>Signed for by: L.MOUNTROY</div></div></div>		
Shipment Dates		Destination
Ship date	Aug 9, 2012	MIDLAND, ON
Delivery date	Aug 10, 2012 1:04 PM	Signature Proof of Delivery

Shipment Facts			
Service type	Priority Overnight	Reference	11-1151-0247 (CHRIS G.)

Shipment Travel History			
Select time zone: Local Scan Time			
All shipment travel activity is displayed in local time for the location			
Date/Time	Activity	Location	Details
Aug 10, 2012 1:04 PM	Delivered	MIDLAND, ON	



5. Confirmation of Receipt of Aboriginal Report Summaries and Accompanying Cover Letters



Summary Results

Select time format **12H****Delivered**

Tracking no.	Status	Delivery date	Destination	Signature Proof Image
537727210920	Delivered Signed for by: S.MOULTON Priority Pak	Aug 28, 2012 12:58 PM	SOUTHAMPTON, ON	Yes
537727210893	Delivered Signed for by: E.NOVAK Priority Pak	Aug 28, 2012 1:20 PM	WIARTON, ON	No
537727210908	Delivered Signed for by: P.PETONEQUOT Priority Pak	Aug 28, 2012 11:51 AM	SOUTHAMPTON, ON	Yes
537727210882	Delivered Signed for by: S.SCHANK Priority Pak	Aug 28, 2012 10:29 AM	OWEN SOUND, ON	Yes
537727210930	Delivered Signed for by: E.CAMERON Priority Pak	Aug 28, 2012 1:35 PM	WIARTON, ON	No
537727210919	Delivered Signed for by: D.SECORD Priority Pak	Aug 29, 2012 3:24 PM	MIDLAND, ON	Yes

August 27, 2012

Alden Barty
Coordinator, Lands and Resources
Metis Nation of Ontario
355 Cranston Crescent
Midland ON
L4R 4K6



RE: Proposed SP Armow Wind Ontario LP – Armow Wind Project

Dear Alden Barty,

SP Armow Wind Ontario LP (the Proponent), by its general partner SP Armow Wind Ontario GP Inc., is proposing to develop the Armow Wind Project (the Project) in the Municipality of Kincardine, Bruce County, Ontario. The Proponent is a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC (Pattern) and Samsung Renewable Energy Inc. (Samsung). Enclosed, please find summaries of the draft documents (excluding the Consultation Report) that will be submitted as part of the Renewable Energy Approval (REA) application. We are requesting that you review the document and that you and your community provide (in writing):

- Any information that, in the opinion of your community, should be considered in preparing any of the documents provided in this package;
- Any information your community may have about any potential adverse impacts on your Aboriginal or treaty rights; and
- Any suggested measures for avoiding, minimizing or mitigating the potential adverse impacts.

Full documents will be available within 20 days. We highly value the input of your community and look forward to receiving information from, and continuing to work with, you throughout the development of this Project.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Brian Edwards'.

Brian Edwards
Manager, Project Development
Samsung Renewable Energy Inc.
55 Standish Court, 9th Floor
Mississauga, ON, L5R 4B2

A handwritten signature in blue ink, appearing to read 'Jody Law'.

Jody Law
Project Developer
Pattern Energy
100 Simcoe Street, Suite 105
Toronto, ON, M5H 3G2

August 27, 2012

Patsy McArthur
Secretary- Treasurer
Historic Saugeen Metis
204 High Street, Box 1492
Southampton ON
N0H 2L0



RE: Proposed SP Armow Wind Ontario LP – Armow Wind Project

Dear Patsy McArthur,

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Sincerely,

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Brian Edwards
Manager, Project Development
Samsung Renewable Energy Inc.
55 Standish Court, 9th Floor
Mississauga, ON, L5R 4B2

A handwritten signature in blue ink, appearing to read 'Jody Law', is positioned above the printed name and title.

Jody Law
Project Developer
Pattern Energy
100 Simcoe Street, Suite 105
Toronto, ON, M5H 3G2

August 27, 2012

Randal Kaghee
Chief
Chippewas of Saugeen
6493 Highway 21
Southampton ON
N0H 2L0



RE: Proposed SP Armow Wind Ontario LP – Armow Wind Project

Dear Randal Kaghee,

SP Armow Wind Ontario LP (the Proponent), by its general partner SP Armow Wind Ontario GP Inc., is proposing to develop the Armow Wind Project (the Project) in the Municipality of Kincardine, Bruce County, Ontario. The Proponent is a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC (Pattern) and Samsung Renewable Energy Inc. (Samsung). Enclosed, please find summaries of the draft documents (excluding the Consultation Report) that will be submitted as part of the Renewable Energy Approval (REA) application. We are requesting that you review the document and that you and your community provide (in writing):

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Brian Edwards
Manager, Project Development
Samsung Renewable Energy Inc.
55 Standish Court, 9th Floor
Mississauga, ON, L5R 4B2

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Jody Law
Project Developer
Pattern Energy
100 Simcoe Street, Suite 105
Toronto, ON, M5H 3G2

August 27, 2012

Scott Lee
Chief
Chippewas of Nawash Unceded First Nation
135 Lakeshore Blvd
RR # 5
Wiarton ON
N0H 2T0



RE: Proposed SP Armow Wind Ontario LP – Armow Wind Project

Dear Scott Lee,

SP Armow Wind Ontario LP (the Proponent), by its general partner SP Armow Wind Ontario GP Inc., is proposing to develop the Armow Wind Project (the Project) in the Municipality of Kincardine, Bruce County, Ontario. The Proponent is a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC (Pattern) and Samsung Renewable Energy Inc. (Samsung). Enclosed, please find summaries of the draft documents (excluding the Consultation Report) that will be submitted as part of the Renewable Energy Approval (REA) application. We are requesting that you review the document and that you and your community provide (in writing):

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Brian Edwards
Manager, Project Development
Samsung Renewable Energy Inc.
55 Standish Court, 9th Floor
Mississauga, ON, L5R 4B2

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Jody Law
Project Developer
Pattern Energy
100 Simcoe Street, Suite 105
Toronto, ON, M5H 3G2

August 27, 2012

Peter Coture
President
Great Lakes Metis Council
380 9th Street East
Owen Sound ON
N4K 1P1



RE: Proposed SP Armow Wind Ontario LP – Armow Wind Project

Dear Peter Coture,

SP Armow Wind Ontario LP (the Proponent), by its general partner SP Armow Wind Ontario GP Inc., is proposing to develop the Armow Wind Project (the Project) in the Municipality of Kincardine, Bruce County, Ontario. The Proponent is a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC (Pattern) and Samsung Renewable Energy Inc. (Samsung). Enclosed, please find summaries of the draft documents (excluding the Consultation Report) that will be submitted as part of the Renewable Energy Approval (REA) application. We are requesting that you review the document and that you and your community provide (in writing):

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Sincerely,

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Brian Edwards
Manager, Project Development
Samsung Renewable Energy Inc.
55 Standish Court, 9th Floor
Mississauga, ON, L5R 4B2

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Jody Law
Project Developer
Pattern Energy
100 Simcoe Street, Suite 105
Toronto, ON, M5H 3G2

August 27, 2012

Joselyn Keeshig
Saugeen Ojibway Nation
135 Lakeshore Blvd
RR # 5
Wiarton ON
N0H 2T0



RE: Proposed SP Armow Wind Ontario LP – Armow Wind Project

Dear Joselyn Keeshig,

SP Armow Wind Ontario LP (the Proponent), by its general partner SP Armow Wind Ontario GP Inc., is proposing to develop the Armow Wind Project (the Project) in the Municipality of Kincardine, Bruce County, Ontario. The Proponent is a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC (Pattern) and Samsung Renewable Energy Inc. (Samsung). Enclosed, please find summaries of the draft documents (excluding the Consultation Report) that will be submitted as part of the Renewable Energy Approval (REA) application. We are requesting that you review the document and that you and your community provide (in writing):

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Brian Edwards
Manager, Project Development
Samsung Renewable Energy Inc.
55 Standish Court, 9th Floor
Mississauga, ON, L5R 4B2

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Jody Law
Project Developer
Pattern Energy
100 Simcoe Street, Suite 105
Toronto, ON, M5H 3G2



6. Confirmation of Receipt of Draft REA Reports and Accompanying Cover Letters



Summary Results

Select time format **12H**

Delivered

Tracking no.	Status	Delivery date	Destination	Signature Proof Image
537727211525 Multiple-piece shipment	Delivered Signed for by: J.KEESKI Priority Overnight	Sep 6, 2012 12:45 PM	WIARTON, ON	No
537727211547 Multiple-piece shipment	Delivered Signed for by: R.VERRIULT Priority Overnight	Sep 5, 2012 12:24 PM	MIDLAND, ON	Yes
537727211569 Multiple-piece shipment	Delivered Signed for by: .ERICA Priority Overnight	Sep 6, 2012 1:00 PM	WIARTON, ON	No
537727211580 Multiple-piece shipment	Delivered Signed for by: A.INDOE Priority Overnight	Sep 5, 2012 4:27 PM	SOUTHAMPTON, ON	Yes
537727211617 Multiple-piece shipment	Delivered Signed for by: B.ILL Priority Overnight	Sep 5, 2012 4:55 PM	SOUTHAMPTON, ON	Yes
537727211628 Multiple-piece shipment	Delivered Signed for by: S.SCHANK Priority Overnight	Sep 5, 2012 9:51 AM	OWEN SOUND, ON	Yes

September 4, 2012

Alden Barty - Coordinator, Lands and Resources
Métis Nation of Ontario
355 Cranston Crescent
Midland ON
L4R 4K6



RE: Proposed SP Armow Wind Ontario LP – Armow Wind Project

Dear Alden Barty,

As you are aware, the Armow Wind Project (the “Project”) is being developed in the Municipality of Kincardine, Bruce County, Ontario. The Project is being developed by SP Armow Wind Ontario LP (the Proponent) by its general partner SP Armow Wind Ontario GP Inc. The Proponent is a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC (“Pattern”) and Samsung Renewable Energy Inc. (“Samsung”). The purpose of this letter is two-fold. Firstly to provide you with drafts of the documents that will be submitted as part of the Renewable Energy Approval (REA) application. We are requesting that you review these and provide us with comments. Secondly, to request that you and your community provide (in writing):

- Any information that, in the opinion of your community, should be considered in preparing any of the documents provided in this package;
- Any information your community may have about any potential adverse impacts on your Aboriginal or treaty rights; and
- Any suggested measures for avoiding, minimizing or mitigating the potential adverse impacts.

The information you provide will be incorporated, where possible, into these documents. This information can be provided (in writing) to:

Brian Edwards
Manager, Project Development
Samsung Renewable Energy Inc.
55 Standish Court, 9th Floor
Mississauga, ON, L5R 4B2

Jody Law
Project Developer
Pattern Energy
100 Simcoe Street, Suite 105
Toronto, ON, M5H 3G2

We highly value the input of your community and look forward to receiving information from and continuing to work with, your community throughout the development of this Project.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Brian Edwards'.

Brian Edwards, Project Developer
Samsung Renewable Energy Inc.
55 Standish Court
Mississauga, ON L5R 4B2
Phone: 519-396-9433

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Jody Law, Project Developer
Pattern Renewable Holdings Canada ULC
100 Simcoe St. Suite 105
Toronto, ON M5H 3T4
Phone: 519-396-9433

September 4, 2012

Patsy McArthur - Secretary- Treasurer
Historic Saugeen Métis
204 High Street, Box 1492
Southampton ON
N0H 2L0



RE: Proposed SP Armow Wind Ontario LP – Armow Wind Project

Dear Patsy McArthur,

As you are aware, the Armow Wind Project (the “Project”) is being developed in the Municipality of Kincardine, Bruce County, Ontario. The Project is being developed by SP Armow Wind Ontario LP (the Proponent) by its general partner SP Armow Wind Ontario GP Inc. The Proponent is a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC (“Pattern”) and Samsung Renewable Energy Inc. (“Samsung”). The purpose of this letter is two-fold. Firstly to provide you with drafts of the documents that will be submitted as part of the Renewable Energy Approval (REA) application. We are requesting that you review these and provide us with comments. Secondly, to request that you and your community provide (in writing):

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Jody Law, Project Developer
Pattern Renewable Holdings Canada ULC
100 Simcoe St. Suite 105
Toronto, ON M5H 3T4
Phone: 519-396-9433

September 4, 2012

Chief Randal Kaghee
Chippewas of Saugeen
6493 Highway 21
Southampton ON
N0H 2L0



RE: Proposed SP Armow Wind Ontario LP – Armow Wind Project

Dear Chief Randal Kaghee,

As you are aware, the Armow Wind Project (the “Project”) is being developed in the Municipality of Kincardine, Bruce County, Ontario. The Project is being developed by SP Armow Wind Ontario LP (the Proponent) by its general partner SP Armow Wind Ontario GP Inc. The Proponent is a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC (“Pattern”) and Samsung Renewable Energy Inc. (“Samsung”). The purpose of this letter is two-fold. Firstly to provide you with drafts of the documents that will be submitted as part of the Renewable Energy Approval (REA) application. We are requesting that you review these and provide us with comments. Secondly, to request that you and your community provide (in writing):

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Jody Law, Project Developer
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100 Simcoe St. Suite 105
Toronto, ON M5H 3T4
Phone: 519-396-9433

September 4, 2012

Chief Scott Lee
Chippewas of Nawash Unceded First Nation
135 Lakeshore Blvd RR # 5
Wiarton ON
N0H 2T0



RE: Proposed SP Armow Wind Ontario LP – Armow Wind Project

Dear Scott Lee,

As you are aware, the Armow Wind Project (the “Project”) is being developed in the Municipality of Kincardine, Bruce County, Ontario. The Project is being developed by SP Armow Wind Ontario LP (the Proponent) by its general partner SP Armow Wind Ontario GP Inc. The Proponent is a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC (“Pattern”) and Samsung Renewable Energy Inc. (“Samsung”). The purpose of this letter is two-fold. Firstly to provide you with drafts of the documents that will be submitted as part of the Renewable Energy Approval (REA) application. We are requesting that you review these and provide us with comments. Secondly, to request that you and your community provide (in writing):

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Jody Law, Project Developer
Pattern Renewable Holdings Canada ULC
100 Simcoe St. Suite 105
Toronto, ON M5H 3T4
Phone: 519-396-9433

September 4, 2012

Peter Coture - President
Great Lakes Métis Council
380 9th Street East
Owen Sound ON
N4K 1P1



RE: Proposed SP Armow Wind Ontario LP – Armow Wind Project

Dear Peter Coture,

As you are aware, the Armow Wind Project (the “Project”) is being developed in the Municipality of Kincardine, Bruce County, Ontario. The Project is being developed by SP Armow Wind Ontario LP (the Proponent) by its general partner SP Armow Wind Ontario GP Inc. The Proponent is a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC (“Pattern”) and Samsung Renewable Energy Inc. (“Samsung”). The purpose of this letter is two-fold. Firstly to provide you with drafts of the documents that will be submitted as part of the Renewable Energy Approval (REA) application. We are requesting that you review these and provide us with comments. Secondly, to request that you and your community provide (in writing):

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Mississauga, ON L5R 4B2
Phone: 519-396-9433

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Jody Law, Project Developer
Pattern Renewable Holdings Canada ULC
100 Simcoe St. Suite 105
Toronto, ON M5H 3T4
Phone: 519-396-9433

September 4, 2012

Joselyn Keeshig
Environmental Office - Saugeen Ojibway Nation
135 Lakeshore Blvd RR # 5
Wiarton ON
N0H 2T0



RE: Proposed SP Armow Wind Ontario LP – Armow Wind Project

Dear Joselyn Keeshig,

As you are aware, the Armow Wind Project (the “Project”) is being developed in the Municipality of Kincardine, Bruce County, Ontario. The Project is being developed by SP Armow Wind Ontario LP (the Proponent) by its general partner SP Armow Wind Ontario GP Inc. The Proponent is a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC (“Pattern”) and Samsung Renewable Energy Inc. (“Samsung”). The purpose of this letter is two-fold. Firstly to provide you with drafts of the documents that will be submitted as part of the Renewable Energy Approval (REA) application. We are requesting that you review these and provide us with comments. Secondly, to request that you and your community provide (in writing):

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Mississauga, ON, L5R 4B2

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Pattern Energy
100 Simcoe Street, Suite 105
Toronto, ON, M5H 3G2

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Jody Law, Project Developer
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Toronto, ON M5H 3T4
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7. Notices of Second Public Open House



SP Armow Wind Ontario LP
9th Floor, 55 Standish Court
Mississauga, Ontario L5R 4B2
Canada

September 7, 2012

Peter Coture
President
Great Lakes Metis Council
380 9th Street East
Owen Sound Ontario N4K 1P1

RE: First Notice of Public Meeting #2 and Notice of REA Report Release

Dear Peter Coture:

SP Armow Wind Ontario LP (the Proponent), by its general partner SP Armow Wind Ontario GP Inc., is proposing to develop the Armow Wind Project (the Project) in the Municipality of Kincardine, Bruce County, Ontario. The Proponent is a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC (Pattern) and Samsung Renewable Energy Inc. (Samsung). The Proponent is continuing the process of applying for a Renewable Energy Approval (REA) for this Project, and is currently providing drafts of the reports that will be submitted as part of the REA application. The Proponent is making copies of these reports available for public review at locations listed on the Notice (see reverse side). The draft reports are also available on the Project website (www.armowwind.com). The First Notice of Public Meeting #2 and Notice of REA Report Release were first published in the Kincardine News and Kincardine Independent on September 11, 2012, and September 12, 2012 respectively.

We are committed to consulting with community members throughout the approval process and into the construction and operations phases of the Project.

Sincerely,

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Samsung Renewable Energy Inc.
55 Standish Court
Mississauga, ON L5R 4B2
Phone: 519-396-9433

Jody Law, Project Developer
Pattern Renewable Holdings Canada ULC
100 Simcoe St. Suite 105
Toronto, ON M5H 3T4
Phone: 519-396-9433



SP Armow Wind Ontario LP
9th Floor, 55 Standish Court
Mississauga, Ontario L5R 4B2
Canada

September 7, 2012

Archie Indoe
President
Historic Saugeen Metis
204 High Street, Box 1492
Southampton Ontario N0H 2L0

RE: First Notice of Public Meeting #2 and Notice of REA Report Release

Dear Archie Indoe:

SP Armow Wind Ontario LP (the Proponent), by its general partner SP Armow Wind Ontario GP Inc., is proposing to develop the Armow Wind Project (the Project) in the Municipality of Kincardine, Bruce County, Ontario. The Proponent is a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC (Pattern) and Samsung Renewable Energy Inc. (Samsung). The Proponent is continuing the process of applying for a Renewable Energy Approval (REA) for this Project, and is currently providing drafts of the reports that will be submitted as part of the REA application. The Proponent is making copies of these reports available for public review at locations listed on the Notice (see reverse side). The draft reports are also available on the Project website (www.armowwind.com). The First Notice of Public Meeting #2 and Notice of REA Report Release were first published in the Kincardine News and Kincardine Independent on September 11, 2012, and September 12, 2012 respectively.

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Phone: 519-396-9433

Jody Law, Project Developer
Pattern Renewable Holdings Canada ULC
100 Simcoe St. Suite 105
Toronto, ON M5H 3T4
Phone: 519-396-9433



SP Armow Wind Ontario LP
9th Floor, 55 Standish Court
Mississauga, Ontario L5R 4B2
Canada

September 7, 2012

Patsy McArthur
Secretary- Treasurer
Historic Saugeen Metis
204 High Street, Box 1492
Southampton Ontario N0H 2L0

RE: First Notice of Public Meeting #2 and Notice of REA Report Release

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55 Standish Court
Mississauga, ON L5R 4B2
Phone: 519-396-9433

Jody Law, Project Developer
Pattern Renewable Holdings Canada ULC
100 Simcoe St. Suite 105
Toronto, ON M5H 3T4
Phone: 519-396-9433



SP Armow Wind Ontario LP
9th Floor, 55 Standish Court
Mississauga, Ontario L5R 4B2
Canada

September 7, 2012

Patrick Madahbee
Chief
Union of Ontario Indians
1 Miigizi Mikan
North Bay Ontario P1B 8J8

RE: First Notice of Public Meeting #2 and Notice of REA Report Release

Dear Patrick Madahbee:

SP Armow Wind Ontario LP (the Proponent), by its general partner SP Armow Wind Ontario GP Inc., is proposing to develop the Armow Wind Project (the Project) in the Municipality of Kincardine, Bruce County, Ontario. The Proponent is a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC (Pattern) and Samsung Renewable Energy Inc. (Samsung). The Proponent is continuing the process of applying for a Renewable Energy Approval (REA) for this Project, and is currently providing drafts of the reports that will be submitted as part of the REA application. The Proponent is making copies of these reports available for public review at locations listed on the Notice (see reverse side). The draft reports are also available on the Project website (www.armowwind.com). The First Notice of Public Meeting #2 and Notice of REA Report Release were first published in the Kincardine News and Kincardine Independent on September 11, 2012, and September 12, 2012 respectively.

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Phone: 519-396-9433



SP Armow Wind Ontario LP
9th Floor, 55 Standish Court
Mississauga, Ontario L5R 4B2
Canada

September 7, 2012

Scott Lee
Chief
Chippewas of Nawash Unceded First Nation
135 Lakeshore Blvd RR # 5
Wiarton Ontario N0H 2T0

RE: First Notice of Public Meeting #2 and Notice of REA Report Release

Dear Scott Lee:

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Phone: 519-396-9433



SP Armow Wind Ontario LP
9th Floor, 55 Standish Court
Mississauga, Ontario L5R 4B2
Canada

September 7, 2012

Jessica Nadjiwon-Smith
Band Administrator
Chippewas of Nawash Unceded First Nation
135 Lakeshore Blvd RR # 5
Wiarton Ontario N0H 2T0

RE: First Notice of Public Meeting #2 and Notice of REA Report Release

Dear Jessica Nadjiwon-Smith:

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SP Armow Wind Ontario LP
9th Floor, 55 Standish Court
Mississauga, Ontario L5R 4B2
Canada

September 7, 2012

Randall Kahgee
Chief
Chippewas of Saugeen First Nation
6493 Highway 21 RR #1
Southampton Ontario N0H 2L0

RE: First Notice of Public Meeting #2 and Notice of REA Report Release

Dear Randall Kahgee:

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Phone: 519-396-9433



SP Armow Wind Ontario LP
9th Floor, 55 Standish Court
Mississauga, Ontario L5R 4B2
Canada

September 7, 2012

Janet Root
Band Administrator
Chippewas of Saugeen First Nation
6493 Highway 21 RR #1
Southampton Ontario N0H 2L0

RE: First Notice of Public Meeting #2 and Notice of REA Report Release

Dear Janet Root:

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Phone: 519-396-9433



SP Armow Wind Ontario LP
9th Floor, 55 Standish Court
Mississauga, Ontario L5R 4B2
Canada

September 7, 2012

Alden Barty
Coordinator, lands and resources
Metis Nation of Ontario
355 Cranston Crescent
Midland Ontario L4R 4K6

RE: First Notice of Public Meeting #2 and Notice of REA Report Release

Dear Alden Barty:

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Toronto, ON M5H 3T4
Phone: 519-396-9433



SP Armow Wind Ontario LP
9th Floor, 55 Standish Court
Mississauga, Ontario L5R 4B2
Canada

September 7, 2012

Bill Wilkinson
Director of economic development
Metis Nation of Ontario
222- 75 Sherbourne Street
Toronto Ontario M5A 2P9

RE: First Notice of Public Meeting #2 and Notice of REA Report Release

Dear Bill Wilkinson:

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Toronto, ON M5H 3T4
Phone: 519-396-9433



SP Armow Wind Ontario LP
9th Floor, 55 Standish Court
Mississauga, Ontario L5R 4B2
Canada

September 7, 2012

Gary Lipinski
President
Metis Nation of Ontario
500 Old St. Patrick St. #D
Ottawa Ontario K1N 9G4

RE: First Notice of Public Meeting #2 and Notice of REA Report Release

Dear Gary Lipinski:

SP Armow Wind Ontario LP (the Proponent), by its general partner SP Armow Wind Ontario GP Inc., is proposing to develop the Armow Wind Project (the Project) in the Municipality of Kincardine, Bruce County, Ontario. The Proponent is a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC (Pattern) and Samsung Renewable Energy Inc. (Samsung). The Proponent is continuing the process of applying for a Renewable Energy Approval (REA) for this Project, and is currently providing drafts of the reports that will be submitted as part of the REA application. The Proponent is making copies of these reports available for public review at locations listed on the Notice (see reverse side). The draft reports are also available on the Project website (www.armowwind.com). The First Notice of Public Meeting #2 and Notice of REA Report Release were first published in the Kincardine News and Kincardine Independent on September 11, 2012, and September 12, 2012 respectively.

We are committed to consulting with community members throughout the approval process and into the construction and operations phases of the Project.

Sincerely,

Brian Edwards, Manager, Project Developer
Samsung Renewable Energy Inc.
55 Standish Court
Mississauga, ON L5R 4B2
Phone: 519-396-9433

Jody Law, Project Developer
Pattern Renewable Holdings Canada ULC
100 Simcoe St. Suite 105
Toronto, ON M5H 3T4
Phone: 519-396-9433



SP Armow Wind Ontario LP
9th Floor, 55 Standish Court
Mississauga, Ontario L5R 4B2
Canada

September 7, 2012

Joselyn Keeshig
Saugeen First Nation
6493 Highway 21
Southampton Ontario N0H 2L0

RE: First Notice of Public Meeting #2 and Notice of REA Report Release

Dear Joselyn Keeshig:

SP Armow Wind Ontario LP (the Proponent), by its general partner SP Armow Wind Ontario GP Inc., is proposing to develop the Armow Wind Project (the Project) in the Municipality of Kincardine, Bruce County, Ontario. The Proponent is a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC (Pattern) and Samsung Renewable Energy Inc. (Samsung). The Proponent is continuing the process of applying for a Renewable Energy Approval (REA) for this Project, and is currently providing drafts of the reports that will be submitted as part of the REA application. The Proponent is making copies of these reports available for public review at locations listed on the Notice (see reverse side). The draft reports are also available on the Project website (www.armowwind.com). The First Notice of Public Meeting #2 and Notice of REA Report Release were first published in the Kincardine News and Kincardine Independent on September 11, 2012, and September 12, 2012 respectively.

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Phone: 519-396-9433

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Pattern Renewable Holdings Canada ULC
100 Simcoe St. Suite 105
Toronto, ON M5H 3T4
Phone: 519-396-9433



SP Armow Wind Ontario LP
9th Floor, 55 Standish Court
Mississauga, Ontario L5R 4B2
Canada

September 7, 2012

Bill Fitzgerald
Saugeen Ojibway Nation
135 Lakeshore Blvd RR # 5
Wiarton Ontario N0H 2T0

RE: First Notice of Public Meeting #2 and Notice of REA Report Release

Dear Bill Fitzgerald:

SP Armow Wind Ontario LP (the Proponent), by its general partner SP Armow Wind Ontario GP Inc., is proposing to develop the Armow Wind Project (the Project) in the Municipality of Kincardine, Bruce County, Ontario. The Proponent is a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC (Pattern) and Samsung Renewable Energy Inc. (Samsung). The Proponent is continuing the process of applying for a Renewable Energy Approval (REA) for this Project, and is currently providing drafts of the reports that will be submitted as part of the REA application. The Proponent is making copies of these reports available for public review at locations listed on the Notice (see reverse side). The draft reports are also available on the Project website (www.armowwind.com). The First Notice of Public Meeting #2 and Notice of REA Report Release were first published in the Kincardine News and Kincardine Independent on September 11, 2012, and September 12, 2012 respectively.

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Sincerely,

Brian Edwards, Manager, Project Developer
Samsung Renewable Energy Inc.
55 Standish Court
Mississauga, ON L5R 4B2
Phone: 519-396-9433

Jody Law, Project Developer
Pattern Renewable Holdings Canada ULC
100 Simcoe St. Suite 105
Toronto, ON M5H 3T4
Phone: 519-396-9433



SP Armow Wind Ontario LP
9th Floor, 55 Standish Court
Mississauga, Ontario L5R 4B2
Canada

September 7, 2012

Jake Linklater
Office Coordinator - Environmental office
Saugeen Ojibway Nation
135 Lakeshore Blvd RR # 5
Warton Ontario N0H 2T0

RE: First Notice of Public Meeting #2 and Notice of REA Report Release

Dear Jake Linklater:

SP Armow Wind Ontario LP (the Proponent), by its general partner SP Armow Wind Ontario GP Inc., is proposing to develop the Armow Wind Project (the Project) in the Municipality of Kincardine, Bruce County, Ontario. The Proponent is a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC (Pattern) and Samsung Renewable Energy Inc. (Samsung). The Proponent is continuing the process of applying for a Renewable Energy Approval (REA) for this Project, and is currently providing drafts of the reports that will be submitted as part of the REA application. The Proponent is making copies of these reports available for public review at locations listed on the Notice (see reverse side). The draft reports are also available on the Project website (www.armowwind.com). The First Notice of Public Meeting #2 and Notice of REA Report Release were first published in the Kincardine News and Kincardine Independent on September 11, 2012, and September 12, 2012 respectively.

We are committed to consulting with community members throughout the approval process and into the construction and operations phases of the Project.

Sincerely,

Brian Edwards, Manager, Project Developer
Samsung Renewable Energy Inc.
55 Standish Court
Mississauga, ON L5R 4B2
Phone: 519-396-9433

Jody Law, Project Developer
Pattern Renewable Holdings Canada ULC
100 Simcoe St. Suite 105
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SP Armow Wind Ontario LP
9th Floor, 55 Standish Court
Mississauga, Ontario L5R 4B2
Canada

September 7, 2012

Katrina Keeshig
environmental office
Saugeen Ojibway Nation
25 Maadookii Road, R.R.#5
Wiarton Ontario N0H 2T0

RE: First Notice of Public Meeting #2 and Notice of REA Report Release

Dear Katrina Keeshig:

SP Armow Wind Ontario LP (the Proponent), by its general partner SP Armow Wind Ontario GP Inc., is proposing to develop the Armow Wind Project (the Project) in the Municipality of Kincardine, Bruce County, Ontario. The Proponent is a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC (Pattern) and Samsung Renewable Energy Inc. (Samsung). The Proponent is continuing the process of applying for a Renewable Energy Approval (REA) for this Project, and is currently providing drafts of the reports that will be submitted as part of the REA application. The Proponent is making copies of these reports available for public review at locations listed on the Notice (see reverse side). The draft reports are also available on the Project website (www.armowwind.com). The First Notice of Public Meeting #2 and Notice of REA Report Release were first published in the Kincardine News and Kincardine Independent on September 11, 2012, and September 12, 2012 respectively.

We are committed to consulting with community members throughout the approval process and into the construction and operations phases of the Project.

Sincerely,

Brian Edwards, Manager, Project Developer
Samsung Renewable Energy Inc.
55 Standish Court
Mississauga, ON L5R 4B2
Phone: 519-396-9433

Jody Law, Project Developer
Pattern Renewable Holdings Canada ULC
100 Simcoe St. Suite 105
Toronto, ON M5H 3T4
Phone: 519-396-9433



SP Armow Wind Ontario LP
9th Floor, 55 Standish Court
Mississauga, Ontario L5R 4B2
Canada

September 7, 2012

William K. Montour
Chief
Six Nations of the Grand River
1695 Cheifswood Road
Ohsweken Ontario N0A 1M0

RE: First Notice of Public Meeting #2 and Notice of REA Report Release

Dear William K. Montour:

SP Armow Wind Ontario LP (the Proponent), by its general partner SP Armow Wind Ontario GP Inc., is proposing to develop the Armow Wind Project (the Project) in the Municipality of Kincardine, Bruce County, Ontario. The Proponent is a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC (Pattern) and Samsung Renewable Energy Inc. (Samsung). The Proponent is continuing the process of applying for a Renewable Energy Approval (REA) for this Project, and is currently providing drafts of the reports that will be submitted as part of the REA application. The Proponent is making copies of these reports available for public review at locations listed on the Notice (see reverse side). The draft reports are also available on the Project website (www.armowwind.com). The First Notice of Public Meeting #2 and Notice of REA Report Release were first published in the Kincardine News and Kincardine Independent on September 11, 2012, and September 12, 2012 respectively.

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Sincerely,

Brian Edwards, Manager, Project Developer
Samsung Renewable Energy Inc.
55 Standish Court
Mississauga, ON L5R 4B2
Phone: 519-396-9433

Jody Law, Project Developer
Pattern Renewable Holdings Canada ULC
100 Simcoe St. Suite 105
Toronto, ON M5H 3T4
Phone: 519-396-9433



8. Communications with SON

DATE August 1, 2012**PROJECT No.** 11-1151-0247-3000-M01**TO** Brian Edwards and Jody Law
SP Ontario Wind Development LP Reviewed by Hugh Daechsel September 19, 2012**CC** Ian Callum, Hugh Daechsel, Anthony Ciccone**FROM** Carla Parslow**EMAIL** jeffrey_muir@golder.com**SUMMARY OF ABORIGINAL SITES FOUND DURING STAGE 2 ARCHAEOLOGICAL ASSESSMENT
ARMOW WIND PROJECT
MUNICIPALITY OF KINCARDINE, BRUCE COUNTY, ONTARIO**

Golder Associates Ltd. (Golder) has been conducting archaeological field work for the Armow Wind Project from May 2010 to June 2012. The Stage 2 archaeological assessment has been conducted for two different project developers: first Acciona Wind Energy Canada Inc. and then for SP Ontario Wind Development LP (SP Ontario). SP Ontario bought the project from Acciona Wind Energy Canada Inc. in August 2011. This technical memo summarizes the Stage 2 field work and the Aboriginal sites documented from 2010 and 2012. A full accounting of these sites is presented in two Stage 2 Archaeological Assessment Reports produced by Golder for SP Ontario:

- The first report in February 2012 and entered into the Ontario Public Register of Archaeological Reports by the Ontario Ministry of Tourism, Culture and Sport in March 2012.
- The additional report in July 2012 and entered into the Ontario Public Register of Archaeological Reports by the Ontario Ministry of Tourism, Culture and Sport in July 2012.

This technical memo is designed to be distributed to any interested First Nations groups, especially those that participated in the Stage 2 archaeological assessment. If there are any further questions, please direct people to contact Carla Parslow at (905) 567-6100 extension 1552 or carla_parslow@golder.com.

SUMMARY OF INVESTIGATIONS

Golder first produced a desktop study as a Stage 1 archaeological assessment for the Armow study area. Golder applied archaeological potential criteria commonly used by the Ontario Ministry of Tourism, Culture and Sport to determine areas of archaeological potential within the study area. The archaeological potential for Aboriginal and Euro-Canadian sites was deemed to be moderate to high on these properties. For pre-contact Aboriginal sites this assessment is based on the presence of nearby potable water sources, level topography, agriculturally suitable soils and known archaeological sites. For post-contact Aboriginal sites this assessment is based on the presence of nearby potable water sources, level topography and historic documentation. All



previously recorded archaeological sites were also noted in the Stage 1 archaeological assessment report and none of those sites have been impacted by the subsequent wind farm layout.

The land parcels to be potentially affected by the construction, operation, and decommissioning of the Armow Wind Project were then subjected to Stage 2 archaeological assessment beginning in May 2010 and ending in June 2012. Those land parcels included: turbine locations; underground or overhead collector cables running between turbines and substations; access roads between turbines; junction boxes; staging areas related to the construction of the wind farm; substations; permanent MET tower locations and along the existing road grid. Turbine pads were assessed with a 140 metre by 140 metre pad. Access routes and buried cable routes were assessed with 30-metre wide survey corridors. Junction boxes were assessed with a 10-metre by 10-metre pad. Staging areas, substations and permanent MET tower locations varied in size and were assessed on a case by case basis. Since the wind farm layout is still being modified due to a number of environmental, engineering and other factors, some of the areas studied may no longer hold turbines or other infrastructure. Also, the wind farm layout has been modified in some cases to avoid archaeological sites documented by Golder. However, if SP Ontario finds that additional land outside of that already assessed is to be impacted, additional Stage 2 field work will be conducted and additional archaeological reports will be submitted to the Ministry of Tourism, Culture and Sport.

A total of approximately 1,139.50 hectares were subject to Stage 2 archaeological assessment, mostly ploughed agricultural fields. The Stage 2 assessment of well-weathered ploughed fields was conducted by the standard pedestrian survey method. Field archaeologists walked the fields at transect intervals of five metres, observing the ground for any exposed artifacts. In the event that an artifact was encountered during pedestrian survey, survey intervals were intensified to one metre within a twenty metre radius of the find. For areas subject to test pit survey the survey was conducted in five metre transects as well, with a test pit dug in the ground by teams of two field archaeologists spaced every five metres. Each test pit was approximately 30 centimetres in diameter and excavated five centimetres into sterile subsoil. All soil matrix was screened through six millimetre mesh hardware cloth to facilitate the recovery of small artifacts. Approximately 98% of the study area was subject to pedestrian survey at five metre intervals, approximately 1% was subject to test pit survey at five metre intervals and approximately 1% of the study was not surveyed due to previous disturbance, steep slope or poor drainage.

The Stage 2 archaeological assessment of the Armow Wind Project has involved consultation with and participation by First Nations peoples whose traditional territories are affected by the study area. The study area falls within the traditional territories of the Chippewas of Saugeen First Nation and Chippewas of Nawash First Nation as documented by Treaty 45½ in 1836. The Saugeen Ojibway Nation and Cape Croker First Nation were consulted during the planning stages of the Stage 2 archaeological assessment and monitors from these First Nations participated in the Stage 2 assessment. Nine different First Nations representatives participated in the Stage 2 field work for a total of 32 days. Inclusion of the Saugeen Ojibway Nation and Cape Croker First Nation in the planning and execution of the Stage 2 field work was facilitated by Dr. William Fitzgerald. Dr. Fitzgerald also at times accompanied First Nations monitors during their participation in the Stage 2 archaeological assessment.

ARCHAEOLOGICAL SITES FOUND

A total of 38 archaeological sites were identified during the Stage 2 archaeological assessment, 19 with a First Nations component (see attached figures for site locations). This includes 16 pre-contact sites, one possible post-contact site and one multi-component site with both a Euro-Canadian and Aboriginal component. A brief

description of each site follows, with more information provided in the first Stage 2 Archaeological Assessment Report and in the additional Stage 2 Archaeological Assessment report. All recommendations summarized below follow the 2011 *Standards and Guidelines for Consultant Archaeologists* produced by the Ontario Ministry of Tourism, Culture and Sport. The sites have been subcategorized into those sites that may be impacted by the construction of the Armow Wind Energy Project or those sites that will be avoided and not impacted by the construction of the Armow Wind Energy Project. Those sites that may be impacted include those sites that have been recommended for Stage 3 archaeological assessment according to the 2011 *Standards and Guidelines for Consultant Archaeologists* plus sites that have no further concerns according to the 2011 *Standards and Guidelines for Consultant Archaeologists*. Those sites slated for avoidance are being avoided because any construction is planned to be at least 70 metres away from the boundaries of the Stage 2 site.

Sites That May Be Impacted by the Armow Wind Energy Project Construction

- **Location 1 (BbHi-23):** A scatter of one biface, one spokeshave scraper, and nine pieces of chipping detritus were documented. Only the biface and spokeshave scraper were collected from the field. *This site has been recommended for further Stage 3 archaeological assessment.*
- **Location 19:** One side/end scraper was documented and collected from the field. No further archaeological assessment has been recommended.
- **Location 29:** One piece of chipping detritus was documented and collected from the field. No further archaeological assessment has been recommended.
- **Location 37 (BbHi-35):** One projectile point was documented and collected from the field. The projectile point has been identified as a Middle to Late Archaic Otter Creek point dating between 8,000 and 3,550 years ago. No further archaeological assessment has been recommended.

Sites To Be Avoided by the Armow Wind Energy Project Construction

- **Location 3:** One complete biface was documented and collected from the field. No further archaeological assessment has been recommended.
- **Location 8 (BbHi-27):** A historic collection of domestic artifacts was documented and collected, along with seven pieces of knapped bottle glass which could represent post-contact Aboriginal activity. All seven artifacts were collected from the field. *This site has been recommended for further Stage 3 archaeological assessment.*
- **Location 9:** Two pieces of chipping detritus were documented and collected from the field. No further archaeological assessment has been recommended.
- **Location 11:** One retouched flake was documented and collected from the field. No further archaeological assessment has been recommended.
- **Location 12:** One piece of knapped bottle glass, possibly a post-contact Aboriginal artifact, was documented and collected from the field. No further archaeological assessment has been recommended.
- **Location 14:** One utilized flake was documented and collected from the field. No further archaeological assessment has been recommended.

- **Location 15:** One groundstone artifact of uncertain use was documented and collected from the field. No further archaeological assessment has been recommended.
- **Location 18:** One broken biface was documented and collected from the field. No further archaeological assessment has been recommended.
- **Location 21 (BbHi-30):** Four pieces of chipping detritus and two pieces of chert shatter were documented and collected from the field. No further archaeological assessment has been recommended.
- **Location 22 (BbHi-31):** One projectile point and one retouched flake were documented and collected from the field. The projectile point has been identified as an Early Archaic Kirk Corner Notched point dating to about 9,000 years ago. *This site has been recommended for further Stage 3 archaeological assessment.*
- **Location 24 (BbHi-32):** One retouched flake and one piece of chipping detritus were documented and collected from the field. The retouched flake was manufactured from Collingwood chert which could mean it is a Paleo-Indian artifact dating to over 10,000 years ago. *This site has been recommended for further Stage 3 archaeological assessment.*
- **Location 30:** One piece of chipping detritus was documented and collected from the field. No further archaeological assessment has been recommended.
- **Location 31:** One piece of chipping detritus was documented and collected from the field. No further archaeological assessment has been recommended.
- **Location 34:** One piece of chipping detritus was documented and collected from the field. No further archaeological assessment has been recommended.
- **Location 35:** One utilized flake was documented and collected from the field. No further archaeological assessment has been recommended.

Any of the sites that have been recommended for Stage 3 archaeological assessment that will be impacted by the construction of the Armow Wind Project will be subject to that Stage 3 archaeological assessment. In other words, Location 1 would be subject to Stage 3 archaeological assessment. Locations 8, 22, and 24 are not located within any areas to be impacted by construction of the wind turbines, roads, laydown areas, or any other infrastructure and would not be subject to Stage 3 archaeological assessment at this time. However, the recommendations for the Stage 3 archaeological assessment are a matter of public record as part of the Ontario Public Register of Archaeological Reports. So, if those sites are to be ever impacted by soil disturbance of any sort by anyone, the Stage 3 archaeological assessment will have to be undertaken.

CLOSURE

This technical memo provides a summary of the 19 archaeological sites documented that have Aboriginal archaeological remains. A more detailed reporting of these sites and all other archaeological sites discovered during the course of the Stage 2 archaeological assessment of the Armow Wind Project is to be found in the two Stage 2 Archaeological Assessment reports that have been submitted to the Ontario Ministry of Tourism, Culture and Sport.

Sincerely,

Carla Parslow, Ph.D.
Senior Archaeologist

Hugh J. Daechsel, M.A.
Principal, Senior Archaeologist

CAP/HJD/gf

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SP Armow Wind Ontario LP
322 Lambton Street
Kincardine, Ontario N2Z 1Z1
Canada

Oct 3, 2012

ATTENDEES:

Joselyn Keeshig	Saugeen Ojibway Nation (SON)
William (Bill) Fitzgerald	Saugeen Ojibway Nation (SON)
Brian Edwards	Samsung Renewable Energy (Samsung)
Jody Law	Pattern Energy (Pattern)

RE: Meeting to Discuss Golder Technical Memorandum “Summary of Aboriginal Sites Found During Stage 2 Archaeological Assessment”

- 1) SON presented various concerns regarding the Stage II Archaeological Assessment submitted released for Aboriginal, Municipal and public review. Concerns included Native sites located on parcels that contained turbines; failure to escalate Native sites to Stage III Assessment based on the Process and Standards for Approval Authorities, Development Proponents and Consultant Archaeologist conducting archaeology within the traditional territory of the Saugeen Ojibway Nation; the lack of SON's involvement in field assessments conducted between March 27 and June 4, 2012; the lack of acknowledgement and evidence of bordenized archaeological sites.
- 2) Samsung/Pattern presented a technical memorandum that addressed many of SON's concerns and discussed lack of SON participation in field assessments between March 27 and June 4, 2012.
- 3) The technical memorandum identified 11 Native sites that were identified and not escalated to Stage III. Discussion revealed that these 11 sites are away from proposed project infrastructure and will not be impacted by construction or operation of the project.
- 4) The technical memorandum identified 4 Native sites that may be impacted by construction. SON identified 4 additional sites that should be escalated to Stage III assessments. Samsung/Pattern agreed to further investigate scope of work involved pertaining to these 8 sites.
- 5) SON indicated that all Native sites found should be bordenized. Samsung/Pattern agreed to further investigate scope of work involved pertaining to this task.
- 6) SON identified previously known sites that should have Stage II Assessments redone to confirm their location. Samsung/Pattern agreed to further investigate scope of work involved pertaining to these sites.

Sincerely,

Brian Edwards, Project Developer
Samsung Renewable Energy Inc.
55 Standish Court
Mississauga, ON L5R 4B2
Phone: 905-501-5667

Jody Law, Project Developer
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100 Simcoe St. Suite 105
Toronto, ON M5H 3T4
Phone: 416-263-8029

Samsung Pattern Ontario Armow Wind Energy Project

Municipality of Kincardine, Bruce County

Golder Technical Memorandum **August 1, 2012**

Meeting with Brian Edwards and Jody Law **October 3, 2012**

SON Comments

1. All archaeological sites (including Euro-Canadian) discovered during the Stage 2 assessment must be registered within the Ministry of Tourism, Culture and Sport's archaeological site database – i.e., assigned Borden numbers.

The Ministry generally refuses to assign Borden numbers to low-artifact density Native sites. However, in traditional SON territory most locations of cultural activity – be they habitation, resource-procurement, ritual or burial, tend to be small and of short duration, tending not to leave behind much evidence of their presence.

Any evidence of their existence must be formally acknowledged and registered, not just documented within assessment reports whose own existence may be unknown. If "Bordenized", the presence of these smaller – but no less culturally significant, sites will then be readily made known to any future development threat as a result of a Stage 1 archaeological assessment.

2. Additional Stage 2 archaeological assessment is required.

Archaeological Sites

While a number of previously-registered archaeological sites were noted in the Stage 1 assessment as being located within the project's study area, their locations were not plotted to determine if they would be impacted by development. Had this been done, it would have been realized that three Native sites (BbHi-1, BbHi-2, BbHi-3) and one Euro-Canadian site (BbHi-6) were situated within development areas. Had this been known, presumably greater attention would have been made to re-locate these sites.

Not realizing these sites existed, during the Stage 2 assessment no physical evidence was found of the three Native archaeological sites: BbHi-1 on the T52 lot; BbHi-2 and BbHi-3 on the T35 lot. Golder's Location 23 is likely Euro-Canadian site BbHi-6.

Recommendation:

Proposed impacted areas on the lots where sites BbHi-1, BbHi-2, and BbHi-3 are located should be re-ploughed and re-examined to ensure that these sites are not situated in areas that will be disturbed.

Historical Sites

James Bridgland's 1850 survey of Kincardine Township precisely recorded the

locations of two sites: one Native, one Euro-Canadian. While Golder marked the general location of the former, they were unaware of the latter. Both are on lots that are planned to host turbines and associated infrastructure – T19 and T100, respectively. However, no physical evidence of either was encountered during the Stage 2 assessment.

Recommendation:

The precise locations of these sites can be determined from Bridgland's survey notes. If they are located within the proposed development areas of T19 and T100, those areas should be re-ploughed and re-examined.

3. SON archaeological standards stipulate that all Native sites encountered during a Stage 2 assessment – regardless of size or artifact density, must be subjected to Stage 3 site-specific assessments.

Sites within Proposed Construction Areas

Golder identified four Native sites (Locations 1, 19, 29, 37) that may be impacted by construction. They recommend that Stage 3 assessment should only be undertaken on Location 1.

Recommendation:

The other three sites (19, 29, 37) should also be Stage 3'd to precisely define site limits – visual monitoring of buffers around lithic sites during construction is not adequate

Sites outside of Proposed Construction Areas

The other 15 Native sites (two are unlikely Native: Locations 8 and 12) are reportedly situated outside of current layout disturbances. Golder recommends three for Stage 3 assessment (Locations 8, 22, 24); however, no Stage 3 assessments will be done.

Recommendation:

While 11 of the 15 sites are located at substantial distances from any proposed disturbance and need no further archaeological assessment (Locations 3, 8, 9, 11, 12, 14, 15, 18, 21, 22, 35), four – based on MTCS and SON standards, require Stage 3 assessments (Locations 24, 30, 31, 34)

- *Location 24 is situated along the Concession 11 road (a collector system route) – the site's northern limit needs to be defined*
- *Locations 30 and 31 are, in fact, located within the construction area of T59 – visual monitoring of lithic sites during construction without first having defined site limits with Stage 3 assessment is not adequate*
- *Location 34 is located immediately adjacent to the access road leading to T98 – a buffer zone cannot be defined without a Stage 3 assessment that is needed to precisely define the site's extent*

November 28 Meeting Agenda

Armow To-do Archeology

1. Bordenize all sites
2. Additional Stage 2: known site locates
 - BbHi-1 – T52
 - BbHi-2 – T35
 - BbHi-3 – T35
 - Bridgland 1850 supply camp – T100
 - Bridgland 1850 Indian camp – near T9
3. Stage 3s that should be done

Native sites within construction areas

- Location 1 (T29)(BbHi-23) – recommended by Golder
- Location 19 (T21)(bordenize) – not recommended by Golder
- Location 29 (T69)(bordenize) – not recommended by Golder
- Location 37 (bordenize) – not recommended by Golder

Native sites outside construction areas

- Location 24 (BbHi-32) – recommended by Golder, but won't be done – should be done, lies along Concession 11 (collector system route)
 - Location 30 (bordenize) – not recommended by Golder – should be done, actually is in T59
 - Location 31 (bordenize) – not recommended by Golder – should be done, actually is in T59
 - Location 34 (bordenize) – not recommended by Golder – should be done, lies immediately adjacent to T98 access road
4. Have any turbine or infrastructure locations changed since Stage 2 assessment done?

DATE November 29, 2012**PROJECT No.** 11-1151-0247-3000-M02**TO** Brian Edwards and Jody Law
SP Ontario Wind Development LP**CC** Ian Callum, Hugh Daechsel, Anthony Ciccone**FROM** Carla Parslow**EMAIL** carla_parslow@golder.com**SAMSUNG/PATTERN ARMOW****SUMMARY OF MEETING WITH SAUGEEEN OJIBWAY NATION ON NOVEMBER 29, 2012****SUBJECT: ARCHAEOLOGICAL WORK**

A meeting was held between SP Ontario Wind Development LP (SP), Saugeen Ojibway Nation (SON), and Golder Associates Ltd (Golder) on November 28, 2012 from 13:00 to 14:30 PM.

Attendees include:

- Brian Edwards – Samsung/Pattern
- Jocelyn Keeshig – SON, Environmental Officer
- William Fitzgerald – Archaeologist, SON
- Carla Parslow and Hugh Daechsel – Golder, Senior Archaeologists

This meeting was to discuss the technical memorandum provided by Golder titled Summary of Aboriginal Sites Found During the Stage 2 Archaeological Assessment presented to SON October 3, 2012 as well as the comments on the Summary, provided by SON to SP (received October 5, 2012).

The following information summarizes the discussions and conclusions reached on November 28, 2012.

1.0 BORDEN NUMBERS

SON requests that all archaeological finds be assigned a Borden number. It is not a requirement of the Ministry of Tourism, Culture and Sport to assign Borden numbers to all archaeological finds, only to those that are recommended for further assessment (Stage 3). SON has provided Golder with the Process and Standards for Approval Authorities, Development Proponents and Consultant Archaeologists conducting archaeology within the traditional territory of the Saugeen Ojibway Nation. Within this document is the requirement that all archaeological finds be assigned a Borden number. As per section 6.0:

all cultural discoveries located during a Stage 2 property assessment – including isolated finds, must be provided with Borden numbers and be registered within the Ministry of Tourism and Culture's Ontario Archaeological Site Database.



Golder Associates Ltd.

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Golder Associates: Operations in Africa, Asia, Australasia, Europe, North America and South America



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In abiding by the Process and Standards for conducting archaeology within the traditional territory of the Saugeen Ojibway Nation, a Borden number will be assigned to all archaeological finds, including isolated finds.

ACTION ITEMS:

Complete Borden forms for all archaeological finds (Golder).

2.0 ADDITIONAL STAGE 2: KNOWN SITE LOCATES

2.1 Bridgland 1850 Survey

In accordance with the SON comments:

James Bridgland's 1850 survey of Kincardine Township precisely recorded the locations of two sites: one a Native Camp, the other, a Euro-Canadian Supply Camp. While Golder marked the general location of the former, they were unaware of the latter. Both are on lots that are planned to host turbines and associated infrastructure – T19 and T100, respectively. However, no physical evidence of either was encountered during the Stage 2 assessment.

Recommendation: *The precise locations of these sites can be determined from Bridgland's survey notes. If they are located within the proposed development areas of T19 and T100, those areas should be reploughed and re-examined.*

Further discussion between SON and Golder determined that the Native Camp, located on property near T19, and the Supply Camp, located on property near T100, are outside any proposed development area. These two sites will be plotted by Golder to show the precise location of these sites in relation to the turbine location. William (Bill) Fitzgerald (SON) offered to send the Bridgland survey notes that correspond with the 1850 survey to Carla Parslow (Golder).

- The Native Camp is determined to be outside the project location (T19) and further study is not required; and
- If the Supply Camp is within the T100 construction area, additional Stage 2 is required before construction.

ACTION ITEMS:

- Plot Native Camp and Supply Campe as well as other known archaeological sites and the Project layout (Golder);
- Provide survey notes that accompany the Bridgland survey mapping to Golder (Fitzgerald - SON); and

2.2 Previously known sites

In the review of Golder's summary on the Stage 2 archaeological assessment, SON addressed that while a number of previously-registered archaeological sites were noted in the Stage 1 assessment as being located within the project's study area, their locations were not plotted to determine if they would be impacted by

development. Had this been done, it would have been realized that three Native sites (BbHi-1, BbHi-2, BbHi-3) and one Euro-Canadian site (BbHi-6) were situated within development areas. It was further recommended that proposed impacted areas on the lots where sites BbHi-1, BbHi-2, and BbHi-3 are located should be re-ploughed and re-examined to ensure that these sites are not situated in areas that will be disturbed.

Golder has plotted the sites in relation to the Armow layout and this mapping has determined that BbHi-2 and BbHi-3 are at a significant distance to any proposed disturbance area and no further archaeological investigation is warranted. However, BbHi-1 is just outside the proposed disturbance area (collection line). Brian Edwards (SP) commented that the area may have been recently ploughed. It was decided that it would be beneficial to revisit the area to determine if the site can be relocated. If so, it will be documented and determined whether the site extends into the proposed collection line location. This area was surveyed as part of the fall 2012 Stage 2 archaeological assessment but no evidence of the site was found on the proposed collection line location. Bill Fitzgerald indicated that only the section that would be disturbed would require additional archaeological assessment.

ACTION ITEMS:

- Revisit/resurvey proposed collection line leading to JB05 - (Golder) to document any remains of BbHi-1 within the proposed construction disturbance area for the collection line.

3.0 ADDITIONAL STAGE 3 WORK

SON provided comment on the Stage 3 archaeological assessments recommended by Golder and the Stage 3 archaeological assessment recommended by SON based on the Process and Standards for Approval Authorities, Development Proponents and Consultant Archaeologists conducting archaeology within the traditional territory of the Saugeen Ojibway Nation. In accordance with Section 6.0 of the SON Process and Standards:

all of these registered archaeological sites – regardless of size or artifact density, must be subjected to an MTC Stage 3 site-specific assessment to better understand their size, function, and chronological placement.

Golder identified four first Nation sites (Locations 1, 19, 29, 37) that may be impacted by construction but had recommended that Stage 3 assessment only be undertaken on Location 1. SON requested that a Stage 3 archaeological assessment be conducted on all four locations. Upon further discussion, SP has agreed, subject to internal approval and construction, to further Stage 3 site-specific assessment for Locations 1 and 29, if these sites are to be impacted by construction. Locations 19 and 39 are outside the proposed development area and a 20 m fenced buffer, accompanied by archaeological monitoring during construction for an additional 50 m from the 20 m buffer were deemed sufficient in protecting the archaeological sites. Should there be any changes to the layout; further examination of these sites will be required.

SON also identified an additional four sites that are outside the construction area, but are recommended by SON for further archaeological assessment (Locations 24, 30, 31, and 34). It was agreed by all parties that Location 30 and 31 (T59), subject to internal approval and construction, will be subject to Stage 3 site specific assessment if construction occurs at these sites. Location 24 is located on private land whereas the infrastructure (collection line) is located within the road ROW; therefore, will not be impacted by construction. SP

will verify/define where the collection line will be located within the ROW. If on the opposite side of the road where Location 24 is recorded, then no further archaeological assessment is required. If the collection line is on the same side of the road within the ROW, then determination of a Stage 3 archaeological assessment will be further discussed. Monitoring during construction was also discussed as the ROW is disturbed. Location 34 is outside the proposed disturbance area. It was agreed that measures will be put into place to ensure that there is protection of this site. These protection measures will include a 20 m fenced buffer, followed by archaeological monitoring during construction for a further 50 m from the 20 m buffer.

ACTION ITEMS:

- SP to further investigate scope of Stage 3 archaeological assessment 1, 29, 30, and 31;
- Implement protection measures that will include a 20 m fenced buffer, followed by archaeological monitoring during construction for an additional 50 m from the 20 m buffer for the following locations that are outside the Project Location: Locations 19, 29, and 34; and
- Determine/define where the collection line will be located within the road ROW along Concession 11. Once determined, further examine potential impacts to Location 24.



Carla Parslow, Ph.D.
Senior Archaeologist

CAP/HD



Hugh Daechsel, M.A.
Principal, Senior Archaeologist

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Conducting Archaeology within the Traditional Territory of the Saugeen Ojibway Nation:

Process and Standards for Approval Authorities,
Development Proponents and Consultant Archaeologists



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Saugeen Ojibway Nation
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November 2010

Our people have been driven from their homes, and have been cajoled out of the few sacred spots where the bones of their ancestors and children lie; and where they themselves expected to lie, when released from the trials and troubles of life. Were it possible to reverse the order of things, by placing the whites in the same condition, how long would it be endured? There is not a white man, who deserves the name of man, that would not rather die, than be deprived of his home, and driven from the graves of his relatives. "Oh shame, where is thy blush!"

Kahgegagahbowh
Ojibway Methodist missionary
Saugeen village 1843, 1845

The Life, History, and Travels of Kah-ge-ga-gah-bowh
(George Copway), 1847

Cover illustration:

Paul Kane
Indian Wigwams Owens Sound
June/July 1845
[Stark Museum of Art, Orange, Texas]

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1.0 Introduction

The Saugeen Ojibway Nation (SON) consists of the communities of Saugeen First Nation #29 and *Neyaashiinigmiing*, or the Chippewas of Nawash Unceded First Nation #27. *Anishnabekiing* is their traditional homeland and that of their ancestors. Occupied continuously since the final retreat of the Laurentide ice sheet from the area more than 12,000 years ago, the land-based extent of SON traditional territory encompasses the area bounded by Lake Huron on the west, the Nottawasaga River on the east, the islands off the tip of the Bruce Peninsula to the north, and to the south by the Maitland River watershed.

The Crown recognizes and affirms its duty to consult SON with respect to any projects or related Crown decision-making that might adversely affect SON Aboriginal and Treaty rights and interests in the territory that SON and its ancestors have traditionally used and occupied. The legal obligation to consult must be conducted in ways that reflect the principles enunciated by the Supreme Court of Canada relating to Section 35 of the Constitution Act, 1982 – i.e., *Taku River Tlingit v British Columbia* (2005); *Haida Nation v British Columbia* (2005); and *Mikisew Cree v Canada* (2006).

Specifically for archaeology, the Ontario Ministry of Tourism and Culture (MTC) has defined, for consultant archaeologists, mandatory and recommended rules of engagement with Aboriginal communities – *Standards and Guidelines for Consultant Archaeologists* (2010) and *Engaging Aboriginal Communities in Archaeology Technical Bulletin* (2010).

Cultural heritage sites are irreplaceable. The archaeological manifestations of the habitation, resource-procurement, ritual, and burial sites of the Saugeen Ojibway and their ancestors continue to be threatened and destroyed across traditional territory. Left unchecked, all present-day land use activities – regardless of their scale, have the potential to erase these dwindling heritage resources from the historical record.

SON insists that approval authorities, development proponents, and consultant archaeologists make every reasonable effort to locate, properly evaluate, and thoroughly investigate all archaeological manifestations of these non-renewable cultural heritage sites before a property is impacted by any type of surface or sub-surface alteration. Where appropriate, cultural sites must be protected from development.

Traditional SON territory is composed of a diversity of landscapes, some of which cannot be adequately investigated for cultural sites using MTC-defined and commonly-practiced archaeological field methods.

Furthermore, many archaeological sites in this area can easily avoid detection when MTC-defined and commonly-practiced archaeological investigative strategies are implemented. Not only do cultural sites tend to be small and of short duration – leaving behind small amounts of cultural material, but they can be buried below the shallow depths that archaeological assessment methods penetrate.

There is a need for the implementation of enhanced, area-specific archaeological standards within the traditional territory of the Saugeen Ojibway and their ancestors. They will benefit approval authorities, development proponents, and consultant archaeologists who lack familiarity with the landscape and cultural history of the traditional territory of the Saugeen Ojibway Nation.

To ensure that the cultural heritage sites of the Saugeen Ojibway and their ancestors are neither overlooked or destroyed, approval authorities, development proponents and consultant archaeologists must engage with SON during all project phases – from conception through completion, and, if warranted, beyond. In addition, SON must be an immediate participant in the Ministry of Tourism and Culture’s review of all archaeological assessment reports. Too often, MTC archaeological review officers have overlooked critical errors and omissions within the reports of consultant archaeologists.

2.0 Saugeen Ojibway Nation Traditional Territory

The land-based extent of traditional territory of the Saugeen Ojibway Nation encompasses an area that is roughly three times the landmass of Prince Edward Island, extending approximately 150 kilometres east-west from the Nottawasaga River to Lake Huron and 200 kilometres north-south from the islands off the tip of the Bruce Peninsula to the southern extremity of the Maitland River watershed. Included within traditional SON territory are the municipalities of two complete counties and parts of five others (Figure 1; Appendix 9.1).

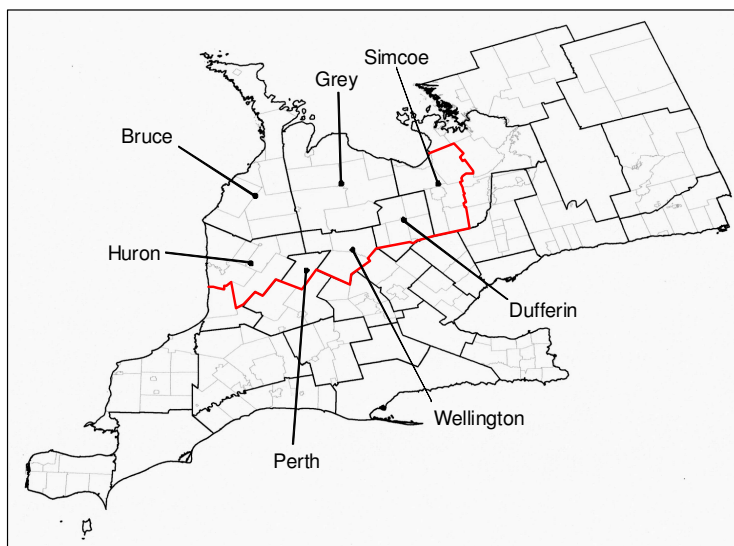


Figure 1. Counties that fall within Saugeen Ojibway Nation traditional territory

3.0 Current Archaeological Process and Practice

SON acknowledges that consultant archaeologists must legally comply with the relevant archaeological statutes and regulations of the *Ontario Heritage Act (1990)*. This includes the standards and guidelines outlined in the Ministry of Tourism and Culture's *Standards and Guidelines for Consultant Archaeologists (2010)* and *Engaging Aboriginal Communities in Archaeology Technical Bulletin (2010)*.

Consultant archaeologists must, however, acknowledge their ethical and professional responsibilities to conduct themselves in a manner that will not overlook or result in a negative impact on cultural heritage resources.

For an archaeological consultant to knowingly furnish false information to the Ministry of Tourism and Culture is an offence under section 69 of the *Ontario Heritage Act (1990)*. It could result in a fine or imprisonment as set out in section 69 and/or the suspension or revocation of the consultant archaeologist's licence in accordance with section 48(9) of the Act.

Archaeological obligations are also defined for approval authorities and development proponents in other provincial legislation and policies:

- Provincial Policy Statement (1995)
- Planning Act (1990)
- Environmental Assessment Act (1990)
- Aggregate Resources Act (1990)
- Cemeteries Act (Revised)(1990)
- Niagara Escarpment Planning and Development Act (1990)
- Green Energy Act (2009)

3.1 MTC Archaeological Standards and Guidelines

The Ministry of Tourism and Culture's 100-plus page *Standards and Guidelines for Consultant Archaeologists (2010)* supersedes the Ministry's 1993 technical guidelines for any stage of archaeological investigation that commences on or after January 1, 2011. As has been the practice, a development project may have as many as four sequential stages:

- **Stage 1:** Background study and optional property inspection
- **Stage 2:** Property assessment
- **Stage 3:** Site-specific assessment
- **Stage 4:** Mitigation (site protection or removal)

Within each of the four investigative stages MTC presents basic, mandatory “standards” that all consultant archaeologists must follow. In addition there are more comprehensive “guidelines” that *may* be implemented based on the “professional judgement” [read *competitive commercial considerations*] of a consultant.

3.2 Aboriginal Engagement

When and how Aboriginal communities are to be engaged in the archaeological process is defined within MTC’s *Standards and Guidelines for Consultant Archaeologists (2010)* and *Engaging Aboriginal Communities in Archaeology Technical Bulletin (2010)*.

While MTC defines “engagement” as involving Aboriginal communities in each stage of an archaeological project, it is only However, only under the following circumstances do MTC standards mandate that consultant archaeologists must engage Aboriginal communities:

- at Stage 3 when assessing the cultural heritage value of an archaeological site that is:

- known to have or appears to have sacred or spiritual importance
- associated with traditional land uses
- associated with geographic features of cultural heritage interest
- the subject of Aboriginal oral histories

[The above considerations all presume that consultant archaeologists are able to recognize sites that have “sacred or spiritual importance” and that they are familiar with local Aboriginal oral tradition.]

- at the end of Stage 3 when formulating a Stage 4 strategy for certain types of sites:

- rare Aboriginal sites
- sites identified as sacred or known to contain human remains
- Woodland period Aboriginal sites
- Aboriginal sites where topsoil stripping is contemplated
- undisturbed Aboriginal sites
- sites previously identified as of interest to an Aboriginal community

With these few exceptions, MTC only “encourages” consultant archaeologists to engage Aboriginal communities throughout the four stages of archaeological investigation.

3.3 The Archaeological Approval Process

For the archaeological process to commence, the initial determination that has to be made is if a property could possess the potential for the presence of cultural heritage resources. Despite MTC's expanded archaeological standards and guidelines, it is conceivable that the archaeological process might not even get triggered. The Ministry of Tourism and Culture is not an approval authority and cannot, ironically, place an archaeological condition on any development application.

Archaeological conditions can only be placed on a development application by the relevant approval authority – e.g., the Ministry of Natural Resources for aggregate and quarry projects, the Ministry of Transportation for highway projects, and municipalities for most subdivisions and zoning applications. The common and inappropriate denominator is that these approval authorities are – as MTC refers to them, “non-specialists”. In plain speak, individuals who have the power to determine whether or not the archaeological process gets activated, in fact, have neither archaeological training or, most probably, sympathies toward heritage resources.

Even more threatening, in the case of “scoped-down” Class Environmental Assessments and Green Energy applications it is the development proponent that “self-assesses” whether an archaeological assessment is required.

If the archaeological process is activated, the application of the standards and guidelines – including moving or not moving from one assessment stage to another, relies largely on the competence, judgement, and scruples of consultant archaeologists.

4.0 The Need for Enhanced Archaeological Standards and Engagement

Existing provincially-mandated archaeological processes and practices are considered by SON to be, in many instances, insufficient for the proper identification, investigation, and protection of cultural heritage resources.

The role of the Ministry of Tourism and Culture in the archaeological process is rather limited and its ability to “conserve, protect, and preserve” the cultural heritage of Ontario quite ineffectual. MTC's archaeological review officers offer technical advice to consultant archaeologists and review the archaeological assessment reports they submit to determine if the reports comply with MTC's standards and guidelines. The archaeological review officers, however, rely exclusively on information provided by the consultant archaeologist – they do not fact-check or conduct field inspections.

The Saugeen Ojibway Nation identifies three aspects of the archaeological process that can be improved through engagement:

- approval authorities, development proponents, and consultant archaeologists must engage with SON at all stages of a development project and archaeological assessment
 - SON must be involved in all decision-making activities related to the application of an archaeological condition, fieldwork strategies, and evaluation of assessment reports
 - SON monitors must accompany consultant archaeologists in all field activities – i.e., Stages 2 through 4
- MTC's Stage 1 and Stage 2 standards do not fully address the search for and investigation of certain types of sites in SON traditional territory – area-specific Stage 2 standards must be implemented
- MTC lacks the capacity to enforce their archaeological standards -- too often MTC archaeological review officers prematurely concur with inappropriate recommendations of consultant archaeologists
 - there is a demonstrated need for compliance monitoring, especially during field activities

5.0 Stage 1: Background Study and Property Inspection

The outcome of taking an exam or going into battle if unprepared is obvious. Failure is also inevitable if a consultant archaeologist, development proponent, approval authority, or even the Ministry of Tourism and Culture attempts to determine archaeological potential without a thorough knowledge of the natural and cultural heritage of a property and its surrounding area. Unfamiliarity has resulted in significant archaeological sites being missed by consultant archaeologists.

While MTC presents a list of the types of cultural information, landscape features, and natural resources that could be used to indicate a property's archaeological potential, it does not mandate that approval authorities, development proponents, or consultant archaeologists must have regard for the sources that would provide such insight.

SON insists otherwise. Appendices 9.2 through 9.5 provide sources of readily-

accessible information that will facilitate a better understanding and appreciation of the natural and cultural heritage of the traditional territory of the Saugeen Ojibway and their ancestors.

SON requires that all initial determinations of a property's archaeological potential and Stage 1 background studies must be based on all MTC standards and guidelines with an especial focus on:

- a thorough examination of MTC's Ontario Archaeological Site Database for registered sites
 - if a registered site is present on an impacted lot the site record must be examined, site location(s) confirmed, and location(s) and nature of existing artifact collections documented
- a search for accounts of and artifact collections from unregistered archaeological sites
- a detailed overview of the property's Quaternary geology (including glacial landforms and especially pro- and post-glacial lakeshore complexes) and present-day drainage systems and wetlands for areas of potential cultural activity (habitation, resource procurement, ritual, burial)
- an examination of provincial land surveyors' maps, field books, journals and diaries from the 1820s through 1870s for accounts of Native and Euro-Canadian activity
- a visual inspection of the property to confirm and supplement information pertaining to landscape features and field conditions defined in the background study

With many cultural sites within the traditional territory of the Saugeen Ojibway and their ancestors – be they habitation, resource-procurement, ritual or burial, tending to be small, any type or scale of surface alteration could erase SON history. Such an outcome Chief Randall Kahgee of the Saugeen First Nation rightly considers to be cultural genocide.

Property developments of any size -- even for single residential units, must be subjected to archaeological assessment. Recently, provincially-registered site BcHi-6 – a Late Woodland period burial and camp site in Southampton, was “impacted” by house construction. No archaeological condition had been placed on the development

plan by the approval authority – the extent of damage to this site is unknown.

Those properties or areas of properties deemed by approval authorities, development proponents, and consultant archaeologists to be disturbed and unworthy of archaeological assessment must be shown to be disturbed. Such a claim was made by a consultant archaeologist for a sewer installation at the mouth of the Saugeen River. At SON's insistence it was proven otherwise and a significant, multi-component site – BdHi-2, was rediscovered.

For industrial wind developments, the archaeological potential of each concession lot that will be impacted by construction must be individually assessed. A collective, superficial evaluation of the archaeological potential of a large study area is not acceptable. The Stage 1 assessment (including a visual inspection) must identify – with justification, those areas that would or would not require Stage 2 field investigations.

Based on well-documented errors and omissions by consultant archaeologists, approval authorities, development proponents, and the Ministry of Tourism and Culture, SON must immediately be provided with the results and recommendations of all Stage 1 assessments, both those where the assessment is elevated to Stage 2 and those where no archaeological concerns are identified. SON must have the opportunity to comment on report content and recommendations prior to the Ministry of Tourism and Culture accepting any report into the Ontario Public Register of Archaeology Reports.

6.0 Stage 2: Property Assessment

Greater scrutiny must be employed by consultant archaeologists when searching for the evidence of past cultural activity within the traditional territory of the Saugeen Ojibway and their ancestors.

Stage 2 property assessments must take into consideration that even into the 21st century the Saugeen Ojibway continue to pursue seasonally-available food sources away from their principal residence or community. Short-duration resource-procurement sites – past and present, tend to be small and leave behind limited evidence. This, however, does not lessen their cultural importance. Equally inconspicuous to the archaeologist are other small, special-purpose sites – notably locations of ritual activity and unmarked burying grounds.

While river mouths, confluences, and banks adjacent to rapids tend to be the foci of repeated visitations – in some instances for millennia (and hence highly-visible to most

archaeologists), it is becoming evident, based on an increasing number of interior isolated artifact finds, that there is likely a significant number of less-visible cultural sites awaiting discovery.

Also hindering the discovery of sites of all sizes across a substantial portion of traditional SON territory are capping deposits of sterile, wind-borne sand and beds of sand and cobbles pushed by storm surges onto and beyond active shoreline beaches. Too often during Stage 2 assessments when consultant archaeologists not familiar with the area's landscape and post-glacial lakeshore environments encounter a sterile sand or cobble horizon they proceed no further. Not infrequently, once-stable surface horizons that may contain cultural material are capped by these sterile deposits. They will be visible as organic lenses sandwiched between sterile deposits of sand, pebbles, or cobbles.

MTC's Stage 2 standards and guidelines for the physical investigation of a property – with slight modifications (see below), must be rigorously applied to increase the probability that small sites, lower artifact density sites, and deeply-buried sites are found.

6.1 Modifications and Amplifications

1. **bedrock exposures:** with much of the Bruce Peninsula consisting of exposed bedrock, MTC's *2.1 Property survey Standard 2.a.ii* must be ignored – areas of exposed bedrock must be examined for evidence of cultural activity
2. **pedestrian survey:** all active agricultural fields [short-term rotation crops (eg., corn, beans, wheat, rye), long-term rotation crops (eg., clover, alfalfa, canola), and grazing pastures], abandoned agricultural fields, and meadows must be completely ploughed and weathered prior to assessment
 - since each ploughing is unlikely to produce consistent surface artifact exposures – especially on low artifact density sites, fields must be ploughed, weathered, and assessed on two occasions
3. **controlled surface pick-up:** the precise recording of all individual artifact locations identified on the surface of a site must be undertaken during the Stage 2 property assessment, not during the Stage 3 site-specific assessment

- MTC's 2.1.1 *Pedestrian survey Standard 8* only requires that formal artifact types ("goodies") be collected from the surface at Stage 2 – not recording their precise location within a site results in a loss of contextual information
- MTC's 3.2.1 *Controlled survey pick-up standards and guidelines* should be implemented

4. shovel test-pitting: in conditions where this is the only option (eg., woodlots with soil development, regenerated agricultural fields), consultant archaeologists must excavate proper shovel test-pits at 5-metre intervals [400 shovel test-pits per hectare (1 hectare = 2.47 acres)]

- 10-metre intervals can be implemented in areas more than 300 metres from any landscape feature of archaeological potential – the consultant archaeologist must convincingly demonstrate such an absence
- SON monitoring is critical when consultant archaeologists undertake shovel test-pitting

5. test-excavation: where there is a reasonable expectation that cultural deposits may be deeply buried, heavy excavating machinery should be avoided unless the capping can be demonstrated to be of recent origin

- in these situations a 1-metre by 1-metre excavation unit must be manually excavated to determine if there are buried ground surfaces

For industrial wind developments, once the concession lots are identified that will contain turbines, infrastructure, and assembly areas, it would be preferable to conduct a Stage 2 archaeological assessment of the entirety of those lots. With the inevitable movement of these construction and assembly areas throughout all phases of a project, the Stage 2 assessment of an entire concession lot would provide placement flexibility without the need to constantly assess shifting site-specific locations within a concession lot. If, however, the development proponent insists on limiting Stage 2 assessments to the locations of turbines, infrastructure, construction, and assembly activity, they must inform SON of each and every shift of those placements throughout the planning and construction process and have those areas assessed.

6.2 Site Significance

Large-scale systematic archaeological investigations are a relatively recent phenomenon within traditional SON territory. To get a better appreciation of the nature,

distribution, and density of cultural sites across the area, all cultural discoveries located during a Stage 2 property assessment – including isolated finds, must be provided with Borden numbers and be registered within the Ministry of Tourism and Culture's Ontario Archaeological Site Database.

Furthermore, all of these registered archaeological sites – regardless of size or artifact density, must be subjected to an MTC Stage 3 site-specific assessment to better understand their size, function, and chronological placement.

Even sites consisting of Euro-Canadian material dating into the late-19th century – especially if situated away from concession and side roads, must be investigated. The Saugeen Ojibway continue to pursue traditional subsistence activities in ceded lands. Sites with Euro-Canadian material should not automatically be considered to be ethnically Euro-Canadian.

7.0 Stage 3: Site-specific Assessment

With the exception of the aforementioned controlled surface pick-up methodology that must be implemented during Stage 2, consultant archaeologists must follow MTC's Stage 3 standards and guidelines.

8.0 Stage 4: Mitigation

In consultation with the Saugeen Ojibway Nation, appropriate Stage 4 site mitigative procedures – removal or avoidance, will be determined.

9.0 Appendices

9.1 Counties and municipalities located within SON traditional territory

Bruce County (entire 4156 km²)

- Township of Huron-Kinloss (*former Village of Lucknow, Village of Ripley, Huron Township, Kinloss Township*)
- Municipality of South Bruce (*former Village of Mildmay, Village of Teeswater, Hamlet of Formosa, Carrick Township, Culross Township*)
- Municipality of Brockton (*former Town of Walkerton, Brant Township, Greenock Township*)
- Municipality of Kincardine (*former Town of Kincardine, Kincardine Township, Bruce Township*)
- Town of Saugeen Shores (*former Town of Southampton, Town of Port Elgin, Saugeen Township*)
- Municipality of Arran-Elderslie (*former Town of Chesley, Village of Paisley, Village of Tara, Arran Township, Elderslie Township*)
- Town of South Bruce Peninsula (*former Town of Wiarton, Village of Hepworth, Amabel Township, Albemarle Township*)
- Municipality of Northern Bruce Peninsula (*former Village of Lion's Head, Eastnor Township, Lindsay Township, St. Edmunds Township*)

Dufferin County (partial)

- Town of Mono (278 km²) (*former Mono Township*)
- Township of Amaranth (264 km²)
- Township of East Garafraxa (166 km²)
- Township of Melancthon (313 km²) (*transferred from Grey County in 1881*)
- Mulmur Township (287 km²)
- Township of East Luther-Grand Valley (158 km²) (*former East Luther Township – transferred from Wellington County in 1883*)
- Town of Shelburne (5 km²)
- Town of Orangeville (16 km²)

Grey County (entire 4426 km²)

- Municipality of West Grey (*former Town of Durham, Village of Neustadt, Normanby Township, Glenelg Township, Bentinck Township*)
- Township of Southgate (*former Village of Dundalk, Proton Township, Egremont Township*)
- Municipality of Grey Highlands (*former Village of Flesherton, Village of Markdale, Artemesia Township, Euphrasia Township, Osprey Township*)
- Town of the Blue Mountains (*former Town of Thornbury, Collingwood Township*)
- Municipality of Meaford (*former Town of Meaford, St. Vincent Township, Sydenham Township*)
- Township of Chatsworth (*former Village of Chatsworth, Holland Township, Sullivan Township*)
- Township of Georgian Bluffs (*former Derby Township, Sarawak Township, Keppel Township*)
- City of Owen Sound

Huron County (partial)

- Township of Ashfield-Colborne-Wawanosh (598 km²) (*former Ashfield Township, Colborne Township, West Wawanosh Township*)
- Town of Goderich (8 km²)
- Township of North Huron (179 km²) (*former East Wawanosh Township, Town of Wingham, Village of Blyth*)
- Municipality of Morris-Turnberry (377 km²) (*former Morris Township, Turnberry Township*)
- Township of Howick (287 km²)
- Municipality of Huron East (669 km²) (*former Town of Seaforth, Village of Brussels, Grey Township, McKillop Township, Tuckersmith Township*)
- Municipality of Central Huron (448 km²) (*former Town of Clinton, Goderich Township, Hullett Township*)

Perth County (partial)

- Municipality of North Perth (493 km²) (*former Wallace Township, Elma Township, Town of Listowel*)

Simcoe County (partial)

- Clearview Township (557 km²) (*former Nottawasaga Township, Sunnidale Township, Town of Stayner, Village of Creemore*)
- Springwater Township (536 km²) (*former Flos Township, Vespra Township, part Medonte Township, Village of Elmvalle*)
- Essa Township (280 km²)
- Adjala-Tosorontio Township (372 km²) (*former Township of Adjala, Township of Tosorontio*)
- Town of New Tecumseth (274 km²) (*former Tecumseth Township and Town of Alliston*)
- Town of Collingwood (34 km²)
- Town of Wasaga Beach (58 km²)
- Canadian Forces Base Borden (90 km²)

Wellington County (partial)

- Township of Wellington North (524 km²) (*former Village of Arthur, Town of Mount Forest, West Luther Township, Arthur Township, part of West Garafraxa Township*)
- Mapleton Township (535 km²) (*former Maryborough Township and Peel Township*)
- Town of Minto (300 km²) (*former Minto Township, Town of Palmerston, Town of Harriston, Village of Clifford*)

9.2 Natural Heritage Sources

Paleozoic and Quaternary maps and reports can be downloaded from:

www.geologyontario.mndmf.gov.on.ca/

Paleozoic Geology

Armstrong, D.K.

1993 Paleozoic Geology of the Central Bruce Peninsula. Ontario Geological Survey Open File Report 5856.

1993 Paleozoic Geology of the Central Bruce Peninsula. Ontario Geological Survey Preliminary Map P.3191.

1993 Paleozoic Geology of the Southern Bruce Peninsula, Southern Ontario. Ontario Geological Survey Open File Report 5875.

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2001 A Regional Evaluation of the Shale Resource Potential of the Upper Ordovician Queenston Formation, Southern Ontario. Ontario Geological Survey Open File Report 6058.

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2002 A Seamless Quaternary Geology Map of Southern Ontario: Second Phase. Ontario Geological Survey Open File Report 6100.029.

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1976 Paleozoic Geology of the Orangeville Area, Southern Ontario. Ontario Geological Survey Map 2339.

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1979 Stratigraphy, Age, and Environment of a Lake Algonquin Embayment Site at Kincardine, Ontario. Geological Survey of Canada Paper 79-1B:147-152.

Bajc, A.F., S.J. Leney, S. Evers, S. Van Haaften and J. Ernsting

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1977 Quaternary Geology of the Goderich Area, Southern Ontario. Ontario Geological Survey Map P.1232.

Cooper, A.J., W.D. Fitzgerald and J. Clue

1977 Quaternary Geology of the Seaforth Area, Southern Ontario. Ontario Geological Survey Map P.1233.

Cowan, W.R.

1973 Quaternary Geology of the Orangeville Area, Southern Ontario. Ontario Geological Survey Map P.848.

1976 Quaternary Geology of the Orangeville Area, Southern Ontario. Ontario Geological Survey Report 141.

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Saugeen Ojibway Nation

Archaeological Standards

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Soil Surveys

All Ontario Soil Survey reports and maps can be downloaded from:
<http://sis.agr.gc.ca/cansis/publications/on/index.html>

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1954 Soil Survey of Bruce County. Report No. 16 of the Ontario Soil Survey. Experimental Farm Service, Canada Department of Agriculture and the Ontario Agricultural College, Guelph.

Hoffman, D.W., B.C. Matthews and R.E. Wicklund

1963 Soil Survey of Wellington County. Report No. 35 of the Ontario Soil Survey. Experimental Farm Service, Canada Department of Agriculture and the Ontario Agricultural College, Guelph.

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1964 Soil Survey of Dufferin County. Report No. 38 of the Ontario Soil Survey. Experimental Farm Service, Canada Department of Agriculture and the Ontario Agricultural College, Guelph.

Hoffman, D.W., N.R. Richards and F.F. Morwick

1952 Soil Survey of Huron County. Report No. 13 of the Ontario Soil Survey. Experimental Farm Service, Canada Department of Agriculture and the Ontario Agricultural College, Guelph.

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Appendix 9.3 Culture History Sources

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1922-

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Canada

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Fitzgerald, William

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Strickland, Samuel

Saugeen Ojibway Nation

Archaeological Standards

1853 Twenty-Seven Years in Canada West or the Experience of an Early Settler. Richard Bentley, London.

Thwaites, Reuben G. (editor)

1896-

1901 The Jesuit Relations and Allied Documents. Burrows Brothers, Cleveland.

Waisberg, Leo Gilbert

1978 The Ottawa: Traders of the Upper Great Lakes. Unpublished M.A. thesis, McMaster University, Hamilton.

Provincial Surveyors' Plans, Field Books, Notes, and Diaries

[an important source of SON and Euro-Canadian cultural information for the period between treaty signings and land sales – include locations of homesteads, maple sugar camps, mills, burial grounds, trails, portages...]

Winearls, Joan

1991 Mapping Upper Canada 1780-1867: An Annotated Bibliography of Manuscript and Printed Maps. University of Toronto Press, Toronto.

Natural Resources Canada

615 Booth Street

Room 558

Ottawa, Ontario

Office of the Surveyor General

Ministry of Natural Resources

300 Water Street

2nd Floor South Tower

Peterborough, Ontario

The Archives of Ontario

134 Ian Macdonald Boulevard

Toronto, Ontario

Toronto Reference Library

789 Yonge Street

Toronto, Ontario

Land Sales Books and Crown Patents

[documents payments and transfer of interest from initial installment to issuance of Crown Patent]

Indian and Northern Affairs Canada

Geomatics and Imagery

10 Wellington Street

Room 1720H

Gatineau, Québec

Crown Lands Registry

Ministry of Natural Resources

300 Water Street

Saugeen Ojibway Nation

Archaeological Standards

5th Floor South Tower
Peterborough, Ontario

Land Registry Offices

[generally only record land ownership after Crown Patent issued – owners may not always be tenants]

Bruce County
203 Cayley Street
Walkerton, Ontario
Dufferin County
41 Broadway Avenue
Unit 7
Orangeville, Ontario

Grey County
1555 16th Street East
Suites 1 and 2
Owen Sound, Ontario

Huron County
38 North Street
Goderich, Ontario

Perth County
5 Huron Street
Stratford, Ontario

Simcoe County
Court House
114 Worsley Street
Barrie, Ontario

Wellington County
1 Stone Road West
Guelph, Ontario

Federal Census Reports, County Directories, and Township Papers

[initial census reports document Saugeen Ojibway presence within and outside of reserves]

Ryder, Dorothy E.
1979 Checklist of Canadian Directories, 1790-1950. National Library of Canada, Ottawa.

Bruce County Museum and Cultural Centre
33 Victoria Street North
Southampton, Ontario

Dufferin County Museum and Archives
936029 Airport Road
Rosemont, Ontario

Saugeen Ojibway Nation

Archaeological Standards

Grey Roots Museum and Archives
102599 Grey Road 18
Owen Sound, Ontario

Huron County Museum and Historic Gaol
110 North Street
Goderich, Ontario
Simcoe County Archives
1149 Highway 26
RR2
Minesing, Ontario

Stratford-Perth Archives
24 St. Andrews Street
Stratford, Ontario

Wellington County Museum and Archives
0536 Wellington Road 18
Fergus, Ontario

Appendix 9.4 Archaeological Sources

Published Reports

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Bursey, J.A.

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1988 The Port Elgin Burial. KEWA (Newsletter of the London Chapter, Ontario Archaeological Society) 88(7):11-19.

Fecteau, Rodolphe David

2004 Preliminary Analysis of Carbonized Macro-botanical Remains from Petun Sites in Grey and Simcoe Counties, Ontario. Ontario Archaeology 77/78:160-170.

Finlayson, William D.

1977 The Saugeen Culture: A Middle Woodland Manifestation in Southwestern Ontario. Archaeological Survey of Canada Mercury Series Paper 61, National Museum of Man, Ottawa.

Fitzgerald, William and Camille Ramlukan

1995 Accessing the Supernatural: Algonkian Devotional Items from the Hunter's Point (BfHg-3) Site. Arch Notes (Newsletter of the Ontario Archaeological Society) 95(2):8-17.

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1980 Lithic Tools from the McEwen Site (BcHb-17). KEWA (Newsletter of the London Chapter, Ontario Archaeological Society) 80(4):2-13.

Saugeen Ojibway Nation

Archaeological Standards

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- 1990 The Odawa. In, The Archaeology of Southern Ontario to A.D. 1650. Edited by Chris J. Ellis and Neal Ferris. Occasional Publication of the London Chapter, OAS Number 5:457-473.
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Garrad, Charles

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- 1978 The Sidey-Mackay BbHa-6 Site in 1977. Arch Notes (Newsletter of the Ontario Archaeological Society) 78(2):14-27.
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- 1989 The Plater-Fleming BdHb-2 Site: A Review. Arch Notes (Newsletter of the Ontario Archaeological Society) 89(3):7-25.
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- 1995 Thoughts about the Hunter's Point (BfHg-3) Site. Arch Notes (Newsletter of the Ontario Archaeological Society) 95(3):32-35.
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Hamalainen, Peter

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Heidenreich, C.E.

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Jackson, Lawrence J., Christopher Ellis, Alan V. Morgan and John H. McAndrews

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Kenyon, Water

- 1959 The Inverhuron Site, Bruce County, Ontario. Art and Archaeology Division, Royal Ontario

Saugeen Ojibway Nation

Archaeological Standards

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Lee, Thomas E.

1952 A Preliminary Report on an Archaeological Survey of Southwestern Ontario for 1950. National Museum of Canada Bulletin 126:64-75, Ottawa.

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1960 The Lucas Site, Inverhuron, Ontario. National Museum of Canada Bulletin 167:29-65, Ottawa.

Lennox, Paul A.

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Molto, J.E.

1979 Saugeen Osteology: The Evidence of the Second Cemetery at the Donaldson Site. Museum of Indian Archaeology Bulletin 14, London.

Pearce, Robert J.

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Ramsden, Peter

1976 Rocky Ridge: A Stratified Archaic Site near Inverhuron, Ontario. Ministry of Culture and Recreation, Historical Planning & Research Branch Research Report 7, Toronto.

Storck, Peter L.

1997 The Fisher Site: Archaeological, Geological and Paleobotanical Studies at an Early Paleo-Indian Site in Southern Ontario, Canada. Museum of Anthropology Memoir No. 30, Ann Arbor.

2004 Journey to the Ice Age: Discovering an Ancient World. UBC Press, Vancouver.

Storck, Peter L. And Peter von Bitter

1989 The Geological Age and Occurrence of Fossil Hill Formation Chert: Implications for Early Paleoindian Settlement Patterns. In, Eastern Paleoindian Lithic Resource Use. Edited by Christopher J. Ellis and Johnathan C. Lothrop. Westview Press, Boulder, pp.165-189.

Wright, J.V.

1972 The Knechtel I Site, Bruce County, Ontario. National Museum of Man Mercury Series, Archaeological Survey of Canada Paper 4, Ottawa.

1974 The Nodwell Site. National Museum of Man Mercury Series, Archaeological Survey of Canada Paper 22, Ottawa.

Wright, J.V. and J.E. Anderson

1963 The Donaldson Site. National Museum of Canada Bulletin 184, Ottawa.

Unpublished Reports, Field Notes, Site Records, Artifact Collections

Ministry of Tourism and Culture (license reports and artifact repositories)

Saugeen Ojibway Nation

Archaeological Standards

Archaeological field notes and site records (1920s onward)

Canadian Museum of Civilization
[Research and Collections (Archaeology and History); Library, Archives and Documentation Services]
100 rue Laurier
Gatineau, Québec

Royal Ontario Museum
[Department of World Cultures; Library and Archives]
100 Queen's Park
Toronto, Ontario

Artifact collections

Museum of Ontario Archaeology
1600 Attawandaron Road
London

University of Toronto
[Department of Anthropology]
19 Russell Street
Toronto

Bruce County Museum and Cultural Centre
33 Victoria Street North
Southampton

Dufferin County Museum and Archives
936029 Airport Road
Rosemont

Grey Roots Museum and Archives
102599 Grey Road 18
Owen Sound

Meaford Museum
111 Bayfield Street
Meaford

Simcoe County Museum
1151 Highway 26
Minesing

Collingwood Museum
45 St. Paul Street
Collingwood

Wellington County Museum and Archives
0536 Wellington Road 18
Fergus

Stratford-Perth Museum
270 Water Street South

Saugeen Ojibway Nation

Archaeological Standards

Stratford

Huron County Museum and Historic Gaol
110 North Street
Goderich

North Huron District Museum
274 Josephine Street
Wingham

Craigleith Station Heritage Museum
113 Lakeshore Road
Town of the Blue Mountains

Huronian Museum
549 Little Lake Park Road
Midland

Appendix 9.5 Air Photos and Topographic Maps

Air Photos (1930s onward)

National Air Photo Library
Centre for Topographic Information
Natural Resources Canada
615 Booth Road
Room 180
Ottawa, Ontario

Grey Sauble Conservation Authority
237897 Inglis Falls Road
Owen Sound, Ontario

Saugeen Valley Conservation Authority
261123 Grey Road 28
Hanover, Ontario

Maitland Valley Conservation Authority
1093 Marietta Street
Wroxeter, Ontario

Ausable Bayfield Conservation Authority
71108 Morrison Line
Exeter, Ontario

Grand River Conservation Authority
400 Clyde Road
Cambridge, Ontario

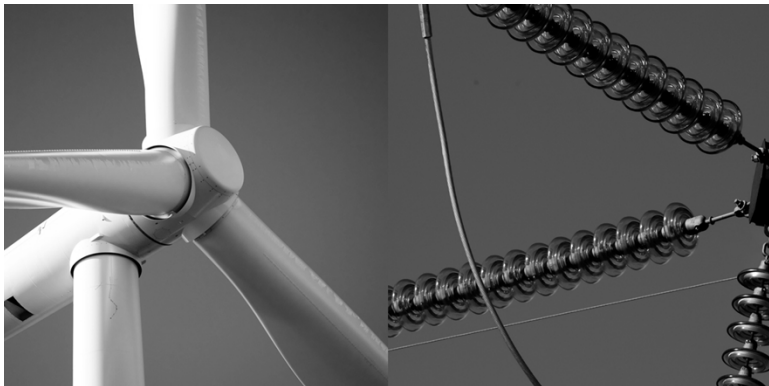
Nottawasaga Valley Conservation Authority
8195 8th Line
Utopia, Ontario

Topographic Maps (first editions – 1940s/1950s based on aerial photography)

Lloyd Reeds Map Collection
McMaster University
1280 Main Street West
Hamilton, Ontario



9. Presentation from April 13th, 2012
Meeting with Métis Nation of
Ontario



Armow Wind Farm

Metis Nation of Ontario

April 13, 2012



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Samsung Renewable Energy

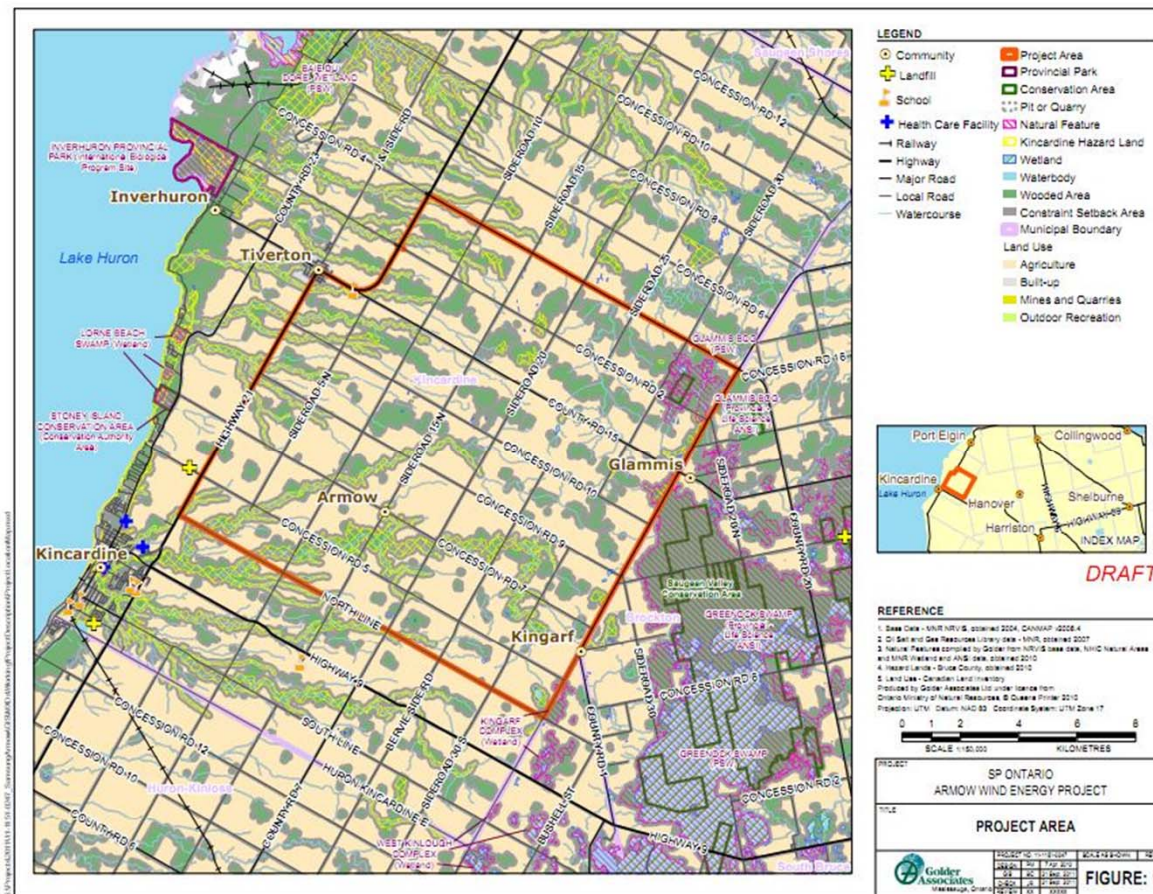
- Founded in 1938, Samsung C&T is the mother company of the Samsung Group
- Samsung C&T is divided into 2 business groups:
 - Trading and Investment with focus on energy, the environment, natural resources and industrial materials, especially wind, solar and bioenergy
 - Engineering and Construction with an extensive portfolio of building, civil, plant and housing works

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- Expertise & experience at all project stages: resource analysis, site development, finance, construction and operation
- Dedicated to delivering the highest values for our partners and the communities where we work
- Strong commitment to promoting environmental stewardship and corporate responsibility



Project Location



Timeline and Key Activities

- Pattern and Samsung acquired the Armow project in Fall 2011
- Power purchase agreement signed with Ontario Power Authority in Fall of 2011
- Development and permitting activities will continue throughout 2011 and 2012
- Construction expected to commence in 2013 and reach operation in 2014

Project Timeline	2008				2009				2010				2011				2012				2013				2014			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4

Ownership

SEPI

Acciona

Pattern/Samsung

Activities

Land Leasing

Permitting

Construction



Armow Wind Project Overview

- 180 MW wind energy generation project
- Approximately 90 turbines
- Power equivalent: approx. 55,000 Ontario homes
- 12 – 18 month construction period
- Up to 200 jobs during construction period
- Up to 15 permanent jobs during operations, in addition to local contractors



Proposed Wind Turbines

- Turbine Manufacturer: Siemens
- Number of Turbines: Approximately 90
- Turbine model: SWT-2.3-101
- Rotor speed: 6 – 16 rpm
- Hub height: 99.5 m
- Blade length: 49 m
- Tower base diameter: 4.5 m
- Turbine blades manufactured in Tillsonburg
- Turbine towers manufactured in Windsor



Armow Wind Project Timeline*

Commence Environmental Consultant Site Visits	August 2011
Project Description Report posted to public	November 2011
Notice of Proposal	November 2011
Public Information Centre #1	December 2011
Reports and Layout Available for Public Review	July 2012
Public Information Centre #2	July 2012
Submission of REA Application	July 2012
Start of Construction	2013
Commercial Operation Date	2014



*Represents our ideal project timeline and subject to change.

Project Employment Opportunities

- Project assistant and community liaison to staff local office
- Subcontractors experienced in civil work (grading, excavation, and concrete), electrical work, and mechanical assembly
- Typical personnel requirements include construction managers, electricians, heavy equipment operators, and general laborers for assembly and civil work
- Skills of project managers and operators include computer literacy, inventory management, job and equipment scheduling, performance record-keeping and data processing
- Maintenance personnel generally need to be proficient mechanics or electrical/electronic technicians



Thank You





APPENDIX F

Municipal Consultation Materials and Documentation



1. Municipal and County Correspondence



SP Armow Wind Ontario LP
9th Floor, 55 Standish Court
Mississauga, Ontario L5R 4B2
Canada

November 9, 2011

Kincardine Clerk's Office
1475 Concession 5, RR 5
Kincardine, ON
N2Z 2X6

RE: Notice of a Proposal to Engage in a Renewable Energy Project for the Armow Wind Project

Dear Clerk:

As you may know, SP Armow Wind Ontario LP, a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC and Samsung Renewable Energy Inc. (the Developer) is now leading the proposed Armow Wind Project (the Project). This letter is to inform you that we are commencing the Renewable Energy Approval (REA) process for this Project. Please find our combined Notice of Proposal to Engage in Renewable Energy Project and Public Meeting on the reverse of this letter and on the Project website (www.armowwind.com).

The proposed Project, formerly known as the Armow Wind Power Project was under development by Acciona Renewable Energy Canada Holdings Inc. (Acciona). In August 2011, Acciona sold all lease holdings of the Project to the Developer. The Developer is proposing to expand the nameplate capacity of the Project within the same Project Area.

The proposed Project would produce up to a maximum nameplate of 180 MW of electricity. The total number of turbines will be dependent on the individual MW generation capacity of each turbine. Once the turbine model has been selected, the layout design and number of turbines will be finalized and presented during the consultation process.

Other components associated with the Project include:

- A collector substation (where the project will connect to the transmission grid);
- Access roads (developed so that construction equipment can access the site);
- Buried collection lines (to move electricity from the turbines to the substation);
- Laydown areas and temporary construction work spaces (for construction equipment); and
- Temporary and permanent meteorological towers (to collect data on wind direction and speed).

We are committed to consulting with community members and municipalities throughout the approvals process and into the construction and operations phases of the Project. As part of this consultation process we are forwarding a copy of the Project Description for your review as well as a Municipal Consultation form to be reviewed by your Planning Department. We ask that you make a copy of the Project Description available for public review at your office.

We look forward to your participation in the REA process. If you have any questions or comments regarding the Project, please feel free to contact us at info@armowwind.com or using the contact information provided below.

Sincerely,

Brian Edwards, Project Developer
Samsung Renewable Energy Inc.
55 Standish Court
Mississauga, ON L5R 4B2
Phone: 905-501-5667

Jody Law, Project Developer
Pattern Renewable Holdings Canada ULC
100 Simcoe St. Suite 105
Toronto, ON M5H 3T4
Phone: 416-263-8029

NOTICE OF A PUBLIC MEETING AND PROPOSAL
by SP Armow Wind Ontario LP to Engage in a Renewable Energy Project

Project Name: Armow Wind Project (the "Project")

Project Location: The Project proposed to be situated in the Municipality of Kincardine, Bruce County, Ontario, approximately 3 kilometres from Lake Huron and approximately 2 kilometres northeast of Kincardine. The figure below identifies the proposed area within which the Project will be located.

Dated at: Bruce County this, the 8th of November, 2011.

SP Armow Wind Ontario LP, a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC and Samsung Renewable Energy Inc. (the "Developer") is planning to engage in a renewable energy project in respect of which the issuance of a renewable energy approval ("REA") is required. The distribution of this notice of a proposal to engage in this renewable energy project and the Project itself are subject to the provisions of the *Environmental Protection Act* (the "Act") Part V.0.1 and Ontario Regulation 359/09 (the "Regulation"). This notice must be distributed in accordance with section 15 of the Regulation prior to an application being submitted and assessed for completeness by the Ministry of the Environment.

Public Meeting

Date: Tuesday, December 13, 2011

Time: 4 p.m. to 8 p.m.

Location: Best Western – Governor's Inn, 791 Durham Street, Kincardine, Ontario

Project Description

Pursuant to the Act and Regulation the facility comprising the Project is considered to be a Wind Facility, Class 4. If approved, this facility would have a total maximum name plate capacity of up to 180 megawatts. The Project is being proposed in accordance with the requirements of the Act and Regulation. The Draft Project Description Report (the "Draft PDR") describes the facility as involving namely site preparation and construction, operations and maintenance, and decommissioning of wind turbines. Site plan and layout options for the Project are currently being developed by the Developer and will be finalized during the REA process. In accordance with the Regulation, a written copy of the Draft PDR will be made available for public inspection on Friday, November 11, 2011 at the Tiverton and Kincardine branches of the Bruce County Public Library (56 King Street, Tiverton and 727 Queen Street, Kincardine) and Bruce County and Kincardine municipal offices (30 Park Street, Walkerton and 1475 Concession 5, R.R. #5, Kincardine). The Draft PDR will also be made available at a website dedicated to the Project (www.armowwind.com).

Project Contacts and Information

To learn more about the Project or to provide feedback, please contact:

Project Email: info@armowwind.com

Jody Law, Project Developer
Pattern Renewable Holdings Canada ULC
100 Simcoe St., Suite 105
Toronto, ON M5H 3G2
Phone: 416-263-8029

Brian Edwards, Project Developer
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55 Standish Court
Mississauga, ON L5R 4B2
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OR

Ian Callum, Project Manager
Golder Associates Ltd
2390 Argenta Road
Mississauga, Ontario, L5N 5Z7
Phone: 905-567-4444
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Email: Ian_Callum@golder.com





SP Armow Wind Ontario LP
9th Floor, 55 Standish Court
Mississauga, Ontario L5R 4B2
Canada

November 9, 2011

Darlene Batte, County of Bruce Clerk's Office
30 Park Rd
Walkerton, ON
N0G 2V0

RE: Notice of a Proposal to Engage in a Renewable Energy Project for the Armow Wind Project

Dear Darlene Batte:

As you may know, SP Armow Wind Ontario LP, a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC and Samsung Renewable Energy Inc. (the Developer) is now leading the proposed Armow Wind Project (the Project). This letter is to inform you that we are commencing the Renewable Energy Approval (REA) process for this Project. Please find our combined Notice of Proposal to Engage in Renewable Energy Project and Public Meeting on the reverse of this letter and on the Project website (www.armowwind.com).

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Sincerely,

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Fax: 905-567-6561
Email: Ian_Callum@golder.com



PART A: TO BE COMPLETED BY THE APPLICANT BEFORE SUBMITTING TO MUNICIPALITY OR LOCAL AUTHORITY

Section 1 - Project Description

1.1 - Renewable Energy Project
Project Name (<i>Project identifier to be used as a reference in correspondence</i>)
Armow Wind Project

Project Location					
Same as Applicant Physical Address? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If no, please provide site address information below)					
Civic Address- Street information (<i>includes street number, name, type and direction</i>)					Unit Identifier (<i>i.e. apartment number</i>)
Please see attached Excel Sheet					
Survey Address (<i>Not required if Street Information is provided</i>)					
Lot and Conc.: used to indicate location within a subdivided township and consists of a lot number and a concession number.			Part and Reference: used to indicate location within unorganized territory, and consists of a part and a reference plan number indicating the location within that plan. Attach copy of the plan.		
Lot	Conc.		Part	Reference Plan	
Location Information (<i>includes any additional information to clarify physical location</i>)(e.g. municipality, ward/ township)					
Bruce County, 3 km from Lake Huron, approximately 2 km northeast of Kincardine, Ontario					
Geo Reference (<i>e.g. southwest corner of property</i>)					
Map Datum	Zone	Accuracy Estimate	Geo Referencing Method	UTM Easting	UTM Northing
NAD83	UTM17	+/-15m		464331.0694	4886321.0399

Project Phasing (<i>outline construction, operation and decommissioning activities</i>)
<p>Site Preparation and Construction Activities</p> <ul style="list-style-type: none"> • Delineation of temporary work areas; • Upgrading of existing access roads and the construction of new access roads; • Site grading as necessary; • Preparation and establishment of construction staging areas; • Preparation of the collector substation laydown area; • Delivery of construction vehicles and equipment; • Installation of wind turbine foundations; • Installation of crane pads and turbine laydown areas; • Erection of wind turbines; • Installation of pad-mounted transformers; • Installation of electrical collector lines on private lands; • Installation of electrical collector lines in municipal road allowances; • Construction of collector substation and grid connection; • Construction of operations and maintenance building; and • Reclamation of turbine laydown areas, construction staging area, and collector substation laydown area <p>Operations and Maintenance Activities</p> <ul style="list-style-type: none"> • Preventative and unplanned maintenance for Project components; • Meter calibrations; • Remote operation of the wind turbines; • Electrical collector line maintenance; and

- Grounds maintenance in the vicinity of Project components

Decommissioning Activities

- Disassembly and removal of wind turbine infrastructure;
- Removal of pad-mounted transformers;
- Reclamation of access roads (at landowners discretion);
- Removal of electrical collector lines on private lands (at landowners discretion);
- Removal of electrical collector lines in municipal road allowances (at discretion of the Municipality of Kincardine);
- Disconnection of the collector substation;
- Disassembly and removal of collector substation infrastructure; and
- Disassembly and removal of operations and maintenance building infrastructure (at landowners discretion).

1.2 - Environmental Context

Describe any negative environmental effects that may result from engaging in the project (*consider construction, operation and decommissioning activities.*)

Archaeological Resources

- It is possible that the Project area contains archaeological resources that if present, could be disturbed or damaged during the site preparation and construction of the Project. SP Ontario is currently completing a Stage 1 Archaeological Assessment of the Project area which will determine if there are any areas of archaeological potential present. The Stage 1 Archaeological Assessment is largely a desktop review of available archaeological information, but also includes a visit to the Project area.
- Should areas with archaeological potential be identified, a more detailed Stage 2 investigation will be undertaken by qualified archaeologists to confirm the presence of archeologically significant resources.

Natural Heritage

- During site preparation and construction of the Project, typical activities include land clearing, access road construction, foundation construction, and the installation of electrical collector lines between wind turbines and the collector substation. Collectively these activities have the potential to affect natural features including aquatic and terrestrial habitats, individual species or specific life stages or activities (e.g., nesting birds).
- Land clearing and site grading near watercourses has the potential to increase sediment runoff, decrease bank stability, and alter riparian vegetation conditions affecting aquatic habitats.
- The noise associated with heavy machinery and construction activities could result in sensory disturbance and, under exceptional circumstances, habitat alienation, displacement, or desertion. This concern is particularly relevant for birds (desertion of nests, eggs, or young). However, the level of activity and noise may not be dissimilar from seasonal noise conditions at the site (e.g., agricultural machinery) and the timing of construction is therefore relevant in the effects assessment.
- The creation of dust can coat vegetation in the Project area.
- Turbine operations have the potential to displace some wildlife individuals as a result of sensory disturbance (visual and/or aural). If turbines are situated far too close to their habitats, turbine operations have the potential to displace birds, cause nest abandonment and stress, impart hazards along avian flight paths, and could result in reduced breeding success within the specific adjacent habitats present, when these habitats are being utilized. The hazard that wind turbines pose to birds varies substantially by season and by species, with spring and fall migration typically being the periods of highest risk for many species.
- Bat mortality has been documented at operational wind development projects in southwestern Ontario and elsewhere and the mortalities have often been attributed to in-flight collisions with wind turbine blades or the tower structures and, more recently, to barotrauma. The risk that wind turbines pose to bats varies by season and species, with fall swarming and migration typically being the time of year posing the highest risk. During fall migration, mortality rates have been documented to most often be <4 bats/turbine/year.
- Typical activities of decommissioning such as the removal of Project components, waste and site remediation typically have a low likelihood of occurrence and negligible effects on natural features, wildlife habitat or wildlife species richness or abundance.

Water Bodies

- The construction of watercourse crossings has the potential to negatively affect surface water quality, quantity and flow patterns and natural hazard risks (e.g., flooding, erosion). The extent and magnitude of the potential effects is largely dependant on the characteristics of the watercourse, sensitivity of the fish community and the crossing and mitigation techniques employed.
- Dewatering for turbine foundation construction has the potential to temporarily alter the quantity or the flow of groundwater to a natural feature (watercourses, wetlands, other features with seasonal inundation). In addition, pumping of groundwater from the foundation excavation and subsequent release to a watercourse has the potential to introduce sediment to the watercourse and change watercourse hydrology and water temperature.
- During the site preparation and construction phase of a wind energy project, negative effects to surface or groundwater sources could occur through accidental spills or releases of substances which may contain contaminants.

Air, Odour, Dust

- The Project activities associated with the site preparation and construction phase and the decommissioning phase will lead to emission products, including but not limited to, greenhouse gases (methane, CO₂), nitrogen dioxide, sulphur dioxide, and suspended particles from vehicles and machinery operation. These emissions will fluctuate through the various construction and decommissioning related activities, with access road construction/reclamation, site grading, and preparation/reclamation of staging and laydown areas having the highest potential for emissions because of increased construction or decommissioning equipment activities during this time. In general these emissions will be local, temporary, and minor.
- During the operation of the Project, maintenance activities have the potential to cause infrequent and short-term emissions typical to the operation of motorized vehicles. These emissions are expected to be considerably lower in magnitude than during the site preparation and construction phase and the decommissioning phase.
- The site preparation and construction, operation, and decommissioning of the Project will not involve the management or handling of odorous material. Odour emissions during site preparation and construction and decommissioning will include localized odours from the combustion of diesel fuel associated with the operation of construction equipment. As this is a short-term localized effect and consistent with odours associated with the current operation of farm equipment, this is not deemed to be a significant negative effect.
- Fugitive dust emissions could potentially increase as a result of Project activities during construction and decommissioning related activities due to the increased presence of construction equipment and transport vehicles and ground excavation. Emissions will be highest during staging and laydown area preparation and other activities that involve significant levels of material handling (e.g., upgrading and construction of new access roads, and installation of electrical conductor lines).

Noise

- Activities occurring during construction and decommissioning related activities have the potential to affect noise levels due to the operation of heavy equipment.
- The operation of wind turbines, collector substation and the operations and maintenance building will generate noise.

Local Interests, Land Use, Infrastructure and Resources

- The loss of agricultural lands as a result of the Project represents a potential interaction between the Project and land use; however, because the proportion of land that would be lost to turbines, access roads and other Project infrastructure is so small relative to the size of the agricultural land in Bruce County, this effect is not considered significant and no further assessment on land use will be considered.
- Road capacity and local traffic could be affected during construction and decommissioning related activities. The delivery of construction equipment and Project infrastructure, and construction of new turbine access roads could result in a temporary increase in slower moving traffic volume on local roads. Construction and/or decommissioning related activities next to or in road easements could also result in temporary disruptions to the flow of traffic on some local roads. However, the changes in traffic volume are expected to be minimal and no appreciable change to traffic flow is anticipated as a result of the Project.
- Although agricultural and possibly other business operations and one school are located on or within 300 m of the Project area, by meeting MOE setback distances and through constraint considerations no effects of the Project on these resources are anticipated.
- Areas of Bruce County closer to the Niagara Escarpment are valued for their aggregate resources; however, the Project area does contain two minor pits or quarries in the Concession Road 9 and Side Road 10 areas. Interactions exist between the Project and these natural resources; however, the Project is not likely to have significant adverse effects on the minor current or future use or extraction of natural resources from the Project area.
- Some Saugeen Valley Conservation Authority (SVCA) land is identified near the eastern portions of the Project area. These are areas associated with upstream tributaries and wetlands of various creeks and rivers in the region, and do not represent a major recreational resource in the Project area. A potential interaction exists between the Project and the conservation of these lands. However, by meeting MOE setback distances and through constraint considerations no effects of the Project on these resources are anticipated.
- Locations of existing telecommunications infrastructure and transmission paths will be considered in the Project design, consistent with Radio Advisory Board of Canada (RABC) requirements. Electromagnetic interference represents a potential effect of the Project on telecommunications infrastructure near the Project area.
- Stray voltage from electrical conductor lines on land parcels that contain livestock have been found, in some circumstances, to result in negative health effects to livestock. Stray voltage describes the occurrence of electrical potential between two objects that ideally should not have any voltage difference between them. If livestock comes into contact with two objects (e.g., metal stabling and equipment) that are at different voltage levels then a small electrical current will pass through the livestock. If this current is strong enough then it can lead to adverse health effects.

Public Health and Safety

- Public safety hazards are present on any construction or decommissioning site and require the implementation of appropriate safety measures to prevent incidents from occurring. One such hazard that exists during construction or decommissioning of the Project is the operation of heavy machinery. Typical equipment to be used for construction and decommissioning related activities includes tracked bulldozers, excavators, tipplers and dumpers, mobile cranes for general use and a large tracked crane for tower section, turbine and blade erection or disassembly. Various large truck and trailer combinations will be used to transport the large Project components to the Project area. Additional vehicles will be used for personnel and small equipment transport to and at the site.
- During turbine erection and disassembly, Project workers will be required to work at high elevations on the turbine sections of the tower, nacelle, and rotor and blade assembly. Installation of underground electrical collector lines could pose a risk of injury to

both the public and construction workers during the excavation of trenches.

- Under special meteorological conditions, exposed structures, including wind turbines, can become covered with ice. During the operation of the turbines during these icing conditions, fragments of ice can be thrown off the blades due to aerodynamic and centrifugal forces. Alternatively, they can fall from the turbine when it is shut down or idling without power production.
- Any tall structure has the potential to collapse. There is also a limited potential for wind turbine blade detachment during severe weather conditions. Although both of these scenarios are highly unlikely, these types of failure could pose a hazard to public safety in the vicinity of the Project location.
- Electric and magnetic fields (EMF) are invisible forces that surround any electrical device. On a daily basis, people are continually exposed to EMF at extremely low frequencies (ELF) (3 to 300 Hz). Natural lighting, appliances, fluorescent lighting, power cords, hair dryers or larger outdoor distribution or transmission lines, all represent sources of EMF.
- Shadow flicker is the shadow of the rotating wind turbine blades during periods of bright sunshine. The shadow flicker frequency is related to the wind turbine rotor speed. There are no standards on maximum shadow flicker exposure specified in O. Reg. 359/09. However, the closest non-participating receptor to wind turbine locations for the Project will be no closer than 550 m; therefore the effects of shadow flicker are expected to be negligible.

Propose early avoidance/prevention/mitigation concepts and measures.

Archaeological Resources

- Should archaeological resources be discovered, appropriate mitigation measures will be assessed, which depending on the resource, could include any of the following:
 - Preservation in-situ, requiring changes to the Project layout;
 - Removal and preservation; and
 - Further assessment (i.e., Stage 3 Archaeological Assessment).

Natural Heritage

- Where possible, and in consideration of other constraints, SP Ontario will maintain a 120 metre setback from watercourses or will conduct an EIS that demonstrates that significant residual impacts to aquatic resources will not occur.
- Some vegetation removal may be required if watercourse crossings are required where riparian vegetation is present, however the design will attempt to avoid watercourse crossings.
- Dust effects will be minimized by employing mitigation measures and best management practices such as limiting vehicle speed and watering gravel roads, as necessary.
- Mitigation by design, which is the preferred approach for this Project, recommends that Project infrastructure should be located at an appropriate distance from significant natural heritage features to reduce residual impacts, as may be determined through an EIS.
- Other mitigation techniques commonly employed when components are within, or in proximity to natural heritage features include tree protection fencing, equipment laydown exclusion fencing, silt fencing adjacent to watercourses/wetlands, nesting surveys prior to vegetation clearing, timing construction to avoid sensitive wildlife windows, and adherence to Fisheries and Oceans Canada (DFO's) Operational Statements for crossing techniques.
- A multitude of other guidance documents exist which may be used to further reduce the magnitude, extent or duration of effects.
- It is anticipated that no lands, other than those originally cleared during site preparation and construction, will be disturbed during decommissioning and where these lands are disturbed they can be rehabilitated to functional conditions using conventional techniques.

Water Bodies

- If the watercourse is determined to be fish habitat, the crossing technique first considered will be from a DFO Operational Statement such that a fish and fish habitat review will not be required. Any other technique used in fish habitat that does not conform to a DFO Operational Statement will require a fish and fish habitat review.
- Implementation of mitigation measures and best management practices associated with the use of construction equipment in the Project area (i.e., contained re-fuelling areas) will reduce the chances of accidental spills of contaminants.

Air, Odour, Dust

- Emissions products will be managed to the extent possible by implementing specific measures, including:
 - Ensure proper maintenance of all vehicles, to reduce the potential for abnormal operation and increases in emissions;
 - Implementation of a speed limit; and
 - Implementation of rules regarding idling of engines, to limit idling of vehicles as much as possible.
- Fugitive dust emissions will be managed by the implementation of Best Management Practices (BMPs), which will help reduce the potential for dust generation and off-site movement. The main items included in the BMP plan are as follows:
 - Implementation of a speed limit, which will lead to reduced disturbance of dust on paved and unpaved surfaces;
 - Application of dust suppressants to unpaved areas (i.e., unpaved roads, storage piles), which may include the use of water. The frequency of application will be determined based on site conditions during the construction process, and will be adjusted based on climatic factors;
 - Land clearing and heavy construction activities will be staged to reduce the opportunity of simultaneous operation of large dust generating equipment;
 - Re-vegetation of cleared areas, as soon as possible, and maintenance of the vegetation to ensure growth;

- If possible, the installation of wind fences in areas where they may be required; and
- Implementation of a complaint response program, whereby complaints received from the public are recorded and investigated. The investigations should be focused on determining the cause of the complaint and, if necessary, mitigation measures should be implemented.

Noise

- All activities will be carried out in compliance with Bruce County noise by-laws. All construction and decommissioning equipment will be kept in good repair and will not exceed the noise emissions as specified in MOE publication NPC-115. Through adherence to MOE noise guidelines, construction and decommissioning-related noise may be perceptible to nearby residents but will not represent a significant adverse effect.
- As required by O. Reg. 359/09, turbines will be located a minimum of 550 m from non-participating receptors (i.e., sensitive Points of Reception). Predictive modelling will be completed and reported in a Noise Study Report in order to demonstrate that the operation of the Project complies with MOE noise guidelines. Through adherence to MOE noise guidelines as identified in O. Reg. 359/09, MOE has determined that operations-related noise may be perceptible to nearby residents, but will not represent a significant adverse effect.
- This conclusion is reinforced by a report prepared by the Chief Medical Officer of Health and in consultation with the Ontario Agency for Health Protection and Promotion, the Ministry of Health and Long-Term Care and the Council of Ontario Medical Officers of Health. The report concluded that the scientific evidence does not demonstrate any causal link between wind turbine noise and adverse health effects.

Local Interests, Land Use, Infrastructure and Resources

- If a traffic management plan is required by local governments (Municipality or County), such a plan will be prepared by SP Ontario in consultation with local governments. The construction contractor and/or turbine manufacturer would oversee the implementation of the traffic management plan during the detailed Project design phase, which may include measures such as signage, road closures, speed restrictions, truck lighting, load restrictions and equipment inspections.
- The RABC will be consulted with regards to existing telecommunications services and the Project's potential to impact these services.
- The potential for stray voltage is not unique to wind power facilities, as it can be produced by a wide variety of off-farm (e.g., Hydro One's ground conductors) and on-farm sources (e.g., poor or faulty farm wiring). However, the Project will adhere to the appropriate electrical and distribution codes in order to minimize the risk of stray voltage.
- Ongoing efforts are being made by Hydro One to address stray voltage for a number of off-farm and on-farm stray voltage sources. Stray voltage can be minimized or prevented by utilizing proper farm wiring practices. If livestock symptoms are suspected to be the result of stray voltage, then in addition to considering and investigating nonelectrical farm factors (e.g., disease) then qualified professionals can measure and eliminate stray voltage if it is occurring.

Public Health and Safety

- In order to ensure public safety for the duration of the site preparation and construction, the turbine manufacturer or the construction contractor will ensure that the following safety measures are implemented as appropriate:
 - Appropriate warning signage;
 - Speed restrictions;
 - Road closures;
 - Vehicle lighting;
 - Safety fencing surrounding trenches, or work space, as necessary; and
 - Traffic direction.
- Through consultation with Bruce County, SP Ontario will ensure that emergency response services are prepared to respond to any unique, albeit unlikely, emergencies related to construction or decommissioning of the Project (e.g., high elevation rescue).
- In order to mitigate the potential effect of ice throw, wind turbines for the proposed Project will be located on private property, and meet (at a minimum) the setback distances from receptors (550 m) and roads (blade length plus 10 m) outlined in O. Reg. 359/09. During the operation of the Project, sensors located on the turbines will be able to detect ice build-up and turbines will be shut down during unsafe operating conditions. By meeting the MOE setback distances and incorporating operational mitigation measures the risk of injury from ice throw or falling ice is considerably reduced.
- In the unlikely event of structural collapse or blade detachment, equipment will fall within a very small diameter due to the weight of the wind turbine components. In addition, wind turbine siting for the proposed Project will meet (at a minimum) the setback distances from roads (blade length plus 10 m) and residences (550 m) outlined in O. Reg. 359/09. Meeting these setback distances will considerably reduce the risk of injury from wind turbine collapse or blade detachment.
- The generation of electrical fields from underground electrical collector lines from the Project will be shielded by line insulation and the surrounding ground, but will still generate magnetic fields. Associated magnetic fields will be similar to other buried distribution lines in Ontario.

1.3 - Renewable Energy Generation Facility

Type of Facility / Operation (select all that apply & complete all appropriate sections)

<input checked="" type="checkbox"/>	Wind Facility (Land Based)	<input type="checkbox"/>	Biofuel Facility
<input type="checkbox"/>	Wind Facility (Off-Shore)	<input type="checkbox"/>	Solar Photo Voltaic Facility
<input type="checkbox"/>	Biogas Facility (Anaerobic Digesters)	<input type="checkbox"/>	Other Describe :
<input type="checkbox"/>	Biomass Facility (Thermal Treatment)	<input checked="" type="checkbox"/>	Class (if applicable) : 4

Name Plate Capacity	Expected Generation	Service Area	Total Area of Site (hectares)
180 MW	Approximately 473,040 MWh/year	B22 Circuit	18,800

Provide a description of the facilities equipment or technology that will be used to convert the renewable energy source or any other energy source to electricity.

Wind Turbine Generators

- The Project will utilize large scale commercial wind turbines ranging from 1.5 MW – 2.5 MW of generating capacity. The make and model of the turbine are undecided at this time and will depend upon considerations such as on-site conditions, availability/supply and local content requirements.
- The wind turbine nacelle includes the electric generator, gearbox, wind direction and speed sensors, and auxiliary equipment. These components are located at the top of a supporting tower and are connected to three blades and a hub via a main shaft.

Pad Mounted Transformers

- A pad-mounted transformer will be located immediately adjacent to each wind turbine. This transformer ‘steps-up’ the electricity generated by the wind turbine (690 V) to a common electrical collector line voltage (34.5 kV).

Electrical Collector Lines

- Electrical collector lines carry the electricity from the pad-mounted transformers to the Project substation (described below). The electrical collector lines will be an underground 34.5 kV standard utility generator line on private property, where applicable, from the turbines to the Kincardine Municipality public road allowance. Within the municipal public road allowance the electrical collector lines will remain underground or may be switched to aboveground. If aboveground electrical collector lines are required they will be constructed on single wooden pole structures that are similar to existing electrical distribution lines in the Project area.
- Where possible, underground electrical collector lines will be installed within the access road disturbance area in order to minimize the area of disturbed land. Underground electrical collector lines will be buried at a depth of approximately 3 m.

Collector Substation

- A collector substation is required to bring together all of the underground and aboveground electrical collector lines. The collected power will be transformed from the electrical collector line voltage (34.5 kV) to a transmission voltage (230 kV). The collector substation will be located adjacent to a Hydro One transmission corridor and therefore no transmission lines will be required for the Project.
- The collector substation will be constructed on a raised pad or a prepared base of engineered fill to a depth of approximately 0.6 m. The substation will comply with the requirements of O. Reg. 359/09 by including a 20 kg/m² acoustic barrier that breaks the line of sight with any noise receptors and is located at a distance of at least 500 metres from the nearest noise receptor.
- Collector substation equipment will include an isolation switch, circuit breaker, step-up power transformer, distribution switch-gear, instrument transformers, grounding, and revenue metering. Substation grounding will follow the Canadian Electrical Code (CEC). An oil containment system will be installed at the site to prevent soil contamination in the event of a leak.

1.4 – Renewable Energy Generation Activities

Describe the activities that will be engaged in as part of the renewable energy project

Waste Generation

- All waste generated during the lifespan of the Project (i.e., construction to decommissioning) will be transported from the Project location. Waste materials generated during the site preparation and construction phase are anticipated to include excess fill, soil, brush, scrap wood, metal, steel, plastic, packaging, grease, oil, and domestic waste. Decommissioning activities will likely result in the generation of similar waste materials.
- Project operation and maintenance will result in waste materials such as oil, grease, batteries, air filters, and domestic waste. The amount of oil and grease stored on the Project site will depend of the disposal service schedule. All oil disposals will be completed by a certified contractor. The operations and maintenance building will generate recyclable and domestic waste, consistent with a typical office.

Air, Odour and Dust

- The Project activities associated with the site preparation and construction phase and the decommissioning phase will lead to emissions, including but not limited to, greenhouse gases (methane, CO₂), nitrogen dioxide, sulphur dioxide, and suspended

particles from vehicles and machinery operation. These emissions will fluctuate through the various construction and decommissioning related activities, with access road construction/reclamation, site grading, and preparation/reclamation of staging and laydown areas having the highest potential for emissions because of increased construction or decommissioning equipment activities during this time. During the operations phase of the Project, maintenance activities will result in emissions from the operation of motorized vehicles.

- The site preparation and construction, operations, and decommissioning phases of the Project will not involve the management or handling of odorous material. Odour emissions during the site preparation and construction phase and the decommissioning phase will include localized odours from the combustion of diesel fuel associated with the operation of construction equipment.
- Fugitive dust emissions could potentially increase as a result of Project activities during the site preparation and construction phase and the decommissioning phase due to the increased presence of construction equipment and transport vehicles and through the loss of vegetation. Emissions will be highest during staging and laydown area preparation and other activities that involve significant levels of material handling (e.g., upgrading and construction of new access roads, and installation of electrical conductor lines).

Toxic/Hazardous Materials

- There is very little material that could be classified as toxic or hazardous that is used in constructing and operating a wind farm project. Toxic or hazardous materials to be used on-site during the site preparation and construction phase and the operations phase include oils, fuel and lubricants that will be used in construction equipment and for maintenance of the turbine facilities. Only minor amounts of these materials will be generated and the small quantities will be disposed of through conventional waste-oil and hazardous waste disposal streams.
- Small quantities of non-hazardous waste, such as plastics, will be generated and disposed of through the local landfill and recycling facilities where appropriate. Wastes will be disposed of locally in accordance with local procedures for management of conventional waste-oil and hazardous waste streams. A licensed contractor will remove special waste such as oily rags and oil from the service of turbines. All non-hazardous waste will be disposed of at the local waste facilities at the local landfill. Materials that are able to be recycled and reused will be stored temporarily on-site prior to reuse and recycling.

Sewage

- Portable toilets will be utilized during the site preparation and construction phase and a licensed contractor will be responsible for waste removal. The operations and maintenance building for the Project will include rest rooms that will be designed, constructed, and serviced in accordance with required regulations.

Stormwater

- During the site preparation and construction phase and the decommissioning phase of the Project, proper site grading that will reduce the potential for runoff will be carried out. The discharge of untreated runoff from Project work areas will be prevented through the implementation of swales and erosion control berms, where required.
- During the operations phase of the Project, runoff will be directed to swales to ensure that no untreated runoff is discharged from the Project area. Stormwater management plans for the collector substation and the operations and maintenance building will be developed through the REA process and summarized in a subsequent version of this Report.

Water-taking Activities

- Dewatering for the installation of wind turbine foundations has the potential to temporarily alter the quantity or the flow of groundwater to a natural feature (watercourses, wetlands, other features with seasonal inundation). In addition, pumping of groundwater from the foundation excavation and subsequent release to a watercourse has the potential to introduce sediment to the watercourse and change watercourse hydrology and water temperature.
- Site preparation and construction activities that may encounter groundwater include the installation of wind turbine foundations, access roads, underground electrical collector lines, collector substation, and operations and maintenance building. It is possible that dewatering may be required during these Project activities. All water pumped during dewatering activities will be directed away from natural features. The potential for dewatering activities to require a Permit to Take Water or Certificate of Approval from the Ministry of Environment, which will be evaluated through the REA process for the Project.

Section 2 – Supporting Documents

2.1 – Requirement	Name of Draft documents distributed for consultation	Date available to Municipal or Local Authority Contact
DRAFT Project Description Report	Draft Project Description	November 8, 2011
DRAFT Design and Operations Report		
DRAFT Construction Plan Report		
DRAFT Decommissioning Plan Report		
List of other Documents		

Location where written draft reports can be obtained for public inspection *(physical location for viewing and the applicants project website if one is available):*

Tiverton and Kincardine branches of the Bruce County Public Library (56 King Street, Tiverton and 727 Queen Street, Kincardine)
Bruce County and Kincardine municipal offices (30 Park Street, Walkerton and 1475 Concession 5, R.R. #5, Kincardine)

Section 3 – Applicant Address and Contact Information

3.1 - Applicant Information <i>(Owner of project/facility)</i>				
Applicant Name <i>(legal name of individual or organization as evidenced by legal documents)</i>			Business Identification Number	
SP Armow Wind Ontario LP			849687488	
Business Name <i>(the name under which the entity is operating or trading - also referred to as trade name)</i>			<input checked="" type="checkbox"/> same as Applicant Name	
Civic Address- Street information <i>(includes street number, name, type and direction)</i>			Unit Identifier <i>(i.e. apartment number)</i>	
55 Standish Court, 9 th Floor				
Survey Address <i>(Not required if Street Information is provided)</i>				
Lot and Conc.: used to indicate location within a subdivided township and consists of a lot number and a concession number. <div> <div>Lot</div> <div>Conc.</div> </div>		Part and Reference: used to indicate location within an unsubdivided township or unsurveyed territory, and consists of a part and a reference plan number indicating the location within that plan. Attach copy of the plan. <div> <div>Part</div> <div>Reference Plan</div> </div>		
Municipality	County/District	Province/State	Country	Postal Code
Mississauga		Ontario	Ontario	L5R 4B2

PART B: TO BE COMPLETED BY THE MUNICIPALITY OR LOCAL AUTHORITY

Section 4 - Municipal or Local Authority Contact Information (check the one that applies)

Local Municipality <i>(include each local municipality in which project location is situated)</i> <input type="checkbox"/> Yes <input type="checkbox"/> No					
Name of Municipality	Address	Phone	Clerk's Name	Clerk's Phone/Fax	E-Mail Address
Upper Tier Municipality <i>(include each upper tier municipality in which project location is situated)</i> <input type="checkbox"/> Yes <input type="checkbox"/> No					
Name of Municipality	Address	Phone	Clerk's name	Clerk's Phone/Fax	E-Mail Address
Local roads area <i>(include each local roads area in which project location is situated)</i> <input type="checkbox"/> Yes <input type="checkbox"/> No					
Name of local roads board	Address	Phone	Secretary-treasurer's Name	Secretary-treasurer's Phone/Fax	E-Mail Address
Board Area <i>(include each board area in which project location is situated)</i> <input type="checkbox"/> Yes <input type="checkbox"/> No					
Name of Local Service Board	Address	Phone	Secretary's name	Secretary's Phone/Fax	E-Mail Address

Section 5: Consultation Requirement

5.1 - Project Location
Provide comment on the project location with respect to infrastructure and servicing.
5.2 – Project Roads
Provide comment on the proposed project's plans respecting proposed road access.
Identify any issues and provide recommendations with respect to road access
Provide comment on any proposed Traffic Management Plans
Identify any issues and provide recommendations with respect to the proposed Traffic Management Plans

5.3 – Municipal or Local authority Service Connections
Provide comment on the proposed project plans related to the location of and type of municipal service connections, other than roads.
Identify any issues and provide recommendations with respect to the type of municipal service connections, other than roads.
5.4 – Facility Other
Identify any issues and recommendations with respect to the proposed landscaping design for the facility
Provide comment on the proposed project plans for emergency management procedures / safety protocols.
Identify any issues and recommendations with respect to the proposed emergency management procedures / safety protocols.
Identify any issues and recommendations with respect to any Easements or Restrictive Covenants associated with the Project Location
5.5 Project Construction
Identify any issues and recommendations with respect to the proposed rehabilitation of any temporary disturbance areas and any municipal or local authority infrastructure that could be damaged during construction.
Identify any issues and recommendations with respect to the proposed location of fire hydrants and connections to existing drainage, water works and sanitary sewers
Identify any issues and recommendations with respect to the proposed location of buried kiosks and above-grade utility vaults

Identify any issues and recommendations with respect to the proposed location of existing and proposed gas and electricity lines and connections
Provide comment on the proposed project plans with respect to Building Code permits and licenses.
Identify any issues and recommendations related to the identification of any significant natural features and water bodies within the municipality or territory.
Identify any issues and recommendations related to the identification any archaeological resource or heritage resource.

LOT	CONCESSION
LT 12	CON 4
PT LT 13-15	CON 4
LT 6	CON 5
PT LT 16	CON 5
LT 13	CON 10
PT LT 1	CON 9
PT LT 1	CON 10
LT 19	CON 11
PT LT 17-18	CON 10
LT 19	CON 5
PT LT 22	CON 10
PT LT 21	CON 10
PT LT 21-22	CON 9
PT LT 23-25	CON 10
PT LT 24	CON 12
PT LT 22	CON 11
LT 13,	CON 6
PT LT 11-13	CON 5
PT LT 13-14	CON 7
PT LT 37-40	CON 3
PT LT 19	CON 4
PT LT 23	CON 9
LT 6	CON 6
LT 3	CON 8
PT LT 25	CON 12
PT LT 26-28	CON 9
PT LT 33-34	CON 9
PT LT 27	CON 11
PT LT 23	CON 7
PT LT 27	CON 10
LT 27	CON 8
PT LT 25	CON 6
PT LT 26	CON 6
PT LT 28	CON 11
LT 24-25	CON 7
PT LT 28	CON 8
PT LT 24	CON 6
LT 28	CON 7
LT 27	CON 6
PT LT 26	CON 10
PT LT 28-29	CON 10
PT LT 29	CON 11
PT LT 25	CON 9
LT 6	CON 10
PT LT 21	CON 5
PT LT 22	CON 5

PT LT 21	CON 6
PT LT 28	CON 6
LT 6-7	CON 8
LT 6-7	CON 8
LT 9-10	CON 4
LT 19-20	CON 3
PT LT 3-5	CON 9
PT LT 4-5	CON 10
LT 10	CON 5
LT 6	CON 9
PT LT 18	CON 10
LT 19	CON 12
LT 12	CON 10
LT 20	CON 12
LT 28	CON 3
LT 22-23	CON 3
LT 29	CON 5
PT LT 26	CON 5
LT 32	CON 3
PT LT 36-38	CON 3
LT 29-30	CON 3
LT 31	CON 3
PT LT 35	CON 3
PT LT 33-34	CON 3
PT LT 16	CON 4
PT LT 17-18	CON 4
LT 10	CON 12
PT LT 10	CON 12
PT LT 48-50	CON 3
LT 27	CON 4
PT LT 27	CON 5
LT 15	CON 10
LT 34	CON 8
PT LT 35	CON 8
PT LT 47	CON 3
LT 43-46	CON 3
PT LT 21-22	CON 9
PT LT 29	CON 12
PT LT 27-28	CON 1
PT LT 33	CON 7
PT LT 24-25	CON 8
PT LT 6-7	CON 2
PT LT 14-15	CON 2
PT LT 15	CON 3
LT 16	CON 2
LT 14	CON 11
LT 14	CON 10

PT LT 23	CON 6
LT 5	CON 7
PT LT 6-8	CON 2
PT LT 15	CON 2
PT LT 32	CON 11
PT LT 1	CON 6
LT 26	CON 3
PT LT 27	CON 2
PT LT 26	CON 2
PT LT 11	CON 3
LT 29	CON 8
LT 22	CON 2
PT LT 26	CON 1
LT 22-23	CON 2
PT LT 29	CON 1
PT LT 29-30	CON 9
LT 14	CON 11
PT LT 30	CON 3
PT LT 27	CON 3
PT LT 34	CON 2
PT LT 14	CON 9



COUNTY OF BRUCE

PLANNING & ECONOMIC DEVELOPMENT DEPARTMENT

☐ Box 848, 30 Park Street, Walkerton, Ontario N0G 2V0 (519) 881-1782 Fax (507-3030)
☒ Box 129, 578 Brown Street, Wiarton, Ontario N0H 2T0 (519) 534-2092 Fax (534-1174)
Chris LaForest, MCIP Director

Mr. Brian Edwards, Project Developer
Samsung Renewable Energy Inc.
55 Standish Court
Mississauga, Ontario
L5R 4B2
Tel: 905-501-5667

November 28, 2011

RE: SP Armow Wind Ontario LP – Renewable Energy Approval Municipal Consultation

Dear Mr. Edwards,

The County of Bruce has begun a review of the Draft Project Description Report (November 2011) document submitted for the above noted project.

Staff have noted that it is not possible to make informed comments to the Ministry of Environment due to the lack of specific information on a variety of issues including County roadway access/safety. We hereby request that Armow Wind Ontario provide the information as outlined in the enclosed document 'County of Bruce Wind Energy Application Requirements, April 2009'.

If we do not receive information at an appropriate scale we will be noting to MOE in our comments that based on the inadequacy of the information submitted that:

- a) It is not possible to evaluate the safety of new entrances from the County roadway system;
- b) It is not possible to evaluate traffic management issues as a result of any new entrances from the County roadway system;
- c) It is not possible to provide recommendations with respect to the proposed Traffic Management Plan;
- d) It is not possible to provide comments on proposed landscaping due to the scale of the information provided;
- e) It is not possible to provide comments on any County easements or restrictive covenants based on the scale of the information provided;
- f) It is not possible to comment on aboveground transmission lines, if proposed, along the County roadway system.

If you have any questions or require clarification please contact me at your convenience.

Yours truly,

David Smith
Senior Planner
County of Bruce

c.c. Chris Laforest, Director Planning & Economic Development, County of Bruce
Agriculture, Tourism & Planning Committee, County of Bruce
Brian Knox, Director of Highways, County of Bruce
Municipality of Kincardine



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Chris LaForest, MCIP Director

County of Bruce Wind Energy Application Requirements April 2009

The intent of this document is to indicate to prospective developers of wind energy in the County of Bruce the County's preferred policies in regards to the development of the wind resource in the County. These policies are in addition to any guidance that may be given to a wind energy developer by a lower tier municipality.

Section 62.0.2 of the Planning Act RSO 1990 as amended exempts renewable energy projects, including wind energy projects, from the provisions of the Planning Act R.S.O. 1990 as amended, including those sections of the Planning Act dealing with official plans, zoning by-laws and subdivision/lot creation.

The County of Bruce considers wind energy to be an abundant, renewable and non-polluting energy resource, and therefore supports opportunities that convert the kinetic energy of the wind into a usable form.

Wind Energy Conversion Systems (WECS) are mechanical devices (commonly known as wind turbines) that are designed to convert wind energy into electricity. These systems can occur as Micro, Small, Medium or Large scale systems and are defined as follows:

Type	Total Swept Area (TSA) in Square Metres (sq. m.)	Rotor Diameter in Metres (m.)
Micro Wind Energy Conversion System (MWECS)	≤40 sq. m.	≤7.1 m.
Small Wind Energy Conversion System (SWECS)	>40 sq. m. and ≤350 sq. m.	>7.1 m. and ≤21.1 m.
Medium Wind Energy Conversion System (MdWECS)	>350 sq. metres and ≤2827 sq. m.	>21.1 m. and ≤60 m.
Large Wind Energy Conversion System (LWECS)	Total Swept Area of more than 2827 square metres [rotor diameter of more than 60 metres] OR a Rated Power Output of two megawatts (2 MW) OR constitutes part of a Project that meets the requirements for an Environmental Screening Report (ESR) regardless of Total Swept Area or Rated Power Output.	

"Total Swept Area (TSA)" is defined as the area through which the rotor blades of a wind turbine spin as seen when directly facing the center of the rotor blades as calculated by the equation $[TSA = \pi \times (\text{rotor diameter}/2)^2]$.

"Rated Power Output" is defined as the power produced by a wind turbine at the rated wind speed.

For the purposes of this Official Plan "WECS - Total Height" means the distance from the base of a tower and/or the base of a supporting structure to the furthest vertical extension of any blade.

For the purposes of this Official Plan, wind turbine, wind generating system, and wind energy conversion system shall have similar meaning.

1. Micro and Small Wind Energy Conversion Systems

.1 A Micro Wind Energy Conversion System (MWECS) shall be a permitted use in all land use

designations of the County of Bruce Official Plan. The local Comprehensive Zoning By-law shall establish the following regulations to allow for 'as of right' use for MWECS subject to the following policies:

- i) On a lot having a lot area of 0.1 hectare (0.25 ac.) or less, the maximum "WECS – Total Height" shall be no more 25 metres (80 ft.).
- ii) On a lot having a lot area of more than 0.1 hectare (0.25 ac.), there shall be no maximum "WECS - Total Height".
- iii) A MWECS shall not exceed the height recommended by the manufacturer or distributor of the wind turbine.
- iv) Any other provision or policy as required by the local municipality regulating setbacks, noise, engineering standards, anchor points etc.

.2 A Small Wind Energy Conversion System (SWECS) shall be a permitted use in all land use designations of the County of Bruce Official Plan with the exception of a 'Hazard Land Area' designation. The local Comprehensive Zoning By-law shall however establish the following regulations to allow for 'as of right' use for SWECS only in a 'Agriculture', 'Rural', 'Major Open Space' or 'Travel Trailer Park and Commercial Campground' designation subject to the following policies:

- i) There shall be no maximum "WECS - Total Height".
- ii) Setbacks for a SWECS mounted on a stand-alone or guy-wired tower shall be no less than the "WECS - Total Height" from all lot lines and shall be measured from the base of the tower.
- iii) A SWECS shall not exceed the total height recommended by the manufacturer or distributor of the wind turbine.
- iv) A SWECS shall be setback a minimum of 90 metres (295 ft.) from the closest residential or similar noise sensitive use.
- v) The minimum setback between a SWECS and the boundary of a vacant lot 1.0 hectares in area or smaller that has been zoned by the local municipality to permit residential or similar noise sensitive uses shall be 90 metres (295 ft.). For lots greater than 1.0 hectares in area that have been zoned by the local municipality to permit residential or similar noise sensitive uses, a SWECS shall be located such that there remains a minimum of 1.0 hectare of developable land with frontage on a open and maintained municipal roadway on the vacant lot that will be located more than 90 metres away from the SWECS.
- vi) Any other provision or policy as required by the local municipality regulating setbacks, noise, engineering standards, anchor points etc.

2. Medium and Large Wind Energy Conversion Systems (MdWECS/LWECS)

Given their usually large size and space requirements, it is anticipated that MdWECS and LWECS will tend to locate outside of urban areas. A MdWECS or LWECS, however, are considerably different from the typical uses located in an urban, agricultural or rural area and therefore the County feels that it is important to carefully control the establishment of these medium and large scale systems in order to ensure the compatibility of the land use with neighbouring uses and to ensure the safety of the general public.

.1 Policies – MdWECS and/or LWECS

A MdWECS and/or LWECS shall be subject to the following policies:

.1 Medium and/or Large Wind Energy Conversion Systems may be permitted only by a site specific amendment to the local Comprehensive Zoning By-Law but shall not require an amendment to the County Official Plan provided the policies of this Section are adhered to.

A MdWECS and/or LWECS shall be a permitted use only on lands designated 'Agriculture', 'Rural', or 'Major Open Space' in the County of Bruce Official Plan. A MdWECS and/or LWECS shall be permitted in other designations as described in this Plan i.e., 'Primary Urban Community', 'Secondary Urban Community', 'Hamlet', 'Rural Recreational Area' etc. without an amendment to this Plan provided that: i) a local Official Plan permits the use; or ii) an Amendment to this Official

Plan and/or local Official Plan has been approved.

.2 Setbacks for a MdWECS and/or LWECS shall be in accordance with the following:

- i) The minimum setback between a MdWECS and/or LWECS and the boundary of lands designated 'Rural Recreational Area', 'Primary Urban Community' or 'Secondary Urban Community' in the County of Bruce Official Plan or local Official Plan shall be 700 metres from any turbine.*
- ii) The minimum setback between a MdWECS and/or LWECS and the boundary of lands designated 'Hamlet', 'Inland Lake Residential' or 'Estate Residential' in the County of Bruce Official Plan or local Official Plan shall be 600 metres from any turbine.*
- iii) The minimum setback between a MdWECS and/or LWECS and a 'Rural Residential Cluster' shall be 500 metres from any turbine. A 'Rural Residential Cluster' means four (4) or more residential lots, the four (4) or more lots being an average of 0.8 hectares (2 acres) or less in total lot area, that share a common boundary including lots located directly across a roadway from one another. Measurements shall be taken as the shortest distance between the lot line of the closest lot to a proposed MdWECS and/or LWECS and the closest edge of a turbine.*
- iv) The minimum setback between a MdWECS and/or LWECS and the boundary of lands designated 'Travel Trailer Park and Commercial Campground' in the County of Bruce Official Plan or local Official Plan shall be 400 metres from any turbine. Measurements shall be taken as the shortest distance between a zone line designating a 'Travel Trailer Park and Commercial Campground' and the closest edge of a turbine.*

.3 A Large Wind Energy Conversion System shall be subject to Site Plan Control. A Medium Wind Energy Conversion System may be subject to Site Plan Control.

.4 The Shadow Flicker from a MdWECS and/or LWECS experienced at any sensitive non-participatory receptor within 1000 metres of a MdWECS and/or LWECS shall not exceed a maximum of 30 hours per year or a maximum of 30 minutes per day as a result of the operation of the MdWECS and/or LWECS. Shadow flicker calculations shall be based on 'worst case scenario' in that prevailing weather and/or cloud cover conditions shall not be taken into consideration. Mitigation of shadow flicker shall not be considered.

A 'sensitive receptor' shall be defined as including one or a combination of:

- residences or facilities where people sleep (e.g.: single and multi-unit dwellings, nursing homes, hospitals, trailer parks, camping grounds, etc.), or*
- institutional facilities (e.g.: schools, churches, community centres, day care centres, recreational centres, etc.), or*
- outdoor public recreational areas (e.g.: trailer parks, play grounds, picnic areas, etc.), or*
- other outdoor public areas where there are continuous human activities (eg: commercial plazas and office buildings).*

'Non-participatory' shall be defined as an abutting landowner that has not signed an option agreement and/or lease/easement agreement that: a) permits the erection of a MdWECS and/or LWECS; or b) permits the construction of project infrastructure i.e., access roads and/or electricity transmission line on lands abutting a proposed MdWECS and/or LWECS.

.5 All LWECS shall have a 'Type Certification/Type Certificate' (international standards issued by the International Electrotechnical Commission IEC) from a certified approval body indicating conformity with national and/or international standards. A Project shall implement only turbines that have achieved type certification by a reputable and experienced third party verification institute such as DNV, GL, Risø, WindTest, etc. with a demonstrated design life of at least 20 years.

.6 All MdWECS and/or LWECS shall be planned in a way that no more than 25% of a neighbouring non-participatory landowner's lot/parcel shall be impacted by a potential noise exposure from a

turbine(s) that will be greater than that allowed by the MOE for a sensitive receptor.

- .7 Setbacks from road allowances, lot lines, structures (on-site and off-site), and maximum height provisions shall be established in the site specific Comprehensive Zoning By-law amendment.
- .8 Climatic conditions are the principal location criteria for wind turbines. A LWECS is permitted in the Rural and Agricultural designations but are encouraged to locate on lands of lesser agricultural capability where climatic conditions are of a similar nature.
- .9 All MdWECS and LWECS shall be sited in accordance with the requirements of the Ministry of Environment publication PIBS 4709 (Noise Guidelines for Wind Farms - Interpretation for Applying MOE NPC Technical Publications to Wind Turbine Generators, as amended) and MOE NPC-232 (Sound level Limits for Stationary Sources in Class 3 Areas (Rural)) excepting however that the acoustic emissions calculated/observed value for all sensitive receptors shall be increased by 5dB to account for cyclic variation in sound level in accordance with NPC-104, 'Sound Level Adjustments', Ontario Ministry of the Environment.
- .10 All of Bruce County, exclusive of those areas within a defined settlement boundary, shall be considered to be a Class 3 Area in reference to NPC-232.

.2 Submission Requirements – MdWEC and/or LWECS

- .1 Prior to Council approving a site specific Zoning Amendment the owner shall provide the following information to the satisfaction of local Council:

Note: ✓ = Required Submission

*** = Not Required as part of Submission**

		LWECS	MdWECS
	Submission Requirement		
(a)	A Statement of Completion of a Category 'B' - Environmental Screening Process for LWECS that are subject to the Ontario Environmental Assessment Act (EAA) or a MOE Minister or Director decision.	✓	*
(b)	A copy of any federal approval/decision for LWECS that are subject to the Canadian Environmental Assessment Act.	✓	*
(c)	A general description of the project including number of turbines and ancillary infrastructure; summary of wind measurement findings; and proposed duration of the project.	✓	✓
(d)	Make and model of turbines, rated power output, rotor diameter, cut-in and cut-off wind speeds, hub heights, full drawings of turbine and tower with specifications of construction materials, colour and finishes (with specialist advice to suit requirements of the location) manufacturer's certification of noise emission including sound power and narrow band frequency spectrum.	✓	✓
(e)	An assessment of the WECS with reference to the requirements of the Ministry of Environment publication PIBS 4709 (Noise Guidelines for Wind Farms - Interpretation for Applying MOE NPC Technical Publications to Wind Turbine Generators, as amended) and MOE NPC-232 (Sound level Limits for Stationary Sources in Class 3 Areas (Rural)) excepting however that the acoustic emissions calculated/observed value for all sensitive receptors shall be increased by 5dB to account for cyclic variation in sound level in accordance with NPC-104, 'Sound Level Adjustments', Ontario Ministry of the Environment. All of Bruce County, exclusive of those areas within a defined settlement boundary, shall be considered to be a Class 3 Area in reference to NPC-232. A map/figure that shows all lands and sensitive receptors potentially impacted by a >40.0 dB emission level shall be provided. This information should be placed in context in terms of how it affects neighbouring landowners.	✓	✓
(f)	Mathematical modeling of the Shadow Flicker potential for all sensitive non-participatory receptors located within 1000 metres of the proposed WECS. The Application shall indicate how shadow flicker has been calculated and the results of the modeling.	✓	✓
(g)	A description of the visual effect of the proposed LWECS on the locality shall be provided. This shall include at a minimum:	✓	*

	<ul style="list-style-type: none"> the preparation of photo montages to simulate the appearance of the turbines and transmission lines (where applicable) as they would be viewed from key locations including views from both the land, the lakeshore/beach and the lake where relevant; an assessment of the degree to which turbines are likely to affect views from selected locations – to be completed by a landscape architect qualified in landscape character assessment. <p>A detailed 'landscape analysis' or the preparation of a map indicating the 'Zones of Visual Influence' may be required particularly in locations of high landscape quality at the discretion of the County of Bruce.</p>		
(h)	The written approval of Transport Canada and NAV Canada for any WECS proposed to be constructed within 10 km of an airport reference point. For any WECS proposed to be constructed within 10 km of an airport reference point the local airport authority/board must be consulted and details of such consultation provided as part of a Submission.	✓	✓
(i)	Details of proposed method/routing of connections to the grid.	✓	✗
(j)	An indication of whether the proposed development will proceed in stages and, if so, the timing of each stage.	✓	✗
(l)	Cross sections showing existing and proposed ground levels in relation to proposed towers and other structures.	✓	✗
(k)	The Application shall indicate how shadow casting for all sensitive non-participatory receptors located within 500 metres of the proposed WECS has been calculated and the results of the modelling.	✓	✓
(l)	Information regarding possible electromagnetic interference. A survey of installations likely to be affected including radio, television, air and sea transport navigation, microwave transmissions, etc. is to be provided. Facilities shall be installed at the developer's expense to ensure that radio or television transmission in the area is not interfered with by the proposed development. Consultation with the relevant authorities prior to the wind turbines being commissioned should be undertaken. Should pre- and post-testing show impacts, remedial measures will be required.	✓	✓
(m)	A copy of the Ontario Energy Board license or other documentation, indicating that the developer may operate as a licensed electricity generator.	✓	✗
(n)	Detailed construction drawings of the turbine foundations to be filed with the Chief Building Official with confirmation that the turbine foundations have been certified by a professional engineer who holds a recognized engineering licence in Canada.	✓	✗
(o)	An Environmental Management Plan that outlines the construction details, operational and maintenance requirements of the WECS; establishes the manner in which complaints and any required mitigation measures and other required monitoring will be addressed; and a description of the manner in which decommissioning and rehabilitation of the WECS and any ancillary infrastructure i.e., transformer stations will take place.	✓	✓
(p)	<p>A detailed drawing prepared at a scale no less than 1:1,000 showing:</p> <ul style="list-style-type: none"> lot dimensions and lot area; location of each WECS proposed with UTM and/or latitude and longitude of each WECS; contours of the lot at 5 metre intervals or less; setbacks of each WECS from lot lines; proposed setbacks to all buildings and structures on the lot; permanent and/or temporary working areas around each WECS; proposed ancillary facility location including 'lay down/storage areas', substations, roadways (permanent and temporary), underground/aboveground wiring; existing use and location of all buildings and structures on the lot; adjoining roads including type and classification; location of any forested, Hazard or Environmental Protection lands on the lot; any other notable features or characteristics of the lot. <p>A digital file of the above drawing in AutoCAD 14 (dwg or dxf) format referenced to</p>	✓	✓

	<i>NAD83UTM is also to be submitted.</i>		
(q)	<i>A table indicating the setbacks from all sensitive receptors within 500 metres of the proposed LWECS.</i>	✓	✓
(r)	<p><i>The site specific amendment to the Zoning By-Law may provide for a 'H/h' Holding provision as per Section 36 of the Planning Act if required. The 'H/h' Holding provision may address the following requirements in addition to any other requirements as identified by the local municipality:</i></p> <p><i>(i) The submission of an 'Operational Protocol and Emergency Services Plan' outlining the details of the operating protocols including policies for dealing with extreme weather, icing etc. (Operational Protocol) and an emergency services protocols including safety, accident prevention, local emergency services liaison etc. (Emergency Services Plan).</i></p> <p><i>(ii) The registration as per Section 41(10) of the Planning Act RSO 1990 as amended of a 'Site Plan Agreement' as per Section 41(7)(c).</i></p> <p><i>(iii) The submission of 'Information on Construction Period' outlining details of access routes to be used by construction traffic. Details of weight, width and axle loading of vehicles and frequency of special loads. Detailed phased program for the construction period together with estimates of traffic generation (type and volume), ancillary temporary structures required for construction period.</i></p> <p><i>(iv) The provision of 'Financial Assurance'. At the discretion of the local municipality, the developer may be required to lodge with the municipality a cash deposit, a bond, or other security to secure the reinstatement of public roads which maybe damaged by the transport of materials to the site, coupled with an agreement empowering the municipality to apply such security or part thereof to the satisfactory reinstatement of the public road. The form and the amount of the security shall be as agreed between the municipality and the owner.</i></p> <p><i>(v) A Certificate of Approval (Air) from the MOE in accordance with Section 9 of the Environmental Protection Act.</i></p> <p><i>(vi) The submission of a 'Complaint Protocol' outlining how individuals, agencies, etc. may lodge complaints regarding any element of turbine operation including noise, shadow flicker etc. and details of how such complaints are to be addressed by the operators.</i></p>	✓	*
(s)	<i>A 'Stage 2 Archaeological Study' if required by the Ministry of Culture. All recommendations of the Report and/or requirements of the Ministry must be incorporated into the Environmental Management Plan.</i>	✓	✓
(t)	<i>Any 'Other Information' requirements as may be deemed critical by the local Municipality, County of Bruce, Province of Ontario or local Conservation Authority.</i>	✓	✓

Gurski, Chris

From: Metcalfe, Kalena
Sent: Friday, November 16, 2012 4:40 PM
To: Gurski, Chris
Subject: FW: SP Ontario Armow Wind Project

Kalena Metcalfe | Environmental Assessment Coordinator | **Golder Associates Ltd.**
2390 Argentia Road, Mississauga, Ontario, Canada L5N 5Z7
T: +1 (905) 567 4444 | **D:** +1 (905) 567 6100 Ext. 1110 | **F:** +1 (905) 567 6561
E: Kalena_Metcalfe@golder.com | www.golder.com

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Please consider the environment before printing this email.

From: Metcalfe, Kalena
Sent: Thursday, November 08, 2012 11:24 AM
To: 'Bruce Stickney'; 'Brian Knox'
Cc: Callum, Ian; SP Ontario - Armow; Burley, Caitlin; Gurski, Chris
Subject: RE: SP Ontario Armow Wind Project

Hi Bruce and Brian,

I am just following up with the below email to ensure that you have all of the information that you need to complete the consultation form. Let me know if you need any additional information regarding the Armow Wind Project.

As mentioned, the final open house for the Project is Monday November 12, 2012. It would be greatly appreciated if we received the form prior to the open house.

Please do not hesitate to contact us if questions arise,
Kalena

Kalena Metcalfe | Environmental Assessment Coordinator | **Golder Associates Ltd.**
2390 Argentia Road, Mississauga, Ontario, Canada L5N 5Z7
T: +1 (905) 567 4444 | **D:** +1 (905) 567 6100 Ext. 1110 | **F:** +1 (905) 567 6561
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Please consider the environment before printing this email.

From: Metcalfe, Kalena
Sent: Monday, November 05, 2012 1:48 PM
To: 'Bruce Stickney'; 'Brian Knox'
Cc: Callum, Ian; SP Ontario - Armow; Burley, Caitlin; Gurski, Chris
Subject: RE: SP Ontario Armow Wind Project

Hi Bruce and Brian,

I am following up with the below email. The final open house for the Armow Wind Project is scheduled for November 12, 2012. It would be greatly appreciated if we could receive your Municipal Consultation Form comments prior to the Open House. Can you please advise if this is possible with your schedules?

Kind Regards,
Kalena

Kalena Metcalfe | Environmental Assessment Coordinator | **Golder Associates Ltd.**
2390 Argentia Road, Mississauga, Ontario, Canada L5N 5Z7
T: +1 (905) 567 4444 | D: +1 (905) 567 6100 Ext. 1110 | F: +1 (905) 567 6561
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Please consider the environment before printing this email.

From: Metcalfe, Kalena
Sent: Wednesday, October 24, 2012 10:29 AM
To: 'Bruce Stickney'
Cc: Brian Knox
Subject: RE: SP Ontario Armow Wind Project

Thank you Bruce, greatly appreciated.

Kalena

Kalena Metcalfe | Environmental Assessment Coordinator | **Golder Associates Ltd.**
2390 Argentia Road, Mississauga, Ontario, Canada L5N 5Z7
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Please consider the environment before printing this email.

From: Bruce Stickney [<mailto:bstickney@brucecounty.on.ca>]
Sent: Wednesday, October 24, 2012 9:41 AM
To: Metcalfe, Kalena
Cc: Brian Knox
Subject: RE: SP Ontario Armow Wind Project

Hi Kalena,

I received your message ... our IT dept. has been migrating our email accounts to a new server and you may have hit the down-time as they were moving things around.

I believe we have everything we need. I will check with Brian Knox, County Engineer who may be the only one here that will be responding. A number of the turbines are planned to take access from his roads.

Bruce.

From: Metcalfe, Kalena [mailto:Kalena_Metcalfe@golder.com]
Sent: Tuesday, October 23, 2012 7:51 PM
To: Bruce Stickney
Cc: SP Ontario - Armow
Subject: RE: SP Ontario Armow Wind Project

Hi Bruce,

I received a failed delivery error to the below email. Wanted to attempt to re-send it to you. Can you kindly confirm that you have received this email.

Thanks,
Kalena

Kalena Metcalfe | Environmental Assessment Coordinator | **Golder Associates Ltd.**
2390 Argentia Road, Mississauga, Ontario, Canada L5N 5Z7
T: +1 (905) 567 4444 | D: +1 (905) 567 6100 Ext. 1110 | F: +1 (905) 567 6561
E: Kalena_Metcalfe@golder.com | www.golder.com

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Please consider the environment before printing this email.

From: Metcalfe, Kalena
Sent: Tuesday, October 23, 2012 7:46 PM

To: bstickney@brucecounty.on.ca.

Cc: dvanwyck@brucecounty.on.ca; Jody Law; zBrian Edwards; SP Ontario - Armow; Callum, Ian

Subject: RE: SP Ontario Armow Wind Project

Hello Bruce,

I am following up with the below email regarding the Municipal Consultation Form for the Armow Wind Project. The 2nd (final) open house for the Project is scheduled for November 12th, 2012. I wanted to confirm that you have everything that you need to complete the form.

If any questions arise, please do not hesitate to contact us.

Best Regards,
Kalena

Kalena Metcalfe | Environmental Assessment Coordinator | **Golder Associates Ltd.**
2390 Argenta Road, Mississauga, Ontario, Canada L5N 5Z7
T: +1 (905) 567 4444 | D: +1 (905) 567 6100 Ext. 1110 | F: +1 (905) 567 6561
E: Kalena_Metcalfe@golder.com | www.golder.com

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Please consider the environment before printing this email.

From: Callum, Ian
Sent: Wednesday, August 29, 2012 11:29 AM
To: bstickney@brucecounty.on.ca.
Cc: dvanwyck@brucecounty.on.ca; Jody Law; zBrian Edwards; Metcalfe, Kalena; SP Ontario - Armow
Subject: SP Ontario Armow Wind Project

Hi Bruce,

At your request, please find attached a copy of the Municipal Consultation Form, previously provided to the County on November 11, 2011. If you have any questions about this form, or the Renewable Energy Application Reports that were delivered to the County on August 3rd, 2012, please feel free to contact me.

Kind regards,

Ian

Ian Callum (MSc, BSc) | Environmental Assessment Project Manager | **Golder Associates Ltd.**
2390 Argenta Road, Mississauga, Ontario, Canada L5N 5Z7
T: +1 (905) 567 6100 ext. 1524 | C: +1 (416) 303-9646 | F: +1 (905) 567 6561 | E: Ian_Callum@golder.com |
www.golder.com

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From: mbarr@kincardine.net
To: [Jody Law](#)
Cc: [zBrian Edwards](#); [Gurski, Chris](#); [Callum, Ian](#); [Metcalf, Kalena](#)
Subject: RE: Armow Wind Municipal Consultation Form
Date: Thursday, November 22, 2012 3:30:37 PM

Hi Jody

The Municipality continues to work on the comments, they will not go out this week.

Michele Barr, M.A.A.T.O
Director of Building and Planning/CBO
Municipality of Kincardine
1475 Concession 5, RR5
Kincardine, ON N2Z 2X6

Ph: 519-396-3468 ext. 126
Fax: 519-396-1430
Please visit www.kincardine.net

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Jody Law <jody.law@patternenergy.com>

22/11/2012 02:44 PM

To "mbarr@kincardine.net" <mbarr@kincardine.net>
cc zBrian Edwards <b.edwards@samsungrenewableenergy.ca>, "Gurski, Chris (Chris_Gurski@golder.com)" <Chris_Gurski@golder.com>, "Metcalf, Kalena (Kalena_Metcalf@golder.com)" <Kalena_Metcalf@golder.com>, "ian_callum@golder.com" <ian_callum@golder.com>

Subject RE: Armow Wind Municipal Consultation Form

Hi Michele,

Any update on the progress of the municipal consultation form?

Thanks,
Jody

From: mbarr@kincardine.net [<mailto:mbarr@kincardine.net>]
Sent: Wednesday, November 14, 2012 3:15 PM
To: Jody Law
Cc: zBrian Edwards; Gurski, Chris (Chris_Gurski@golder.com)
Subject: Re: Armow Wind Municipal Consultation Form

Hi Jody

as per our discussion the Municipality will be providing comments on the Municipal Consultation form next week

thanks

Michele Barr, M.A.A.T.O
Director of Building and Planning/CBO
Municipality of Kincardine
1475 Concession 5, RR5
Kincardine, ON N2Z 2X6

Ph: 519-396-3468 ext. 126
Fax: 519-396-1430
Please visit www.kincardine.net

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Please consider the environment before printing this email.

Jody Law
<jody.law@patternenergy.com>

14/11/2012 08:51 AM

To "mbarr@kincardine.net" <mbarr@kincardine.net>

cc zBrian Edwards <b.edwards@samsungrenewableenergy.ca>, "Gurski, Chris
(Chris_Gurski@golder.com)" <Chris_Gurski@golder.com>

Subject Armow Wind Municipal Consultation Form

Hi Michelle,

I would like to follow up on the Municipal Consultation Form for the Armow Wind Project and when you expect to send back to us. Please let me know if there is anything regarding the form that you'd like to discuss.

Thanks,

Jody Law
Cell: 647-618-3861
Jody.Law@patternenergy.com
www.patternenergy.com



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2. Confirmation of Receipt of Draft Site Plan Report

CONFIRMATION OF RECEIPT

For the SP Armow Wind Ontario LP Armow Wind Project

UPON RECEIPT, PLEASE COMPLETE BOXES/BLANK LINES:

Date Received: Aug 10, 2012.
--

Name: GLENDA AVIS
Organization: TIVERTON LIBRARY
Position:
Signature: Glenda Avis

Documents Received (please check boxes):	
0 – Draft Site Plan Report	<input checked="" type="checkbox"/>

CONFIRMATION OF RECEIPT

For the SP Armow Wind Ontario LP Armow Wind Project

UPON RECEIPT, PLEASE COMPLETE BOXES/BLANK LINES:

Date Received: Aug 10, 2012.
--

Name: Charmaine Jenkins
Organization: BCPL - Kincardine
Position: Supervisor
Signature: C. Jenkins

Documents Received (please check boxes):
0 – Draft Site Plan Report <input checked="" type="checkbox"/>

CONFIRMATION OF RECEIPT

For the SP Armow Wind Ontario LP Armow Wind Project

UPON RECEIPT, PLEASE COMPLETE BOXES/BLANK LINES:

<p>Date Received:</p> <p>Aug 10, 2012.</p>
--

<p>Name: Stephanie Lawrence</p> <p>Organization: County of Bruce Planning</p> <p>Position: Admin Assistance.</p> <p>Signature: S. Lawrence</p>
--


<p>Documents Received (please check boxes):</p> <p>0 – Draft Site Plan Report <input checked="" type="checkbox"/></p>

CONFIRMATION OF RECEIPT

For the SP Armow Wind Ontario LP Armow Wind Project

UPON RECEIPT, PLEASE COMPLETE BOXES/BLANK LINES:

Date Received: Aug 10, 2012.
--

Name:	Sue Smith
Organization:	
Position:	IT Coordinator
Signature:	

Documents Received (please check boxes):	
0 – Draft Site Plan Report	<input checked="" type="checkbox"/>



3. Confirmation of Receipt of Draft REA Documents

CONFIRMATION OF RECEIPT

For the SP Armow Wind Ontario LP Armow Wind Project

UPON RECEIPT, PLEASE COMPLETE BOXES/BLANK LINES:

Date Received:

August 3, 2012

Name: Emily Dance

Organization: Municipality of Kincardine

Position: Admin - Planning

Signature: E. Dance

Documents Received (please check boxes):

- 1 – Draft Project Description Report ☒
- 2 – Draft Design and Operations Report ☒
- 3 – Draft Construction Plan Report ☒
- 4 – Draft Decommissioning Plan Report ☒
- 5A - Stage 1 Archaeological Assessment ☒
- 5B - Stage 2 Archaeological Assessment ☒
- 5C - Additional Stage 2 Archaeology Assessment ☒
- 6- Heritage Assessment Report ☒
- 7A – Draft Natural Heritage Records Review Report ☒
- 7B – Draft Natural Heritage Site Investigations Report ☒
- 7C – Draft Natural Heritage Evaluation of Significance Report ☒
- 7D – Draft Natural Heritage Environmental Impact Study ☒
- 8A – Draft Water Body Records Review Report ☒
- 8B – Draft Water Body Site Investigation Report ☒
- 8C – Draft Water Body Environmental Impact Study ☒
- 9 – Draft Noise Impact Assessment ☒
- 10 – Draft Wind Turbine Specifications Report ☒

CONFIRMATION OF RECEIPT

For the SP Armow Wind Ontario LP Armow Wind Project

UPON RECEIPT, PLEASE COMPLETE BOXES/BLANK LINES:

<p>Date Received:</p> <p>August 3, 2012</p> <p><i>ASL</i></p>

Name:	<i>Bruce Stickney</i>
Organization:	<i>County of Bruce</i>
Position:	<i>Planner</i>
Signature:	<i>Bruce Stickney</i>

Documents Received (please check boxes):

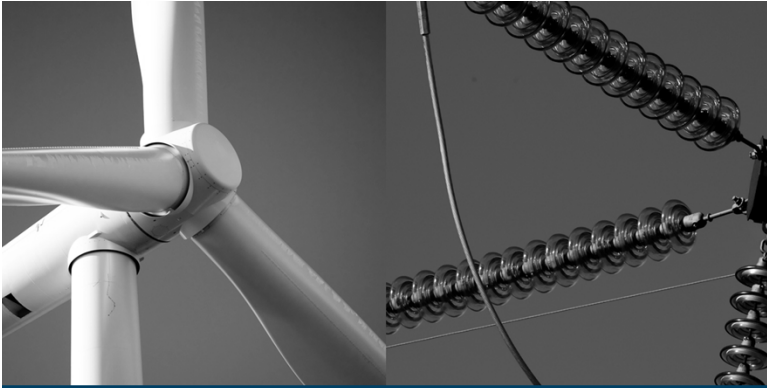
- 1 – Draft Project Description Report ☒
- 2 – Draft Design and Operations Report ☒
- 3 – Draft Construction Plan Report ☒
- 4 – Draft Decommissioning Plan Report ☒
- 5A - Stage 1 Archaeological Assessment ☒
- 5B - Stage 2 Archaeological Assessment ☒
- 5C - Additional Stage 2 Archaeology Assessment ☒
- 6- Heritage Assessment Report ☒
- 7A – Draft Natural Heritage Records Review Report ☒
- 7B – Draft Natural Heritage Site Investigations Report ☒
- 7C – Draft Natural Heritage Evaluation of Significance Report ☒
- 7D – Draft Natural Heritage Environmental Impact Study ☒
- 8A – Draft Water Body Records Review Report ☒
- 8B – Draft Water Body Site Investigation Report ☒
- 8C – Draft Water Body Environmental Impact Study ☒
- 9 – Draft Noise Impact Assessment ☒
- 10 – Draft Wind Turbine Specifications Report ☒



4. Presentations to Council



Presentation to Council
December 7, 2012



Armow Wind Farm

Municipality of Kincardine Council

December 7, 2011



Agenda

- Project Background
- Wind Farm Siting: Why Kincardine?
- Wind Turbine Siting: REA Setbacks and Municipal Guidelines
- Community Benefits
- Next Steps



Project Background



Timeline and Key Activities

- Pattern and Samsung acquired the Armow project in Fall 2011
- Power purchase agreement signed with Ontario Power Authority in Fall of 2011
- Development and permitting activities will continue throughout 2011 and 2012
- Construction expected to commence in 2013 and reach operation in 2014

Project Timeline	2008				2009				2010				2011				2012				2013				2014			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4

Ownership

SEPI

Acciona

Pattern/Samsung

Activities

Land Leasing

Permitting

Construction



About the Sponsors

Samsung Renewable Energy

- Samsung Group is South Korea's largest conglomerate
- Founded in 1938, Samsung C&T is the mother company of the Samsung Group
- Samsung C&T is divided into 2 business groups:
 - Trading and Investment with focus on energy, the environment, natural resources and industrial materials, especially wind, solar and bioenergy
 - Engineering and Construction with an extensive portfolio of building, civil, plant and housing works

Pattern Energy

- Financially strong, long-term developer, owner and operator of renewable energy assets
- 120-person team of dedicated professionals with proven track record of developing, constructing, financing, and placing into operation 2,500 MW of wind power
- Expertise & experience at all project stages: resource analysis, site development, finance, construction and operation
- Dedicated to delivering the highest values for our partners and the communities where we work
- Strong commitment to promoting environmental stewardship and corporate responsibility





Wind Farm Siting



Why Kincardine?

1) Quality Wind Resource

Region	Wind Speed (km/hr)
Kincardine	29
Thunder Bay Area	24
London	21
Toronto	19

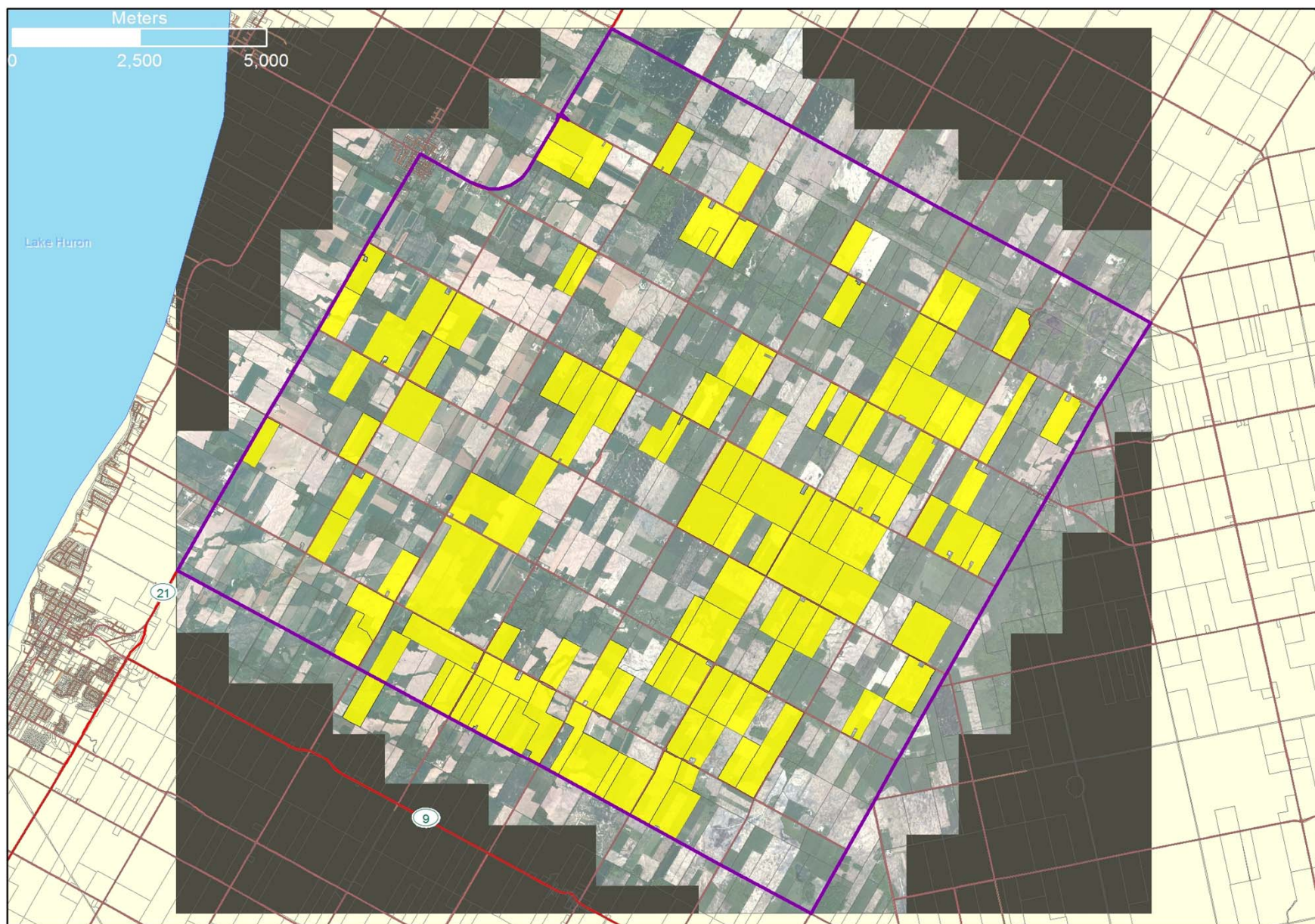
2) Access to Transmission

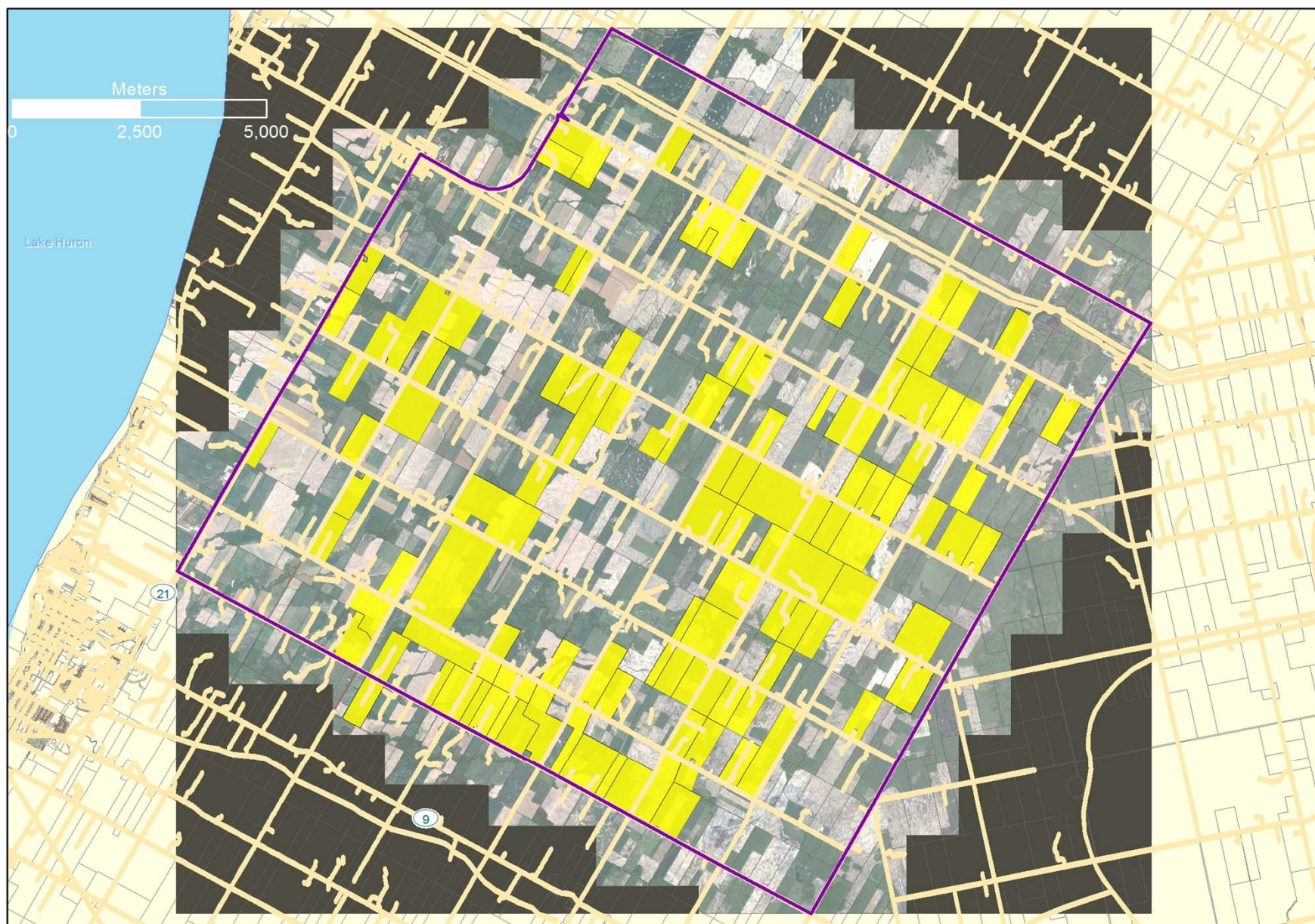
- 230 kV lines, 500 kV lines
- Bruce – Milton Expansion

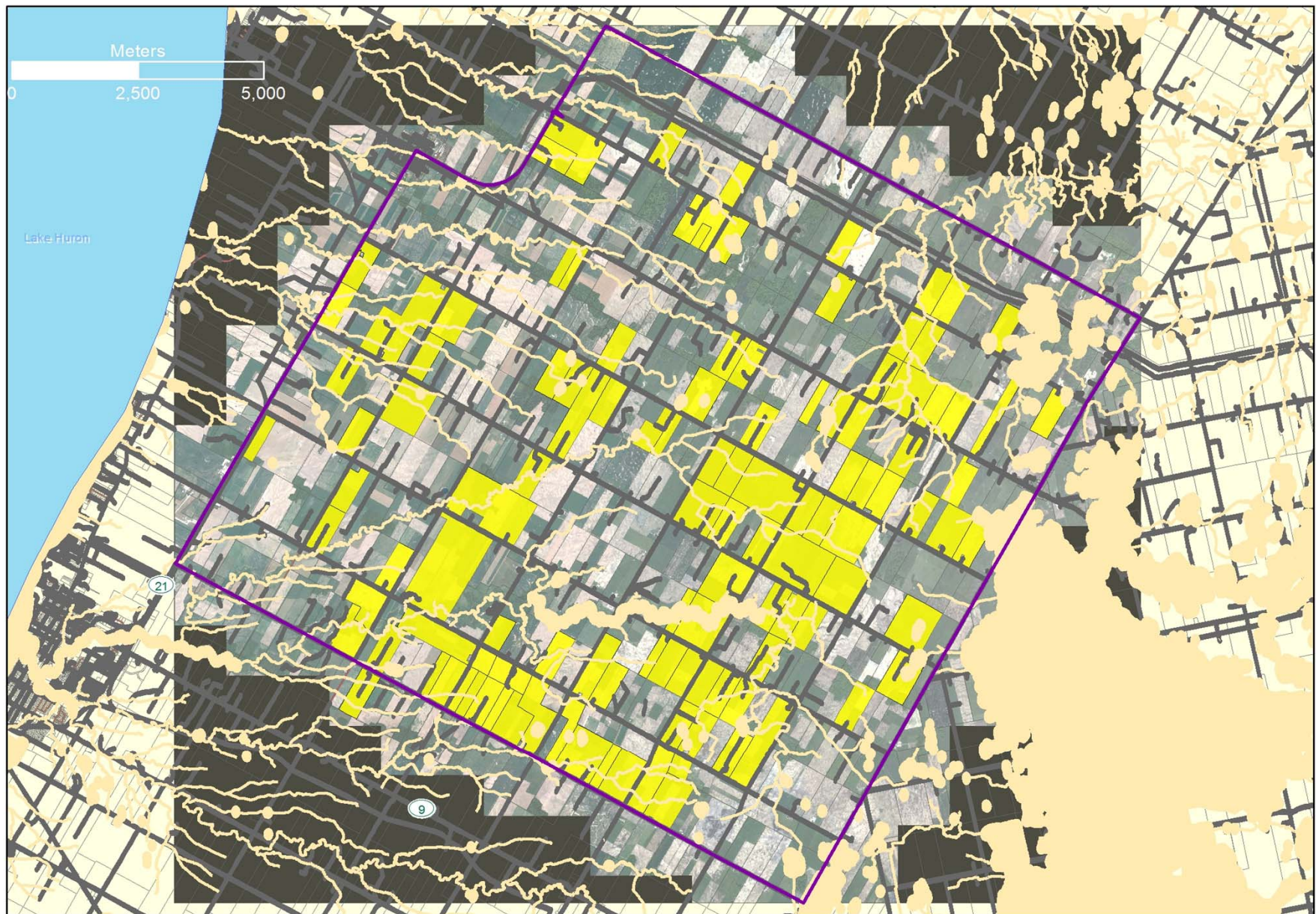


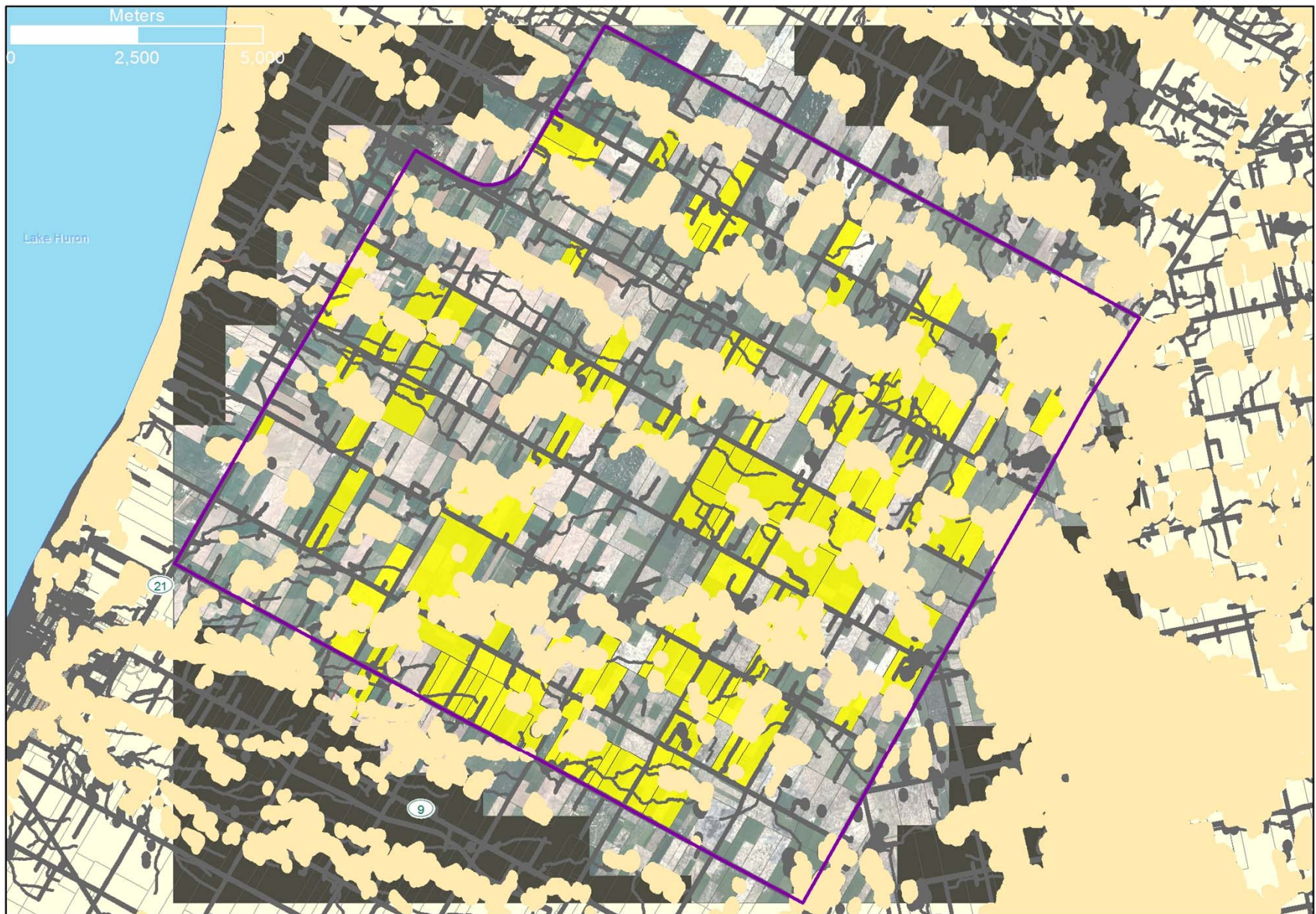
Wind Turbine Siting

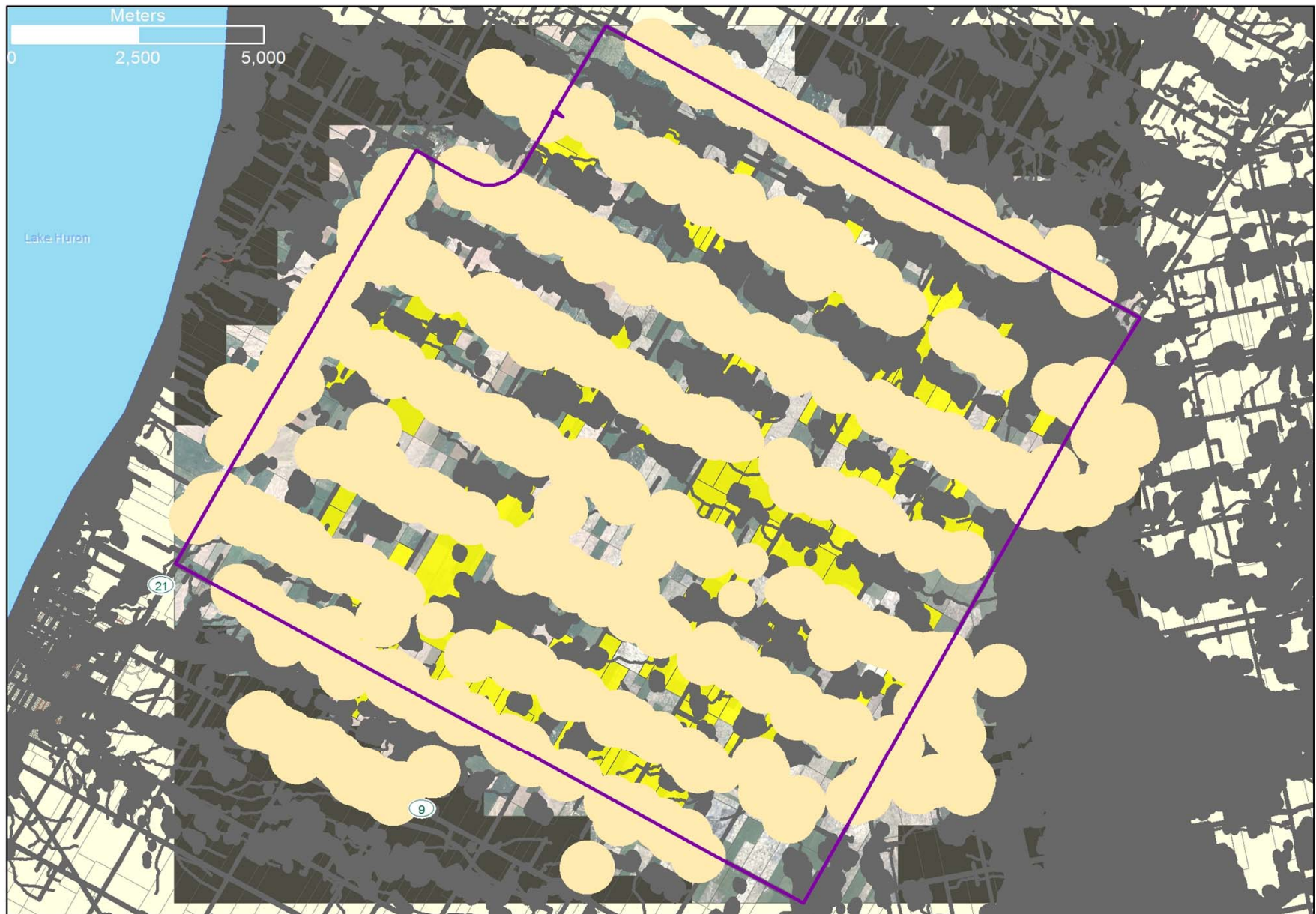


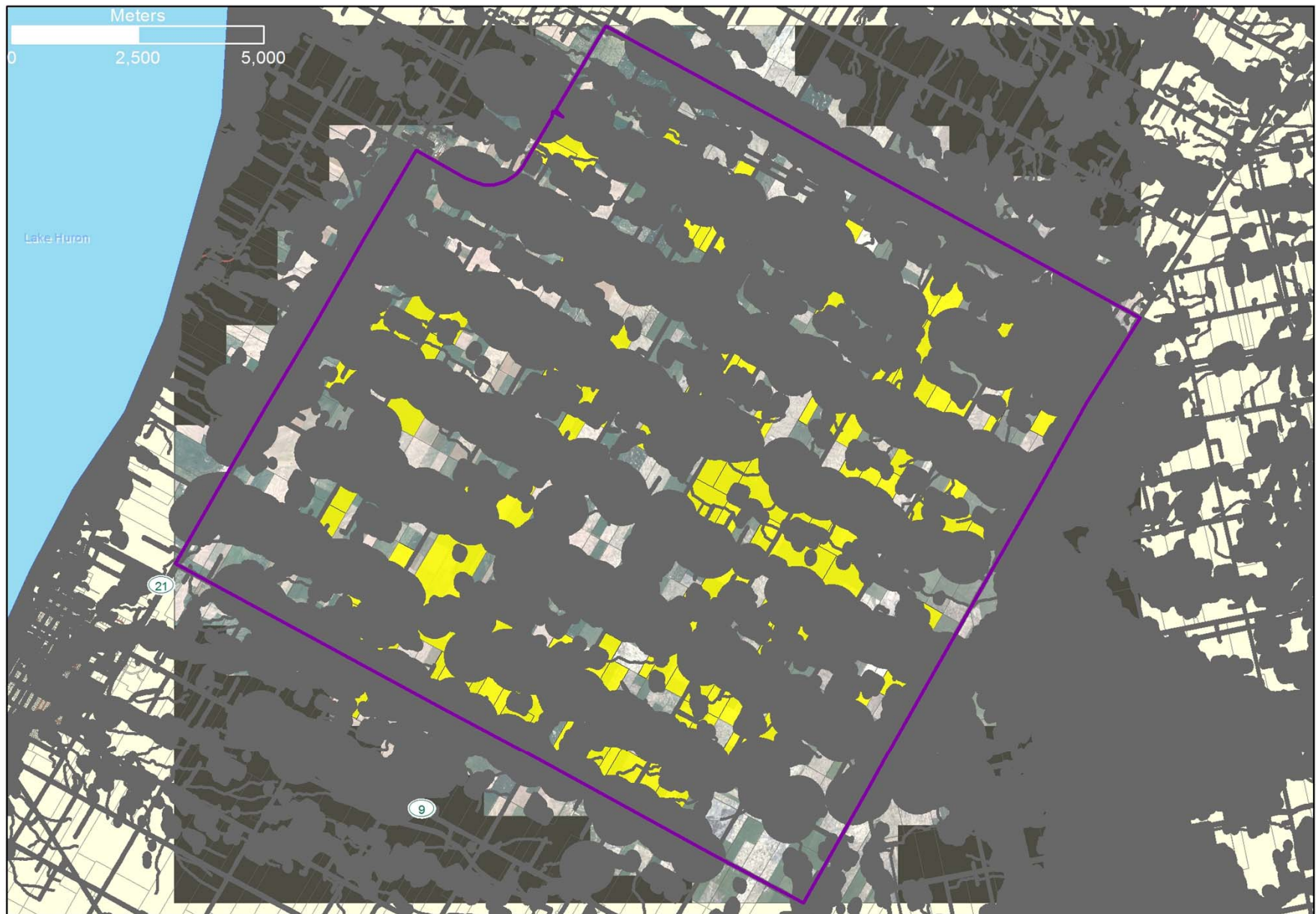












REA vs. Other Jurisdictions

Setback	Ontario (O. Reg. 359.09)	Manitoba	Illinois	Minnesota	New York
Distance from Non-Participating Residence	550 m	375 m	3 x height (450 m)	500 ft (152 m)	1.5 x height (225 m) – 1,500 ft (457 m)
Max. Sound Level at Non-Participating Residence	40 dBa	40 dBa*	N/A	50 dBa	50 dBa
Vacant Lot Receptors	Included	N/A	N/A	N/A	N/A
Max. Sound Level at Nearest School or Church	40 dBa	40 dBa*	N/A	N/A	50 dBa

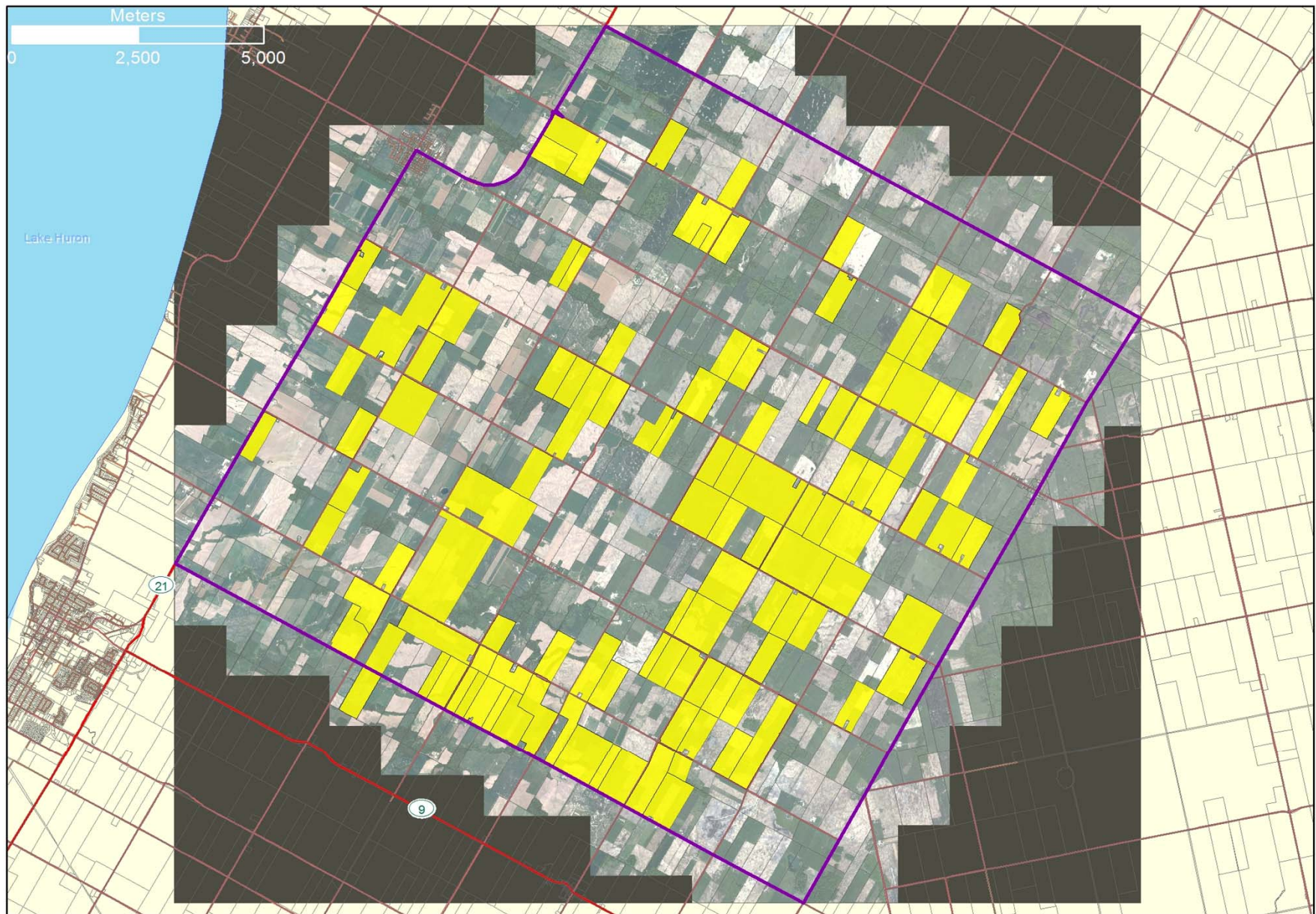
Sources: * Manitoba's sound regulations are based on Ontario's 2008 Noise Guidelines. Illinois Pike County Zoning Board. Minnesota Public Utility Commission. New York State Energy Research & Development Authority.

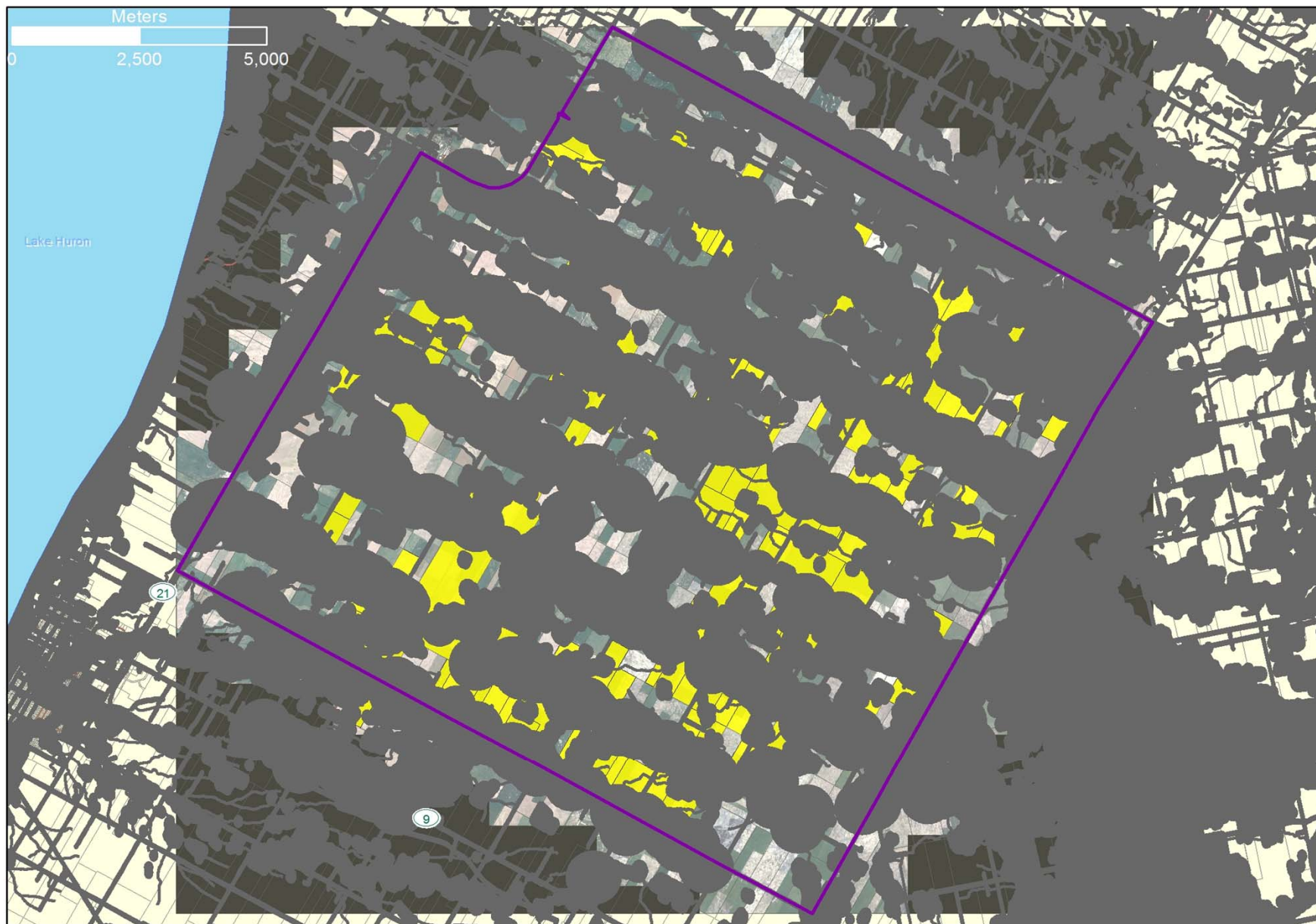


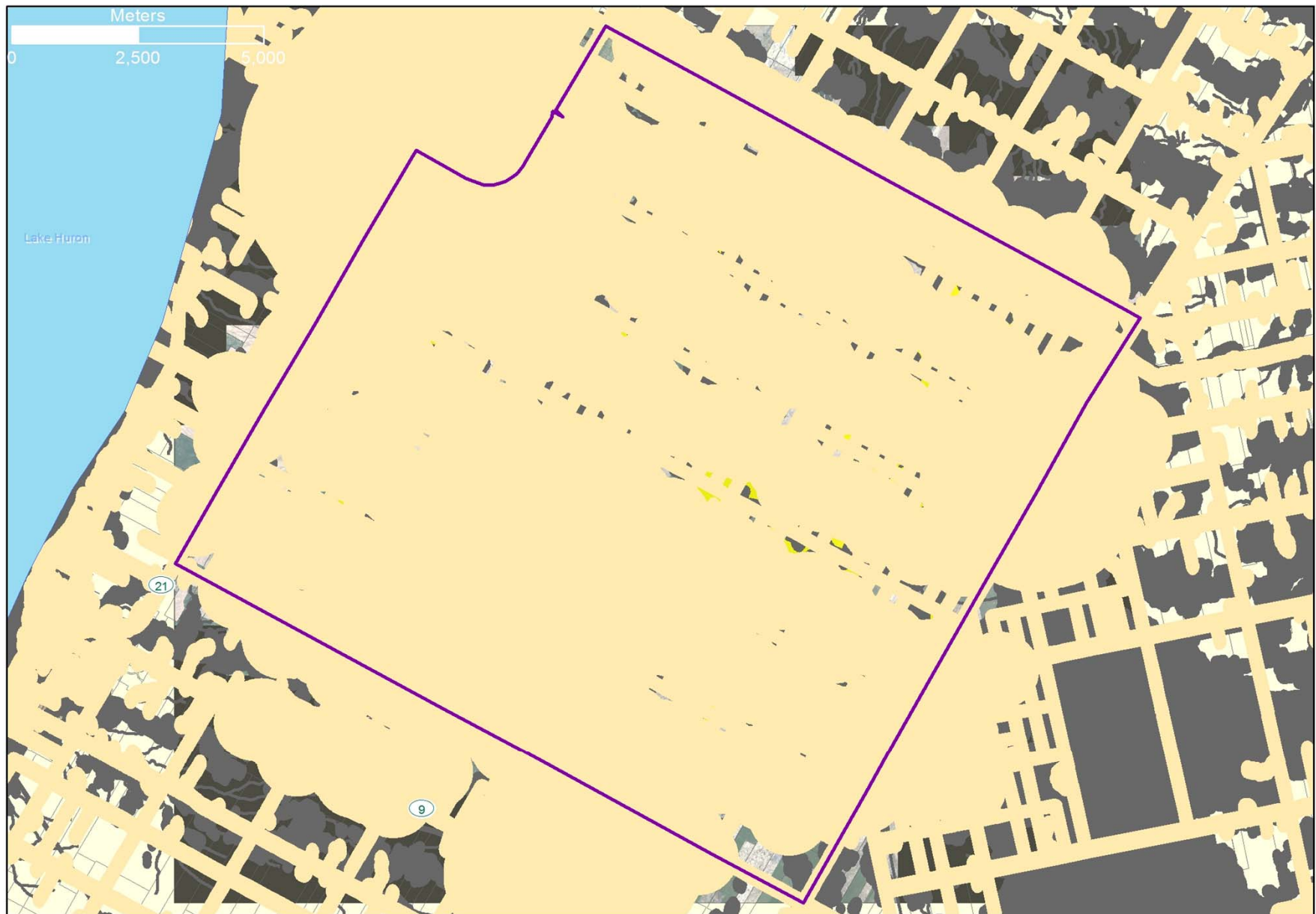
Pattern / Samsung Best Practices

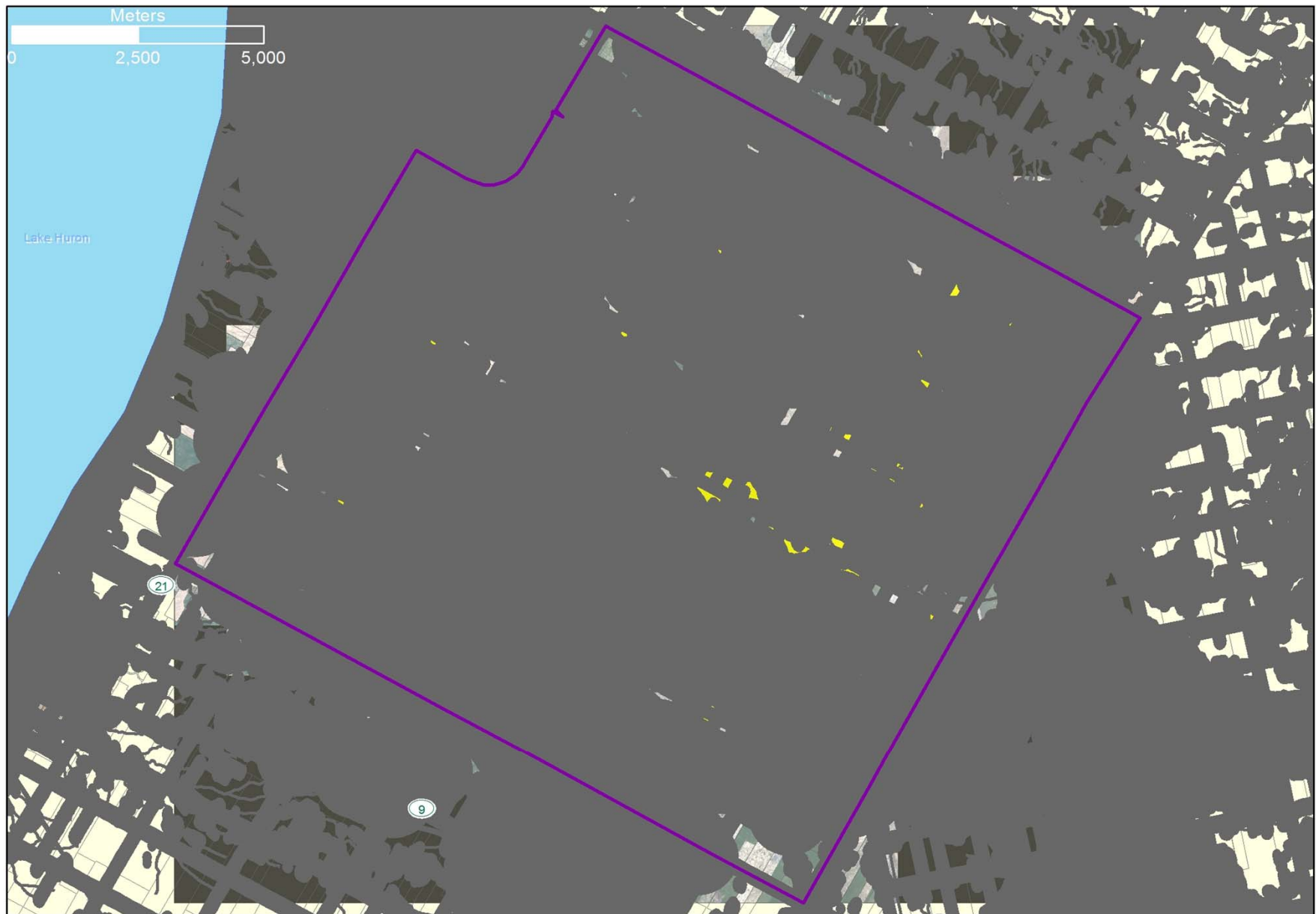
- Detailed consultation with landowners to accommodate farming practices and site suitability
- Preference for turbines to be as far back on a parcel as possible
- Preference to bury collector lines
 - Limited only by physical space/congestion in right of way, water crossings
- Current layout is 15 - 30% less dense than nearby existing wind farms











Community Benefits



Direct Benefits to Municipality from 180 MW Project

	O. Reg. 359/09 (REA) Compliant
# of Turbines	90
Annual Community Investment	
Turbine Royalties	\$1.4 Million
Property Taxes	\$500,000
Total	\$1.9 Million
Life Time Community Investment	
Turbine Royalties	\$28 Million
Property Taxes	\$8 Million
Total	\$36 Million



Direct Benefits to Municipality from 10 MW Project

	O. Reg. 359/09 Compliant	Municipality of Kincardine Guidelines Compliant	Variance
# of Turbines	90	5	– 85
Annual Community Investment			
Turbine Royalties	\$1.4 Million	\$80,000	– \$1.32 Million
Property Taxes	\$500,000	\$30,000	– \$470,000
Total	\$1.9 Million	\$110,000	– \$1.79 Million
Life Time Community Investment			
Turbine Royalties	\$28 Million	\$1.5 Million	– \$26.5 Million
Property Taxes	\$8 Million	\$500,000	– \$7.5 Million
Total	\$36 Million	\$2 Million	– \$34 Million
Setbacks			
1) Participating Residence		800m	
2) Non-Participating Residence		800m	
3) Township		2,750m	
4) Hamlet		1,750m	



Examples of Community Commitments

We are always seeking ways to be a contributing neighbor in the communities where we build projects.

- Goderich Tornado Relief Fund
- United Way of Chatham-Kent
- Chatham Kent YMCA
- Ridgetown Medical Center
- Children's Treatment Centre
- Burney-Fall River Education Foundation
- St. Joseph Community Museum
- Tilbury Fun Fest and Midway
- Blenheim Cherry Festival
- Optimist's Club Graduate Incentive Program



Next Steps



Community Engagement

We are interested in your recommendations on how we can better engage community members

- Upcoming activities include:
 - Opening local project office
 - Booth at Bruce Grey Farmer's Week in January
- Multiple public open houses over the next year
- Presentations to local organizations and Council
- Local sponsorships
- Regular landowner meetings



Next Steps

Future Council presentations to include:

- 1) Discussion on Community Concerns
- 2) Discussion on Electrical Topics
- 3) Community Benefits Plan
- 4) Open to Suggestions



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Presentation to Council
November 21, 2012



Armow Wind Project



Municipality of Kincardine Council

November 21, 2012

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Agenda

- Comments Raised at Nov. 14 Council Meeting
- Implications on Open House Material
- Next Steps



Comments Raised at Nov. 14 Council Meeting



Comments Raised at Nov. 14 Council Meeting

- *From Nov. 14 Council Meeting: Upon reviewing the Noise Impact Assessment for the Armow Wind Project by Samsung and Pattern, it was discovered that the report is inconsistent. As a result, the noise calculations for the receptors are not accurate.*
- This is not true. The noise calculations presented in the report remain accurate.
- This problem is limited to Appendix F: Coordinates of Turbines, and was the result of human error.
- Appendix F did not serve as an input to the sound analysis; rather, the analysis was performed on correct data and a human error was made in creating this table.
- All maps provided in the NIA, as well as all other reports and the Open House boards, show proper turbine locations
- The proper turbine coordinates are also listed in the Draft Site Plan Report



Comments Raised at Nov. 14 Council Meeting

- *From Nov. 14 Council Meeting: There's even one case in which a receptor in the Armow Wind Project with a turbine closer than 400m but in the Noise Impact Assessment table it's listed as having the nearest turbine 800m away. Also, the nearest turbine listed to this receptor does not match the actual number of the nearest turbine. Are there any more receptors with the same problem?*
- This problem is limited to Table 7-2: Wind Turbine Noise Impact Assessment Summary – Participating Receptors
- This error is also an output error and has no bearing on reported noise calculations

Participating receptor ID	Height [m]	Distance to Nearest Turbine [m]	Nearest Turbine [ID]	Calculated Sound Pressure Level at Dwelling [dB(A)]
R_120	4.5	863876	11547	38.0
R_121	4.5	841870	11547	38.1
R_129	4.5	690804	10040	39.2

Excerpt of corrected Table 7-2



Comments Raised at Nov. 14 Council Meeting

- *From Nov. 14 Council Meeting: Participant asked for a current copy of the noise assessment report; Samsung/Pattern did not provide as it was being revised to include an additional 10 turbines.*
- There are not 10 additional turbines being added to the Project. At our open houses, we are unfortunately not prepared to provide individual reports for everyone; however, all reports are available at the Kincardine and Tiverton Public Libraries, our Project Office and our website.
- *From Nov. 14 Council Meeting: If you don't get resolution, the approval is just granted at the end of the 90 days.*
- This is not true. After the 90 days, the Proponent needs to submit the application, the application must be deemed complete, there is an additional minimum 30 day public comment period, and there is a detailed technical review by the Ministry of the Environment. This all occurs before approval is granted.



Implications on Open House Materials



Implications on Open House Materials

- *From Nov. 14 Council Meeting: In fact, detailed verification of the report which was presented at the open house indicates that 90% of the coordinates provided for the wind turbine project in Armow are not correct. The turbine locations on the maps that were presented at the open house as a forum for people in our community to get to know this project in its final stages do not agree with GPS coordinates listed in Appendix F of the same report. The noise calculations could therefore be inaccurate and exceed the MOE Noise Guidelines for the number of receptors.*
- Errors in the reports are limited to Appendix F and Table 7-2 of the Noise Impact Assessment only. The noise analysis presented in the report is accurate.
- Only the Noise Impact Assessment was developed by GLGH. All other reports were developed by Golder Associates or their subcontractors.
- All maps presented at the November 12 open house, including those in the Noise Impact Assessment, that showed turbine locations accurately reflect the GPS coordinates of the proposed turbine locations.



Confirmation of Accuracy

- Two engineers independently re-ran all the noise model calculations
- Two peer review checkers inspected the re-runs
- GIS specialist verified that all outputs provided are consistent with inputs used in GIS mapping
- Further review of data inputs, sound model configuration, input assumptions and reporting tools was performed
- Improved the standard tool used to convert model outputs to report-friendly formats to reduce the likelihood of human error
- Enhanced standard Quality Control program including improved quality control checklist and systematic review procedures
- All noise calculations further verified by in-house sound models

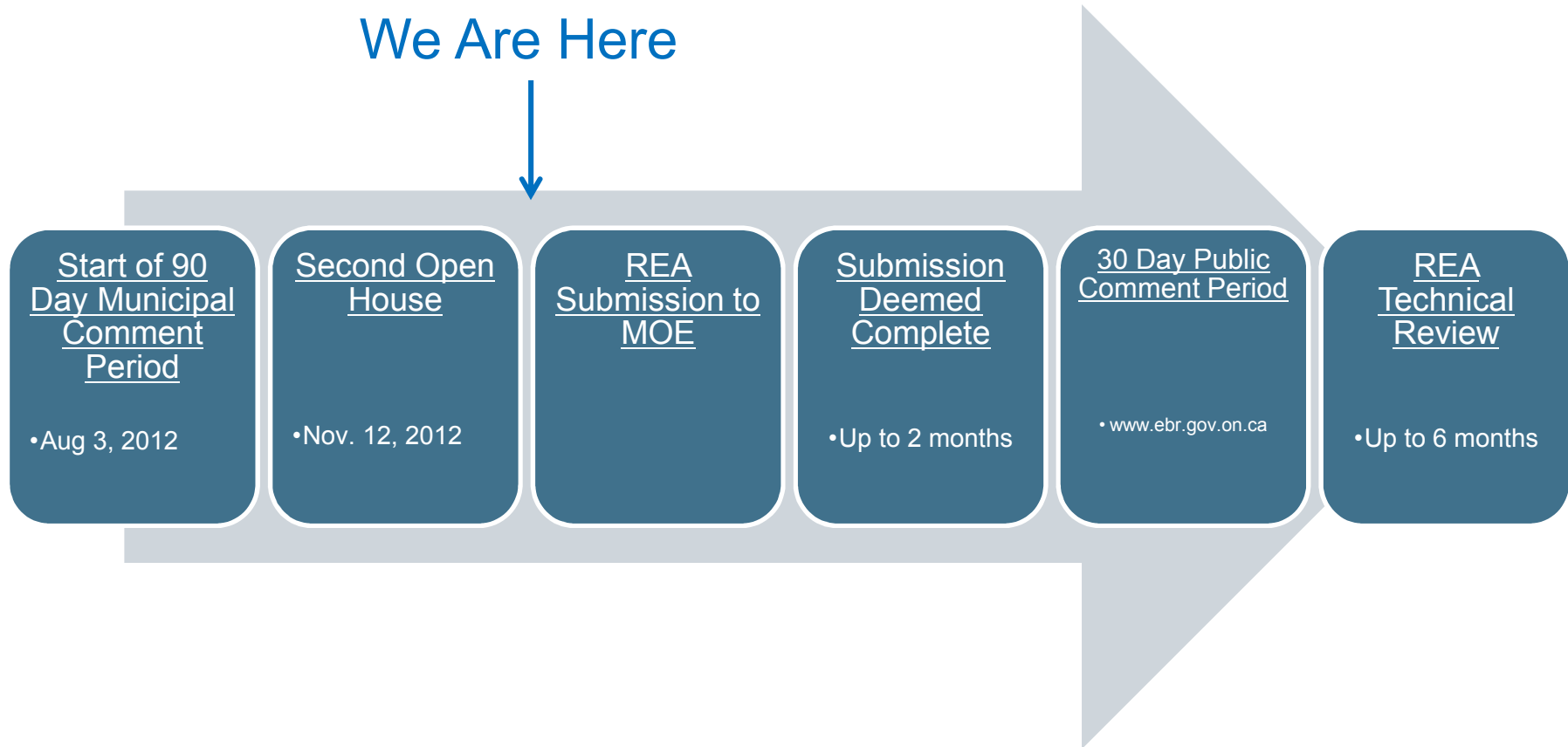


Next Steps



REA Process

We Are Here



REA Process

- Second Open House (Nov. 12, 2012)
 - All reports are considered draft at this point
- REA Submission
 - All documents submitted to the Ministry of the Environment (MOE)
- Submission Deemed Complete
 - Thorough check of documents for completeness by the MOE
 - MOE can request additional, project-specific information
 - Can take up to 2 months from REA Submission to deem an application complete
- 30 Day Public Comment Period
 - Once application is deemed complete, it is posted on the Environmental Registry
 - The public can comment on the full application for 30 days after posting
 - www.ebr.gov.on.ca
- REA Technical Review
 - Comprehensive technical review of all documents by the MOE and other relevant agencies
 - Can take up to 6 months from the application being deemed complete



Ongoing Community Involvement

- Community Involvement To Date
 - Penetangore Watershed Group
 - Kincardine Women's Triathlon
 - Fish Kincardine Salmon Derby
 - Kincardine Scottish Festival and Highland Games
 - Bluewater Summer Playhouse
 - Tiverton Agricultural Society
 - Kincardine Chamber of Commerce
 - Women's House Serving Bruce and Grey
 - Kincardine Bulldogs
 - Kincardine Family Health Team Cardiac Rehabilitation Unit
 - Community Living Kincardine and District
 - Elgin Market Public School
 - Kincardine and Community Health Care Foundation
 - Royal Canadian Legion Kincardine Branch 183

- Information Session
 - Details to be announced in the next week



APPENDIX F COORDINATES OF TURBINES

Coordinates of turbines to be installed in the Armow Wind Farm and the substation location, as well as the broadband sound power levels of each noise source are listed below in UTM17-NAD83 projection:

Turbine ID	Easting [m]	Northing [m]	Broadband PWL [dB(A)]
T4T10	460785	4897921	+01106
T100T5	460169	4891172	+01102
T101T6	466788	4898947	102
T102T7	467276	48949194	
T103T8	467274	894893	+01105
T104T9	467729	4894074	+02105
T105T10	458938	4890421	102
T105T10	467373	4896459	+06101
T106T11	468372	48966574	
T106T11	468294	896614	+02106
T107T12	466747	4894603	102
T108T13	458941	4894875	+01105
T14T11	462777	4897234	102
T110T15	463381	4889634	102
T111T18	463772	48898814	
T111T18	463760	889869	+06102
T112T19	465221	4895826	+03101
T113T21	461259	4888833	+02104
T114T22	461585	4888655	102
T115T23	461956	4888538	+02103
T116T24	462694	4890339	102
T25T12	464367	4896252	+01102
T26T13	465621	4895205	101
T27T14	466182	4895442	102
T28T15	466268	4895147	102
T29T18	459810	4896249	+02106
T30T19	460352	4896143	+04103
T31T21	462245	4894821	+04102
T32T22	462622	4894878	+06102
T33T23	462959	4894956	102
T34T24	463039	4894395	+05102
T35T25	463465	4894592	+06101
T36T26	464009	4893522	+02101
T37T27	464337	4893527	102
T39T28	464666	4893553	102
T40T29	465090	4893742	102
T41T30	465060	4893097	+02104
T42T31	465388	4893104	+02104
T43T32	466845	4892281	+02106
T44T33	458435	4894474	102
T45T34	458746	4894479	+02105
T47T36	457280	4892873	102
T48T37	457729	4893302	102
T49T39	460352	4891598	102

Turbine ID	Easting [m]	Northing [m]	Broadband PWL [dB(A)]
T50T4	464682	4898466	+02101
T51T40	460681	4891076	+03102
T52T41	461220	4891113	+04102
T56T42	461614	4891037	102
T57T43	461768	4890734	102
T58T44	461935	4890372	+01102
T59T45	462426	4890172	+01102
T60T47	463020	4889772	102
T61T48	458346	4890486	+05102
T63T49	460549	4889305	+04102
T64T5	466865	4898641	+02101
T65T50	460839	4889178	103
T66T51	467371	4898626	+05104
T67T52	468239	4898092	102
T68T56	464971	4898601	102
T69T57	465799	48971114	
T69T57		897131	+03101
T70T58	466148	4897228	+02101
T73T59	464921	4895976	102
T74T6	466690	4897755	+06102
T75T60	467413	4894276	+02105
T76T61	460197	4896667	+06104
T77T63	459822	4896943	102
T78T64	465279	4890523	+02103
T79T65	463701	4891711	+02105
T80T66	459648	4889504	102
T81T67	458335	4892100	+05102
T82T68	457127	4891173	+02103
T83T69	462419	4896959	102
T84T7	466554	4897005	101
T85T70	462409	4892727	+01102
T87T73	459708	4899129	+02106
T88T74	457373	4897847	102
T89T75	456855	4897632	+02106
T90T76	458595	4890252	+04102
T91T77	457961	4890664	+04102
T92T78	458976	4890025	102
T94T79	457000	4892740	102
T95T8	466884	4896882	102
T96T80	456905	4891725	+01105
T97T81	457006	4898054	+01102
T98T82	460147	4889442	+01102
T99T83	462716	4892873	+02101
T84T100	462437	4892354	+02101

Turbine ID	Easting [m]	Northing [m]	Broadband PWL [dB(A)]
T85T101	463695	4893900	102
T87T102	458708	4894168	102
T88T103	462642	4894569	+05102
T89T104	463573	4892018	+05104
T9T105	467210	4896729	102
T90T106	465579	4890590	+01104
T91T107	463100	4897245	+06102
T92T108	463725	4896277	102
T94T110	465047	4896257	+05102
T95T111	463309	4894916	+02101
T96T112	464266	48942084 894203	+02101
T97T113	465289	4895208	101
T99T114	463549	4896523	+04102
T98T115	463109	4890298	+03102
T35T116	465945	4890725	+02106
Substation	465689	4899620	109.8

Table 7-2: Wind turbine noise impact assessment summary – Participating receptors

Participating receptor ID	Height [m]	Distance to Nearest Turbine [m]	Nearest Turbine [ID]	Calculated Sound Pressure Level at Dwelling [dB(A)]
R_66	4.5	605907	7936	37.4
R_67	4.5	397814	8036	42.6
R_120	4.5	863876	11547	38.0
R_121	4.5	841870	11547	38.1
R_129	4.5	690804	10040	39.2
R_143	4.5	565711	98116	40.4
R_144	4.5	706850	98116	39.8
R_145	4.5	714761	98116	39.8
R_150	4.5	393570	8370	41.9
R_155	4.5	775813	9223	39.6
R_166	4.5	544	61	41.3
R_178	4.5	8791973	7473	36.2
R_187	4.5	620788	9743	40.0
R_213	1.5	7891265	10260	36.9
R_216	4.5	670900	1059	39.7
R_219	1.5	676773	1059	38.3
R_220	4.5	711	14	39.9
R_224	4.5	450	57	40.9
R_225	4.5	579	57	40.4
R_226	4.5	548610	9457	40.4
R_233	4.5	696801	9111	37.6
R_321	4.5	748	30	39.2
R_324	4.5	764	30	40.2
R_326	4.5	781806	8926	40.0
R_327	4.5	698786	8326	40.0
R_329	4.5	822	24	39.1
R_338	4.5	7161030	10818	39.1
R_371	4.5	865	37	36.6
R_393	4.5	754	42	38.8
R_408	4.5	571661	8266	39.7
R_409	4.5	756	50	38.8
R_412	4.5	660955	11350	39.0
R_413	4.5	7261408	11450	37.7
R_437	1.5	761	30	37.4
R_443	4.5	1221	37	34.1
R_500	4.5	465727	11047	39.9
V_608	4.5	364	5	42.0
V_757	4.5	524	Substation	39.8



MEMORANDUM

TO Jody Law and Brian Edwards

DATE November 22, 2012

CC Ian Callum

FROM Caitlin Burley

PROJECT No. 11-1151-0247

DRAFT MEETING MINUTES COUNCIL MEETING, MUNICIPALITY OF KINCARDINE, NOVEMBER 21, 2012

Motion to stop development of all industrial wind turbines in the Municipality of Kincardine, proposed by Jacqueline Faubert	
Jacqueline Faubert (presents her motion)	Industrial turbines are not my cause of the moment, the month or the year. I am an elected official that governs for the good of the people. I have been given power by the Province to make these decisions, a power that has recently been taken away from my by the Province. We developed our wind policy to protect the health of our constituents and I am presenting this motion to protect my constituents.
Mayor (Larry Kraemer)	Open the meeting up to comments from Council.
Kenneth Craig	This is a poorly crafted motion that I can not support. I do not support the irresponsible development of industrial wind turbines, but I also believe it is the right of anyone to put a turbine on their land should they choose.
Anne Eadie	We developed a wind policy to protect our community. I am disappointed that certain companies are not respecting our policy, especially regarding buffer zones. I can't support this motion, but would support one that required proponent of industrial turbines to adhere to our policy.
Ron Coristine	Things get built everyday. I'm not talking about wind turbines specifically, but just things. To build these things, certain processes must be followed. The regime under which industrial turbines are being installed is not in-keeping with our policies and environmental protection. My issue is not with the industrial turbines, but instead the process that disregards basic municipal policies and processes.
Jacqueline Fauber	I am still asking for a vote on the original motion, but I will also take the motion back and craft it to address Ron and Anne's comments and will present that motion next week.
Candy Hewitt	I have concerns about specific wording with this motion as it stands. It is exclusionary of all turbine development in nature. I could not support it as it stands.
Ron Coristine	We have three options: 1) defeat, 2) support, 3) defer to next week when a revised version can be presented.
Mayor	Jacqueline has requested that we vote. My concern about this motion is that it leads us to a place where we have not authority. All this motion can do is get us into legal troubles and



MEMORANDUM

	open our treasury. Everyone knows we have no authority to pass this or enforce our policy.
Anne Eadie	Through the Green Energy Act, there is an appeals process. I think that Council should consider this as an option for voicing our concerns. The Province has not listened to us to date.
Jacqueline Faubert	We don't have the authority, but we do have power. The Town of Shelburne has recently use this power to defeat the mega quarry near community. It is our responsibility to use this power to do what we can for our constituents.
Motion vote	All voted against, except Randy Roppel and Jacqueline Faubert. Motion defeated.
Motion in Support for West Lincoln Resolution (related to supporting a multi-municipal approach to opposing turbine development)	
Jacqueline Faubert	I note that the full 6-page resolution is not included in the meeting minutes. I would ask that we defer this vote until all of the resolution is available for council to properly make their decision.
Mayor	Motion deferred. Other Business?
Jacqueline Faubert	I ask that we re-examine the fee structure around development in Kincardine (e.g., fees and building permits specific to the Green Energy Act)
City Staff Member	This revised fee structure will be available in the next few months for discussion.
Jacqueline Faubert	Could we please have an update on the letter Council sent to Dr. Hazel Lynn, the Chief Medical Officer of Health. Have we had a response?
Mayor	I spoke personally with Dr. Hazel Lynn and she has directed us to a more recent report written from last year.
Scott Duncan - Delegation	
Scott Duncan	<p>Presented a 10-minute delegation to council. He made the following points in his delegation:</p> <ul style="list-style-type: none"> Noise reports presented at the second open house, were meant to be the body of knowledge on which the community must make a decision about the effects of the Project on their community from a noise and health perspective. Armow Citizens Group enlisted the assistance of an engineer to review the noise report. Neither author nor signatories on the noise report are professional engineers in the Province of Ontario The version of the noise report at the Open House was out of date Noise assessment must be carried out on the rated capacity, not the de-rated noise levels to account for a worst-case noise scenario Ground attenuation factor of 0.7 was used, which represents relatively porous land features. For three months of the year, the land is either flooded or frozen.



MEMORANDUM

	<p>Therefore the ground attenuation number should reflect that.</p> <ul style="list-style-type: none"> Background noise levels presented in the report are not reflective of the area as there are large variations in background noise. Noise calculations are based on coordinates that are incorrect, which could lead to incorrect calculations of sound effects. No analysis of low frequency noise or infrasound. <p>Based on this assessment, the Armow Citizens Group made the following recommendations:</p> <ul style="list-style-type: none"> New sound assessment document be prepared, including a 3 dBA allowance to predict variances in noise modelling. Low frequency noise and infrasound assessment. Revised ground attenuation number. Municipality should have an independent third party review of the new noise document. Re-start 90-day review period. Another Open House.
Ron Coristine	<p>I have two questions.</p> <ol style="list-style-type: none"> If there are inaccuracies in this report, were there inaccuracies in other information presented? I don't understand the variation from 106 dBA to 40 dBA. <p>(Scott Duncan provided a response that 106 dBA was measured at the hub, 40 is the allowable limit at a receptor)</p>
Randy Roppel	<p>Thank you for the work that the Armow Citizen's Group has done. I agree with what you have said. We keep on saying that we have no power with respect to industrial turbine development. It is time we do something about this. Either we (Council) stands up and fight or we go home.</p>
Scot Duncan	<p>We have been looking for a silver bullet to stop these developments and we haven't been able to find one. However, we've been able to find pebbles to load into our sling-shot that will slow these developments down.</p> <p>We may not have a lot of say, but there are tools at your disposal as Council that may not stop development, but will help ensure that it is done responsibly.</p>
Anne Eadie	<p>We want what is best for this municipality. We have had dialogue with Samsung/Pattern. We had hoped that they would adhere to our 800 m setbacks. We are disappointed to find that receptors (participating) are under 500 m.</p>
Jacqueline Faubert	<p>I would suggest we discuss Scott's recommendations as a Council at the next meeting.</p>
<i>Samsung/Pattern delegation, presented by Jody Law (please see attached presentation) *less than 30</i>	



MEMORANDUM

seconds into the presentation, Councillor Ron Coristine walked out using profanity.

Kenneth Craig	Thank you for bringing explanations to those questions and concerns. I am not opposed to industrial wind turbine development. We just want them developed responsibly. One step forward that Scott has brought forward is a 3 rd party review. We would like to ask if SP would be willing to fund this review.
Jody Law	Our noise report has been reviewed internally, than 3 rd party reviewed by GLGH, presented to the public who had additional engineer review, and will undergo a review by government experts as part of the REA process. Additional lenders will review all reports including the Noise Report in the financing phase of the Project.
Kenneth Craig	I understand that, and fairly or unfairly, you are being asked to justify your noise studies to address what appears to be a public relations issue. Would you be willing to do that to give our community more confidence.
Jody Law	I can not make these commitments on behalf of SP, but I will bring that back to management for a decision.
Jacqueline Faubert	Is there a timeline as to when you could let us know what your decision about the 7 th party review? How come you use the term 'proposed' turbine. Can you not tell us for sure where the turbines are going to be?
Jody Law	The term 'proposed' is simply means that the Project has not been approved yet. We can not drop the 'proposed' until we have approval to move forward with the Project.
Jacqueline Faubert	In your presentation, reference was made to a community member being told that 10 turbines were still being added. What that community member was saying was that she was told that 10 turbines may still be moving.
Jody	We had only 1 turbine that moved. We had a board at the Open House describing this move. It was T59 that moved 18 metres within our study zone.
Randy Roppel	Was your company aware of our wind development policy before you started this Project?
Jody Law	I am not sure when we became aware of it, but it was very early in the process. Most likely through our due-diligence work.
Randy Roppel	Our policy provides you with objectives for wind farm development that are achievable. Why couldn't you meet those objectives?
Jody Law	We sat with the Ad-Hoc committee several times over the past year. This was our opportunity to understand the policy and attempt to meet the intent of the policy.
Randy Roppel	Have you signed the MOU yet?
Mayor/CAO	The MOU has not come forward to council.



MEMORANDUM

Randy Roppel	Just so you know, giving money away (making reference to the community contributions section of Jody's presentation) has no bearing on decisions about report or your Project.
Anne Eadie	We appreciate your willingness to discuss the policy (referring to the Ad Hoc Committee meetings held in the past). I agree with the need for a 3 rd party review because we need assurance. The Province says you don't have to have the same safeguards for participating landowners (referring to setbacks). Our job as council is to protect all of our constituents. I don't feel comfortable with any distance around 400 m, even for a participating receptor.
Jody Law	We have heavily consulted with our landowners, including bringing maps to their homes to show distances, layouts and walking fields to site turbines and infrastructure.
Mayor	Could your noise expert please speak a little bit about the attributes of noise as it travels (e.g., the difference between the noise and the hub and noise levels 100 meters away?
Nancy	I am sorry. I am a permitting project manager and don't feel comfortable answer that question.
Jody Law	This is a complicated question. There are many factors that influence how sound travels and how this affects different receptors.
Mayor	I have a question. If we ask SP to fund a 3 rd party review, are we actually going to accept it as a Council?
Jacqueline Faubert	This is a complicated industrial project. Acceptance of a noise report does not mean acceptance of the Project.
Randy Roppel	The better question is would SP accept it?
Mayor	The question was, would we (Council) accept it.
Kenneth Craig	Yes
Anne Eadie	Yes
Jacqueline Faubert	I would want a study on infrasound and low frequency noise.
Maureen Couture	Yes I would accept it, and a peer review would be on the work GLGH has done (not new information).
Jacqueline Faubert	We have asked many questions (here and at open houses). Where can answers to our questions be found?
Jody Law	All questions will be answered in the Consultation Report.
Jacqueline Faubert	When will that be available?



5. Ad-Hoc Committee Meeting Agendas and Minutes

Ad Hoc Committee- Samsung/Pattern Wind Project



**Agenda
Municipal Administration Centre at 5:15 pm**

1.0 CALL TO ORDER

Michele Barr to call meeting to order.

2.0 ROLL CALL

Anne Eadie, Deputy Mayor
Maureen Couture, Councillor
Jacqueline Fabert, Councillor
Candy Hewitt, Councillor

Michele Barr, Staff Resource

3.0 DECLARATIONS OF PECUNIARY INTEREST AND THE GENERAL NATURE THEREOF

4.0 NOMINATION OF CHAIR

Nominations for Chair Opened

Motion# SWP-12-

Moved:

Seconded:

5.0 AGENDA ADDITIONS & DELETIONS

6.0 AGENDA ITEMS FOR DISCUSSION

6.1 Airport Vicinity

6.2 Buffer Zones

Ad Hoc Committee- Samsung/Pattern Wind Project

6.3 Woodlot Setbacks

- question why project can only build 5 turbines with an 800 metre setback when municipal intent is to allow 200 metres at back of every 100 acres for a turbine?

6.4 Lines from Turbines to substation / Buried Lines

6.5 Municipal Consultation Requirements

7.0 CORRESPONDENCE

- 7.1 Wind Turbines and Proximity to Homes: The Impact of Wind Turbine Noise on Health, a review of the literature & discussion of the issues, by Barbara J Frey, BA, MA (University of Minnesota) & Peter J Hadden, BSc (Est Man), FRICS
January 2012

- *The link to this document was emailed to all of Council, if you would like a paper copy, please send your request to Emily at edance@kincardine.net*

- 7.2 Armow Wind Energy Project, e-mail from Karen Breitbach on behalf of Armow Citizens Group

- *Document was emailed to all of Council.*

- 7.3 Petition in support of responsible development of Renewable Energy Projects presented to Council December 21, 2011 (Item 7.0)

- *Motion from Council directed petition to the Building and Planning Department for review.*

8.0 SCHEDULE OF MEETINGS

9.0 ADJOURNMENT

Ad Hoc Committee- Samsung/Pattern Wind Project



**Minutes
Municipal Administration Centre at 5:15 pm**

1.0 CALL TO ORDER

Michele Barr called meeting to order.

2.0 ROLL CALL

Anne Eadie, Deputy Mayor
Maureen Couture, Councillor
Jacqueline Faubert, Councillor
Candy Hewitt, Councillor

Michele Barr, Staff Resource/Secretary

3.0 DECLARATIONS OF PECUNIARY INTEREST AND THE GENERAL NATURE THEREOF

None

4.0 NOMINATION OF CHAIR

Nominations for Chair opened. Anne Eadie was nominated as Chairman. Nominations for Chair closed.

Motion# SWP-12- 01

Moved: Maureen Couture

Seconded: Jacqueline Faubert

THAT the Committee agree, Anne Eadie is appointed to the Chairman position for the Ad Hoc Committee - Samsung/Pattern Wind Project.

Carried

Ad Hoc Committee- Samsung/Pattern Wind Project**5.0 AGENDA ADDITIONS & DELETIONS**

None

6.0 BUSINESS ARISING FROM MINUTES**6.1 Airport Vicinity**

The Committee discussed the Airport Vicinity mapping as per Policy 1.9 and Appendix A of the Comprehensive Zoning By-law.

The Committee suggested that we request confirmation that no turbines are proposed in the airport vicinity area as per 'Appendix A' of Comprehensive Zoning By-law 2003-25 by way of a Memorandum of Understanding (M.O.U.). The written confirmation would then be included in the Master Agreement for Council approval.

6.2 Buffer Zones

The Committee discussed the Buffer Zones. Further discussion with Samsung would be required at the next meeting in order to confirm whether the Municipal policy will be achieved. Further discussion on the buffers will be ongoing.

6.3 Woodlot Setbacks

The Committee questioned why project can only build 5 turbines with an 800 metre setback when municipal intent is to allow 200 metres at back of every 100 acres for a turbine. To request Samsung explain their presentation.

6.4 Lines from Turbines to substation / Buried Lines

The Committee discussed the burying of electrical lines as per Policy 1.9. The committee suggested entering into a Memorandum of Understanding (M.O.U.) regarding the burying of electrical lines. The written confirmation would then become part of the Master Agreement for Council approval.

6.5 Municipal Consultation Requirements

Michele clarified the Municipalities consultation requirements as per Ministry of Environment. The consultation form had not been completed as there is insufficient information submitted to date. Also noted was that the County of Bruce has started their review and the comments indicated the same.

Ad Hoc Committee- Samsung/Pattern Wind Project

7.0 CORRESPONDENCE

- 7.1 Wind Turbines and Proximity to Homes: The Impact of Wind Turbine Noise on Health, a review of the literature & discussion of the issues, by Barbara J Frey, BA, MA (University of Minnesota) & Peter J Hadden, BSc (Est Man), FRICS
January 2012

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- 7.2 Armow Wind Energy Project, e-mail from Karen Breitbach on behalf of Armow Citizens Group

- *Document was emailed to all of Council.*

- 7.3 Petition in support of responsible development of Renewable Energy Projects presented to Council December 21, 2011 (Item 7.0)

- *Motion from Council directed petition to the Building and Planning Department for review.*

8.0 SCHEDULE OF MEETINGS

Suggested dates for the meeting are either: January 23, 24, 30 or 31st at 5:00pm
Michele will request Samsung/Pattern to attend and will notify the Committee members on the final date.

9.0 ADJOURNMENT

Motion

Moved: Candy Hewitt

Seconded: Maureen Couture

THAT the Ad-Hoc Committee – Samsung/Pattern Wind Project now adjourns.

Carried

Chairman

Secretary

Ad Hoc Committee- Samsung/Pattern Wind Project



**Agenda
Municipal Administration Centre at 5:00 pm**

1.0 CALL TO ORDER

2.0 ROLL CALL

Anne Eadie, Deputy Mayor, Chairman
Maureen Couture, Councillor
Jacqueline Faubert, Councillor
Candy Hewitt, Councillor

Michele Barr, Staff Resource

3.0 DECLARATIONS OF PECUNIARY INTEREST AND THE GENERAL NATURE THEREOF

4.0 AGENDA ADDITIONS & DELETIONS

5.0 DELEGATION

5.1 Jody Law, Pattern Energy, and Brian Edwards, Samsung Renewable Energy

6.0 ADOPTION OF MINUTES

Motion:

Moved by:

Seconded by:

THAT the Minutes of January 13, 2012 Ad-Hoc Samsung/Pattern Wind project be approved as printed.

7.0 AGENDA ITEMS FOR DISCUSSION WITH DELEGATION

7.1 Airport Vicinity

The Committee is seeking a written confirmation that no turbines are proposed in the airport vicinity area as per 'Appendix A' of the Comprehensive Zoning By-law 2003-25

Ad Hoc Committee- Samsung/Pattern Wind Project

by way of a Memorandum of Understanding (M.O.U.) The written confirmation would then be included in the Master Agreement for Council approval.

7.2 Buffer Zones

Discussion if the Municipal Wind Policy will be achieved.

7.3 Woodlot Setbacks

Request clarification on why the project can only build 5 turbines with an 800 metre setback when the municipal intent is to allow 200 meters at the back of every 100 acres for a turbine.

7.4 Lines from Turbines to substation / Buried Lines

The Committee is seeking a written confirmation that all lines within the project will be buried by way of a Memorandum of Understanding (M.O.U.) the written confirmation would then be included in the Master Agreement for Council approval.

7.5 Questions received from Samsung/Pattern to Discuss

- Terms of Reference
- Group Goals and Objectives

7.6 Municipal Consultation Requirement

On hold until further information has been received.

8.0 CORRESPONDENCE

9.0 SCHEDULE OF MEETINGS

10.0 ADJOURNMENT

Motion

Moved by:

Seconded by:

THAT the Ad-Hoc Committee Samsung/Pattern Wind project now adjourns.

Ad Hoc Committee- Samsung/Pattern Wind Project



**Minutes
Municipal Administration Centre at 5:00 pm**

1.0 CALL TO ORDER

2.0 ROLL CALL

Anne Eadie, Deputy Mayor, Chairman
Maureen Couture, Councillor -A
Jacqueline Faubert, Councillor
Candy Hewitt, Councillor

Michele Barr, Staff Resource

3.0 DECLARATIONS OF PECUNIARY INTEREST AND THE GENERAL NATURE THEREOF

4.0 AGENDA ADDITIONS & DELETIONS

Moved 7.5 to beginning of agenda.

5.0 DELEGATION

5.1 Jody Law, Pattern Energy,
Brian Edwards, Samsung Renewable Energy,
Caitlin Burley, Golder & Associates

6.0 ADOPTION OF MINUTES

Motion:

Moved by: Candy Hewitt

Seconded by: Jacqueline Faubert

THAT the Minutes of January 13, 2012 Ad-Hoc Samsung/Pattern Wind project be approved as printed.

Carried

Ad Hoc Committee- Samsung/Pattern Wind Project**7.0 AGENDA ITEMS FOR DISCUSSION WITH DELEGATION****7.5 Questions received from Samsung/Pattern to Discuss**

Jody Law gave a description of the project background including information regarding Samsung Renewable Energy and Pattern Energy. Golder Associates has prepared a Draft project Description Report.

During the discussions the Chair clarified that the Committee was formed in order to have discussions and dialog with representatives from Samsung regarding the Armow Wind Project. The topic of the discussions will focus around the Municipality's Wind Guidelines in particular the Airport, buried lines and buffer zones. Subject to time frames it would be of great benefit to review the whole policy. The Committee will then report to Council.

7.1 Airport Vicinity

The Committee is seeking a written confirmation that no turbines are proposed in the airport vicinity area as per 'Appendix A' of the Comprehensive Zoning By-law 2003-25 by way of a Memorandum of Understanding (M.O.U.) The written confirmation would then be included in the Master Agreement for Council approval.

Delegation Comments

Mr. Law explained that the project boundaries were sent to NAV Canada for approval, and are waiting for their comments. Committee indicated that it is critical no turbines be located in the airport vicinity area 'Appendix A'.

They will take the request for written confirmation back to Samsung Upper Management. A time line was discussed for the responses, it was agreed that 30 days would be appropriate.

7.2 Buffer Zones

The committee chair explained the approach that council took with regard to the buffer zones. The buffer zones are intended to protect the growth areas of the Municipality being Urban, Lakeshore and Hamlet areas. The buffer zone discussions lead into 7.3 below setbacks.

Ad Hoc Committee- Samsung/Pattern Wind Project**7.3 Woodlot Setbacks**

Request clarification on why the project can only build 5 turbines with an 800 metre setback when the municipal intent is to allow 200 meters at the back of every 100 acre parcel for a turbine.

The group had a brief discussion on the setbacks for participating and non-participating landowners.

- Green Energy Act (GEA) minimum setback distance from neighbouring property is height of the turbine (blade not included)
- Kincardine's policy minimum is 1times the total WGS height (includes blade)

Participating

- GEA minimum N/A if agreement in place, if no agreement the proponent may apply to reduce the property line setback to the length of the turbine blade plus 10m
- Kincardine Policy Length of blade plus 5m.

When discussing the 800m setback from receptors Law noted that a receptor is placed on every lot prior to proceeding with the noise study as per MOE guidelines.

Setbacks and buffers will be further discussed.

The Committee suggested that Samsung and Pattern do more public relations, to provide the public with clear visual information, showing all required setbacks per GEA.

Law indicated that they are working on Archeology, Environmental and drainage studies.

7.4 Lines from Turbines to substation / Buried Lines

The Committee is seeking a written confirmation that all lines within the project will be buried by way of a Memorandum of Understanding (M.O.U.) the written confirmation would then be included in the Master Agreement for Council approval.

Discussion

Law questioned the Committee on their reasons for burying the lines. He explained that the travelled portion of the roads may not be in the centre of the road allowances which in some cases not allow enough physical space on the utility corridor to bury the lines. Staff suggested that Samsung submit maps, as soon as possible, of the proposed roads for review by the Public Works Manager.

Ad Hoc Committee- Samsung/Pattern Wind Project

The committee explained that it is best practice to bury all the lines and would also mitigate all risk. Law indicated there would be no transmission lines and approximately 9 circuits; he also noted they are well aware of the request from Municipality of Kincardine and land owners for buried lines.

They will take the confirmation request back for discussion and will notify the municipality in approximately 30 days.

7.6 Municipal Consultation Requirement

On hold until further information has been received.

8.0 CORRESPONDENCE**9.0 SCHEDULE OF MEETINGS**

Next Meeting tentatively scheduled for, March 6, 2012, 5:00 p.m.

10.0 ADJOURNMENT**Motion**

Moved by: Jacqueline Faubert

Seconded by: Candy Hewitt

THAT the Ad-Hoc Committee Samsung/Pattern Wind project now adjourns.

Carried

Chairman

Secretary



MEMORANDUM

TO Jody Law and Brian Edwards

DATE January 31, 2012

CC Ian Callum

FROM Caitlin Burley

PROJECT No. 11-1151-0247

AD HOC COMMITTEE MEETING, MUNICIPALITY OF KINCARDINE, JANUARY 31, 2012

Introduction and Airport Boundary Discussion

Brian: We understand the purpose of this committee was to discuss the complete policy.

Jody: Our expectation for this committee is to understand the intent of the policy.

Anne: These are our priorities (in agenda). We can discuss other things moving forward.

Explained the nature of these meetings (e.g., all discussion in this meeting is open to the public).

Brian: Can we inform you of a topic prior to the meeting to get it on the agenda?

Anne: Yes. However, we spent time on our wind development policy – we didn't anticipate changes.

Jacqueline: Can we discuss airport boundary?

Jody: We have submitted the Project boundary to Navigation Canada. Their input will help us make decisions about our layout.

Anne: Navigation Canada won't give much information. We are concerned about our airport being restricted by your turbines.

Jacqueline: Are there proposed turbines in the airport boundary?

Jody: Our Project boundary overlaps with your boundary.

Council: Yes or no? Are turbines going in our airport boundary?

Jody: We can't say yes or no right now, but we can take this request (no turbines in the airport boundary) to our management and get you an answer.

How was this area developed?

Michelle: Area developed by joint authorship – between Acciona and the Municipality of Kincardine.

Anne: We are concerned because airport is the only access to Kincardine at some times (e.g., roads get snowed in in the winter).

Jacqueline: Can Samsung not just make the concession to consider the airport boundary?



MEMORANDUM

Brian: We have a lot to discuss with respect to the Municipalities policy before concessions can be made.

Samsung/Pattern are a joint effort to 50-50 (Joint Venture).

Samsung – Constructing, Pattern – Operating, (Co-developing).

Pattern used to be a part of Babcock & Brown – it is a spin-off company.

Pattern has experience in North America developing wind projects.

Samsung – Phase II: picked areas where we wanted to build.

Built a relationship with Acciona and bought this Project.

We have no intention to grow the Project larger than it is.

Michelle: Can we have a timeframe on an agreement about the airport boundary? We would like something in writing.

Jody/Brian: Can we get back to you on a timeframe? Need to get advice from the Samsung/Pattern management team.

Anne: How is a month (30 days)?

Jacqueline: The public will expect a report back from this meeting. What can we tell them if we can't get a commitment from you on our issues with the Project?

Anne: We need to give reasonable timelines for responses. Understand that discussions are ongoing.

Brian: At this point in the Project development everything is dynamic. We are working with multiple Ministries and stakeholders on the development of our layout.

Anne: The Municipality is in a unique situation with no CAO.

Collector Line Discussion

Anne: We want to see the collector lines buried for the entire Project.

Brian: We would like to understand the rationale behind burying the lines.

Anne: We feel it is best practice.

Jody: We understand that buried is preference. There are areas where it may be difficult to bury. We are hearing the message about burying.

Anne: We are concerned about municipal roads. Where is your substation?

Brian: It hooks into the Bruce to Milton line within the north portion of our Project boundary.

Anne: Is that the step up station?



MEMORANDUM

Jody: Yes

Anne: Are all collector lines running along municipal road allowances?

We want the lines buried on all municipal road allowances.

Brian: Our preliminary design for our collector system is all lines running along municipal roads at 34.6 kV to a single sub-station. When it comes to engineering, we may not be able to bury. We will directionally drill and bury where possible. The sub-station/step-up location will be located close to the 230 kW/500 kW corridor.

Our intent with this method is to avoid running a new transmission line through community.

It will be difficult to sign something (an MOU) saying we will bury all lines at this early stage in the Project planning.

Jacqueline: Does it come down to money?

Jody/Brian: No, we just aren't at the point where we have the engineering planning completed.

Candy: Please give us an example of why you could not bury the lines.

Municipal Right of Way width: physical obstructions, hazard lands, water features, other utilities.

Jody: Can we take same position as with the airport? We will come back with a response in 30 days.

Are there any more reasons why you want us to bury the lines?

Anne: Unless you're going to filter, burying mitigates all risk.

Candy: Why is it best practice in your (wind power) industry?

Jody/Brian: Because people prefer it.

The main fear is stray voltage in barns, people thinking it comes from overhead lines. It only happens when there's pole sharing with a house.

Jacqueline: Do you think people are misinformed about health effects of stray voltage and EMF?

Jody: There is a lot of misinformation out there.

Anne: Are you willing to work with us on burying the lines? We want the lines buried. We own the road allowances.

Jody: We will do what we can to bury the lines, where possible.

Setbacks and Hamlet Buffers



MEMORANDUM

Anne: One rationale for implementing these buffers (Kincardine, Tiverton, Armow and Glamis) is for future growth – it is our responsibility to look out 40 years.

- 1) Lakeshore is #1 area for protection; and
- 2) Tiverton – area of growth because of new sub-divisions.

Jacqueline: We have been advocating for these buffers for 1 year.

Candy: Growth is important. If we can't grow, we will be crippled as a community.

Anne: We want to protect our lakeshore, but not everyone can afford the lakeshore, so we need to protect other areas such as Tiverton.

Brian: That's the rationale for the Lakeshore and Tiverton buffers. What about other areas?

Candy: Same principle, different location.

Jody: We would need to look at this on a case by case basis.

Jacqueline: This is so frustrating because we don't know where the turbines are going.

Jody: Our layout is dynamic.

Jacqueline: As a politician, it is difficult to make decisions on a case by case basis. We make decisions based on policies. Conversion switching to 800 m turbine set-back.

Anne: Our intention with setbacks was to allow 200m at back of farm. That should be lots of room.

Brian: There are many constraints that need to be considered when developing a layout

Jody: The map showing setbacks does not include constructability, noise, woodlots and vacant lot receptors.

Anne: What are vacant lot receptors?

Brian: *(Explained vacant lot method for noise assessment)*

We use aerial images for our layout and ground trothing exercise.

Anne/Michelle: County collected aerial data in 2010.

Brian/Jody: We have aeriels images from 2006 and in the process of purchasing 2010. We also may fly and take new up to date photos.

Anne: Our rationale was that vacant lots would not have "receptors".

Jacqueline: I would rather protect our buffer zones as opposed to a house that is not there.

Candy: What is your assumption in placing the vacant lot receptor?



MEMORANDUM

Jody/Brian: Need to investigate typical building practices and base receptor location on those practices.

Anne: We have driven out west (Saskatchewan and Alberta). Wind farm layouts are a lot less restrictive because no one lives near the wind farms.

Northern Ontario – why don't they build out there?

Brian: No transmission and lower wind resources.

Anne: Can you operate at higher wind speeds than older turbines?

Brian/Jody: Yes, but the wind speed is capped. Turbine shuts down at certain speeds.

Brian: Our approach is to avoid sensitive areas (woodlots, archaeological features, wetlands).

Consultation Methods

Michelle: How are First Nations involved?

Jody: We are meeting with First Nation and Métis separately.

Anne: Can you discuss meaningful open houses with the public?

People like a meeting format – then council does not have to act as a filter.

Brian: Our intent with the Open House format is to have experts available to answer people's questions. The first Open House is about providing information early in the process. We can't go in with a layout and answers to everyone's questions because we're just starting the process. We don't have a layout, we are studying the project location.

Jacqueline: We didn't like the experts.

Brian: If we have a town hall, we will need to bring the experts. People have concerns that only the experts can answer.

Anne: The public wants you (Samsung and Pattern) to answer.

Jacqueline: I would recommend you come to council soon.

Anne: I don't think it makes sense until 30 days from now when you have answers for us.

Jody: Would it be helpful for us to set up presentation to council (e.g., health effects)?

Anne: We've had a large number of health presentations.

Presentation preferred on parameters of REA process (e.g. working with agencies, Aboriginal groups).

Candy: Maybe present the map to council. The maps are useful because people feel that so much of the layout development occurs behind the scenes.



MEMORANDUM

Jody: Thanks – we will use visual tools such as this moving forward.

Discussion closes and next meeting is arranged for March 6.

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Ad Hoc Committee- Samsung/Pattern Wind Project



**Agenda
Municipal Administration Centre at 5:00 pm**

1.0 CALL TO ORDER

2.0 ROLL CALL

Anne Eadie, Deputy Mayor, Chairman
Maureen Couture, Councillor
Jacqueline Faubert, Councillor
Candy Hewitt, Councillor

Michele Barr, Staff Resource

3.0 DECLARATIONS OF PECUNIARY INTEREST AND THE GENERAL NATURE THEREOF

4.0 AGENDA ADDITIONS & DELETIONS

5.0 DELEGATION

5.1 Jody Law, Pattern Energy,
Brian Edwards, Samsung Renewable Energy
Caitlin Burley, Golder & Associates

6.0 ADOPTION OF MINUTES

Motion:

Moved by:

Seconded by:

THAT the Minutes of January 31, 2012, Ad-Hoc Samsung/Pattern Wind project be approved as printed.

Ad Hoc Committee- Samsung/Pattern Wind Project**7.0 AGENDA ITEMS FOR DISCUSSION WITH DELEGATION****7.1 Airport Vicinity**

At the January 31, 2012 meeting it was agreed that a request for written confirmation that no turbines are proposed in the airport vicinity area as per Appendix A' of the Comprehensive Zoning By-Law 2003-25 by way of a Memorandum of Understanding (M.O.U.) would be presented to Samsung Upper Management and reported back to the Committee within 30 days.

7.2 Lines from Turbines to substation / Buried Lines

At the January 31, 2012 meeting it was agreed that a request for written confirmation that all lines within the project will be buried by way of a Memorandum of Understanding (M.O.U.) would be presented to Samsung Upper Management and reported back to the Committee within 30 days.

7.2 Buffer Zones

Discussion on status of accommodation of the Municipal Wind Policy Buffer zones.

7.3 Setbacks

Discussion on status of setback requirements.

- Woodlots
- Participating / Non-participating land owners

7.5 Questions received from Samsung/Pattern**7.6 Green Energy Act Consultation Process**

- **Update on Consultation Process - Timeline**
- **Municipal Consultation Requirement** – On hold until further information has been received.

Ad Hoc Committee- Samsung/Pattern Wind Project

7.7 Questions- Waiting for Samsung response.

- Percentage of property owners in the project area signed up?
- Percentage of absentee property owners in the project area signed up?
- Intentions to source local labour and materials.
- Availability of current mapping of project.

8.0 CORRESPONDENCE

9.0 SCHEDULE OF MEETINGS

10.0 ADJOURNMENT

Motion

Moved by:

Seconded by:

THAT the Ad-Hoc Committee Samsung/Pattern Wind project now adjourns.

Ad Hoc Committee- Samsung/Pattern Wind Project



**Minutes
Municipal Administration Centre at 5:00 pm**

1.0 CALL TO ORDER

2.0 ROLL CALL

Anne Eadie, Deputy Mayor, Chairman
Maureen Couture, Councillor
Jacqueline Faubert, Councillor
Candy Hewitt, Councillor

Michele Barr, Staff Resource

3.0 DECLARATIONS OF PECUNIARY INTEREST AND THE GENERAL NATURE THEREOF

4.0 AGENDA ADDITIONS & DELETIONS

5.0 DELEGATION

5.1 Jody Law, Pattern Energy,
Brian Edwards, Samsung Renewable Energy
Caitlin Burley, Golder & Associates

6.0 ADOPTION OF MINUTES

Motion:

Moved by: Maureen Couture

Seconded by: Candy Hewitt

THAT the Minutes of January 31, 2012, Ad-Hoc Committee Samsung/Pattern Wind project be approved as printed.

Carried

Ad Hoc Committee- Samsung/Pattern Wind Project**7.0 AGENDA ITEMS FOR DISCUSSION WITH DELEGATION****7.1 Airport Vicinity**

At the January 31, 2012 meeting it was agreed that a request for written confirmation that no turbines are proposed in the airport vicinity area as per Appendix A' of the Comprehensive Zoning By-Law 2003-25 by way of a Memorandum of Understanding (M.O.U.) would be presented to Samsung Upper Management and reported back to the Committee within 30 days.

The request was presented to Samsung/Pattern Upper Management; there was no written agreement provided at this time. There were questions on how the memorandum of understanding would become part of the master agreement. It was explained that the master agreement will cover a number of items that the Municipality will request and the written response will or could be a schedule.

To date, Samsung/Pattern has not determined the exact layout for the turbines in the project area. In approximately four weeks' time Samsung/Pattern will be able to provide a layout. Samsung/Pattern noted, they have made application to Nav. Canada with regard to the boundary of the project, and are awaiting a response.

Samsung/Pattern stated they do not want to be within the airport approach paths or vicinity mapping area. The Municipality indicated that the request for the Memorandum of Understanding is still a requirement even if the layout submitted does not include turbines in the airport vicinity mapping. Again it was indicated that the Project Description Report along with all associated reports will be forthcoming in the next four weeks.

Municipal Staff is to provide Samsung/Pattern with a copy of a prototype agreement for reference with the understanding that the agreement will be site specific for each project.

7.2 Lines from Turbines to substation / Buried Lines

At the January 31, 2012 meeting it was agreed that a request for written confirmation that all lines within the project will be buried by way of a Memorandum of Understanding (M.O.U.) would be presented to Samsung Upper Management and reported back to the Committee within 30 days.

The request was presented to Samsung/Pattern Upper Management; there was no written agreement provided at this time.

Ad Hoc Committee- Samsung/Pattern Wind Project

Samsung/Pattern explained however, that they are committed to burying the lines underground unless there is interference from other authorities. Difficulties could include: hazards lands, ditches, and streams. There will be a substation and collector lines for the project however; there will be no transmission lines.

The lines are to be shielded and installed in compliance to the CSA standards.

7.3 Buffer Zones / Setbacks**7.4**

The status of the Municipal Wind Policy Buffer zones was discussed.

Number and location of turbines is geared to the project obligation to produce 180 mg watts.

Samsung/Pattern indicated that the Buffer Zones around Town of Kincardine and Village of Tiverton will be maintained, however Armow and Glammis will not be met.

There was no indication of what the proposed buffer zone would be for Armow and Glammis. They are still siting the turbines and working with the HONI setbacks.

They are working on shielding the lights that are installed on the top of the turbines.

MOVE INTO CLOSED SESSION**Motion**

Moved: Candy Hewitt

Seconded: Maureen Couture

THAT the Ad-Hoc Committee move into closed session to discuss items of personal matters about an identifiable individual and return to regular open meeting upon completion.

Carried

7.5 Questions received from Samsung/Pattern

Included in above discussions.

Ad Hoc Committee- Samsung/Pattern Wind Project

7.6 Green Energy Act Consultation Process

Update on Consultation Process – Timeline

The report submission has been delayed by approximately four weeks
The reports will be submitted to the Municipality for a 90 day commenting period.
The reports will be submitted to the Public for a 60 day commenting period.

Municipal Consultation Requirement – On hold until further information has been received.

7.7 Questions- Waiting for Samsung response.

- Percentage of property owners in the project area signed up?
- Percentage of absentee property owners in the project area signed up?
- Intentions to source local labour and materials.
- Availability of current mapping of project.

No discussion

8.0 CORRESPONDENCE

None

9.0 SCHEDULE OF MEETINGS

The next meeting is tentatively scheduled to be held in two months' time.

10.0 ADJOURNMENT

Motion

Moved by: Candy Hewitt

Seconded by: Jacqueline Faubert

THAT the Ad-Hoc Committee Samsung/Pattern Wind project now adjourns.

Carried

Chairman

Secretary

Ad Hoc Committee- Samsung/Pattern Wind Project

DRAFT



MEMORANDUM

TO Jody Law and Brian Edwards

DATE March 19, 2012

CC Ian Callum

FROM Caitlin Burley

PROJECT No. 11-1151-0247

AD HOC COMMITTEE MEETING, MUNICIPALITY OF KINCARDINE, MARCH 19, 2012

MOUs for Airport Vicinity and Collector Line Burial

Anne: Has there been a decision on the Airport Vicinity Buffer? Will Samsung/Pattern sign an MOU agreeing to stay out of the Airport vicinity?

Jody: Before we discuss the MOU, we would like to discuss the remainder of the policy and clarify the Project Master Agreement and how the MOU relates.

Michelle: The MOU for the airport vicinity gets appended the Master Agreement with the Municipality.

Jody: We will not be able to sign anything until the layout is finalized.

We expected to release the final layout this week but there have been some delays so layout should be coming in 4 weeks time.

Anne: What is the rationale for 4 weeks?

Jody: Technically there have been changes to layout in response to the council and public comments.

Maureen: Do you know whether turbines are going to be in airport vicinity?

Jacqueline: If you want to avoid the airport, why can't you do that?

Brian: We plan to stay outside of airport vicinity, but will not be able to agree to an MOU until the layout becomes public.

We act as go-between between our management and this committee. We (Jody/Brian) cannot sign the MOU.

Maureen: My concern is that the cables need to go underground

Brian: This can not be committed to until we are farther along in our engineering design.

We have hired AMEC as our engineering company. We are also working with surveyors to start this process.

Anne: What types of areas would require above ground cabling?

Brian: Some rock cuts very difficult to go under, hazards lands, waterways, physical obstructions such as mature trees, as are large ditches and streams. We also need space (width of



MEMORANDUM

road)

Jacqueline: Would you shield these lines?

Jody: There are standards we must follow and we will follow them.

Michelle: Please don't wait for the 90-day mark to start providing us with this information. The more information you can provide to us now, the better.

Jacqueline: 90 days – what is the 90-day mark?

Jody: We provide all REA reports to the municipalities 90 days prior to the final Open House for review.

The reports go to the public 60 days prior to the final Open House.

Jacqueline: Is your next consultation event (final Open House) scheduled for June?

Jody: No – our schedule has been pushed to July, we will provide notice.

Anne: Do you have questions Blake (Airport Manager)?

Blake
(Airport
Manager): What is Navigation Canada is looking at when you submit the layout?
What type of information do you provide to Navigation Canada?

Jody: We submitted a Project area and highest point of turbines.

Blake: Have you followed other protocols for airport buffers in the past?

Jody: The Navigation Canada protocol has been sufficient for other projects.

Blake: Can a specific protocol for consultation about the airport vicinity be put in place?

Jody: We follow a stepwise consultation process and are currently consulting with you about the airport.

We also take comments from the public at Open Houses about any topic.

Anne: We are keen to have a MOU in writing. We want to know as soon as possible. Would this be in 4 weeks?

Brian: Would you still want the MOU if the layout is released with no turbines in the airport vicinity?

Jody: What is driving the timeline?

Anne: Just the Council's request that it be nailed down.

Jody: An MOU needs back and forth between our management and Municipality staff in order to finalize.



MEMORANDUM

Michelle: You need to start talking to our staff as soon as possible.

Even if the layout is not finalized, we want to see whatever you can give us.

Jody: We understand. Let's schedule a meeting.

Jacqueline: How high are the turbines?

Jody: 150m

Jacqueline: How many MW will the turbines produce?

Brian: 2.3 MW, but some will be derated between 1.8 and 2.3 MW.

Jacqueline: Why are you derating?

Jody/Brian: So that we can control sound.

Anne: Derating – is that a remote control activity (e.g., from a laptop) or will that be done from an on-site operations building?

Brian: It is a programming adjustment done at the turbine commissioning phase. The manufacturer makes this adjustment, we do not have the access or the algorithms to change this setting.

Anne: Where will the turbine be run from?

Brian: It can be operated from anywhere.

Anne: Some wind farms are operated remotely (e.g., off-site).

Jody: Our current plan is to have an on-site operations building.

Jacqueline: Noise Assessment – How does it work? Who does the assessment?

Brian: We follow very stringent guidelines when doing the noise assessment.

Candy: What are the plans to move forward communications-wise so that we don't waste time?

When you have a question, I suggest you communicate directly with Michelle so that we spend less time having these types of conversations (clarification of municipal processes).

Buffer Zones and Setbacks

Anne: We were hoping you could give us an answer to buffer zones for our hamlets (Kincardine, Tiverton, Glammis and Armow).

Jody: We can meet setbacks for Tiverton, Kincardine and Lakeshore. We cannot meet the Glammis and Armow setbacks.

Anne: At your last presentation to council, you said that you could site 5 turbines with the setbacks from our Policy.



MEMORANDUM

We wanted to see the reason why you couldn't or could put a turbine on certain pieces of land.

Jody/Brian: We are obligation to produce the 180 MW. We have brought maps with us for discussion purposes, but these are still confidential.

We request to move into closed session

Anne: We are moving into closed session.

(Anne asks members of public to leave)

Are there any discussion points before moving to closed session?

Jacqueline: Given our policy, you can only erect 5 turbines. You are going ahead with your Project anyways?

I think it should be made public if you are not going to adhere to our policy.

Member of the Public: Buffer zone – who will be policing those buffers?

Anne: We can't respond to questions from the public at this time.

Move into Closed Session to Discuss Detailed Layout

Anne: When we developed our policy, we were assuming that houses were located at the front of each property, therefore 800m from the front of the property line would leave 200 m at the back of every property. It was an intention to have 200 m at the back of every property.

Jody: Even with 200 m at back of properties, there are woodlots that need to be avoided.

Jacqueline: Perhaps if there is no space for a turbine with our 800 m setbacks, then that suggests that a turbine should not go there.

Michelle: How close to our 800 m are you going to get? 550 m? 600 m? 750 m?

Jody: We can't say at this point – we will know when the layout is finalized.

Anne: In a 400 acre parcel can you put more than 1 turbine?

Jody: Yes, but it in many cases it's not possible. Noise and other constraints (site suitability, archeology, natural features etc.) get factored in.

Anne: What about infrastructure (e.g., access roads) setbacks? How do you site access roads?

Jody: These are negotiated with our landowners. It is often based on their preference and constructability.

Jacqueline: It's not just our policy that's restrictive. There are other factors isn't that correct?



MEMORANDUM

- Jody:** Yes, that's correct.
- Candy:** Given the complexity of the land, why would you continue pursuing this Project?
- Brian:** This is relatively uncomplicated land.
- Jacqueline:** Wouldn't it cost more money to construct roads wherever farmers want them
Do we have development changes on their roads?
- Jody:** It can cost more money. We take landowner requests very seriously. We co-locate roads to best suit both party's needs. We limit the amount of land taken out of production, improve farming operations to efficiently access turbines. These arrangements are discussed with landowners.
- Anne:** No development charges on roads.
- Candy:** Road access – do roadways need to follow the same setbacks?
- Jody/Brian:** No all setbacks required, but assessment needs to be done and sensitive areas need to be avoided.
- Jacqueline:** Because you're exempt EA process, do you have to do studies in sensitive areas?
- Jody:** We are not exempt from an EA process. The REA process requires more intensive studies than other permitting processes. (*Jody explained Natural Heritage protocol*)
- Anne:** I need to go through the map property by property to fully understand why we can't site more turbines with the Municipal Policy.
Why do you put vacant lot receptors on lands with no houses?
- Anne:** Why do you put vacant lot receptors on merged land belonging to one landowner?
Why do you consider lot line setbacks on merged properties?
- Jody/Brian:** If there hasn't been officially (legally) merged, the lot lines still exist. Vacant lot receptors are used to consider potential future builds.
- Michelle:** How many turbines in your proposed layout?
- Jody:** 99 – our current model has 96.
You need to understand, we are permitting 96 – 98 so that there is flexibility in the layout.
Our intention is to build approximately 90 turbines.
- Candy:** Would Samsung build a turbine 350 m from participating landowners?
- Brian/Jody:** No. This is not our intent.
- Anne:** To summarize



MEMORANDUM

- 800 m setback from receptor = 6 - 7 turbines in Project Area
- 800 m from front of lot = 20 - 30 turbines in Project Area
- Minimum of 550 m = 90 turbines to meet 180 MW

Jody: Yes based on current layout. We are still in the process of finalizing.

Candy: I think that it would be valuable for you (Jody and Brian) to work with Michelle before our next meeting.

(Brian and Jody set up meeting with Michelle)

Anne: Next meeting in two months?

(agreement by all parties)

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Ad Hoc Committee- Samsung/Pattern Wind Project



**Agenda
Municipal Administration Centre at 5:00 pm**

1.0 CALL TO ORDER

2.0 ROLL CALL

Anne Eadie, Deputy Mayor, Chairman
Maureen Couture, Councillor
Jacqueline Faubert, Councillor
Candy Hewitt, Councillor

Michele Barr, Staff Resource

3.0 DECLARATIONS OF PECUNIARY INTEREST AND THE GENERAL NATURE THEREOF

4.0 AGENDA ADDITIONS & DELETIONS

5.0 DELEGATION

5.1 Jody Law, Pattern Energy,
Brian Edwards, Samsung Renewable Energy
Caitlin Burley, Golder & Associates

6.0 ADOPTION OF MINUTES

Motion:

Moved by:

Seconded by:

THAT the Minutes of March 29, 2012, Ad-Hoc Samsung/Pattern Wind project be approved as printed.

Ad Hoc Committee- Samsung/Pattern Wind Project

7.0 AGENDA ITEMS FOR DISCUSSION WITH DELEGATION

7.1 Project Description Report

Update on the Project Description Report along with all associated reports.

7.2 Airport Vicinity

Discussion on the request for memorandum of Understanding for confirmation turbines will not be located within the airport approach.

7.3 Lines from Turbines to substation / Buried Lines

Update to burying the lines underground unless there is interference from other authorities.

7.4 Buffer Zones

Discussion on status of accommodation of the Municipal Wind Policy Buffer zones.

7.5 Questions received from Samsung/Pattern

7.6 Green Energy Act Consultation Process

- **Update on Consultation Process - Timeline**
- **Municipal Consultation Requirement** – On hold until further information has been received.

Ad Hoc Committee- Samsung/Pattern Wind Project

8.0 CORRESPONDENCE

9.0 SCHEDULE OF MEETINGS

10.0 ADJOURNMENT

Motion

Moved by:

Seconded by:

THAT the Ad-Hoc Committee Samsung/Pattern Wind project now adjourns.

Ad Hoc Committee- Samsung/Pattern Wind Project



**Minutes
Municipal Administration Centre at 5:00 pm**

1.0 CALL TO ORDER

2.0 ROLL CALL

Anne Eadie, Deputy Mayor, Chairman
Maureen Couture, Councillor
Jacqueline Faubert, Councillor
Candy Hewitt, Councillor

Michele Barr, Staff Resource

3.0 DECLARATIONS OF PECUNIARY INTEREST AND THE GENERAL NATURE THEREOF

4.0 AGENDA ADDITIONS & DELETIONS

5.0 DELEGATION

5.1 Jody Law, Pattern Energy,
Brian Edwards, Samsung Renewable Energy
Caitlin Burley, Golder & Associates

6.0 ADOPTION OF MINUTES

Motion:

Moved by: Maureen Couture

Seconded by: Candy Hewitt

THAT the Minutes of January 31, 2012, Ad-Hoc Committee Samsung/Pattern Wind project be approved as printed.

Carried

Ad Hoc Committee- Samsung/Pattern Wind Project**7.0 AGENDA ITEMS FOR DISCUSSION WITH DELEGATION****7.1 Airport Vicinity**

At the January 31, 2012 meeting it was agreed that a request for written confirmation that no turbines are proposed in the airport vicinity area as per Appendix A' of the Comprehensive Zoning By-Law 2003-25 by way of a Memorandum of Understanding (M.O.U.) would be presented to Samsung Upper Management and reported back to the Committee within 30 days.

The request was presented to Samsung/Pattern Upper Management; there was no written agreement provided at this time. There were questions on how the memorandum of understanding would become part of the master agreement. It was explained that the master agreement will cover a number of items that the Municipality will request and the written response will or could be a schedule.

To date, Samsung/Pattern has not determined the exact layout for the turbines in the project area. In approximately four weeks' time Samsung/Pattern will be able to provide a layout. Samsung/Pattern noted, they have made application to Nav. Canada with regard to the boundary of the project, and are awaiting a response.

Samsung/Pattern stated they do not want to be within the airport approach paths or vicinity mapping area. The Municipality indicated that the request for the Memorandum of Understanding is still a requirement even if the layout submitted does not include turbines in the airport vicinity mapping. Again it was indicated that the Project Description Report along with all associated reports will be forthcoming in the next four weeks.

Municipal Staff is to provide Samsung/Pattern with a copy of a prototype agreement for reference with the understanding that the agreement will be site specific for each project.

7.2 Lines from Turbines to substation / Buried Lines

At the January 31, 2012 meeting it was agreed that a request for written confirmation that all lines within the project will be buried by way of a Memorandum of Understanding (M.O.U.) would be presented to Samsung Upper Management and reported back to the Committee within 30 days.

The request was presented to Samsung/Pattern Upper Management; there was no written agreement provided at this time.

Ad Hoc Committee- Samsung/Pattern Wind Project

Samsung/Pattern explained however, that they are committed to burying the lines underground unless there is interference from other authorities. Difficulties could include: hazards lands, ditches, and streams. There will be a substation and collector lines for the project however; there will be no transmission lines. The lines are to be shielded and installed in compliance to the CSA standards.

7.3 Buffer Zones / Setbacks

The status of the Municipal Wind Policy Buffer zones was discussed.

Number and location of turbines is geared to the project obligation to produce 180 mg watts.

Samsung/Pattern indicated that the Buffer Zones around Town of Kincardine and Village of Tiverton will be maintained, however Armow and Glammis will not be met.

There was no indication of what the proposed buffer zone would be for Armow and Glammis. They are still siting the turbines and working with the HONI setbacks.

They are working on shielding the lights that are installed on the top of the turbines.

MOVE INTO CLOSED SESSION**Motion**

Moved: Candy Hewitt

Seconded: Maureen Couture

THAT the Ad-Hoc Committee move into closed session to discuss items of personal matters about an identifiable individual and return to regular open meeting upon completion.

Carried

7.4 Questions received from Samsung/Pattern

Included in above discussions.

7.5 Green Energy Act Consultation Process

Ad Hoc Committee- Samsung/Pattern Wind Project

Update on Consultation Process – Timeline

The report submission has been delayed by approximately four weeks
The reports will be submitted to the Municipality for a 90 day commenting period.
The reports will be submitted to the Public for a 60 day commenting period.

Municipal Consultation Requirement – On hold until further information has been received.

7.6 Questions- Waiting for Samsung response.

- Percentage of property owners in the project area signed up?
- Percentage of absentee property owners in the project area signed up?
- Intentions to source local labour and materials.
- Availability of current mapping of project.

No discussion

8.0 CORRESPONDENCE

None

9.0 SCHEDULE OF MEETINGS

The next meeting is tentatively scheduled to be held in two months' time.

10.0 ADJOURNMENT

Motion

Moved by: Candy Hewitt

Seconded by: Jacqueline Faubert

THAT the Ad-Hoc Committee Samsung/Pattern Wind project now adjourns.

Carried

Chairman

Secretary

Ad Hoc Committee- Samsung/Pattern Wind Project



**Minutes
Municipal Administration Centre at 5:00 pm**

1.0 CALL TO ORDER

2.0 ROLL CALL

Anne Eadie, Deputy Mayor, Chairman
Maureen Couture, Councillor - A
Jacqueline Faubert, Councillor
Candy Hewitt, Councillor – arrived at 5:07 pm

Michele Barr, Staff Resource

3.0 DECLARATIONS OF PECUNIARY INTEREST AND THE GENERAL NATURE THEREOF

4.0 AGENDA ADDITIONS & DELETIONS
None

5.0 DELEGATION

5.1 Jody Law, Pattern Energy,
Brian Edwards, Samsung Renewable Energy
Caitlin Burley, Golder & Associates

6.0 ADOPTION OF MINUTES

Motion:

Moved by: Candy Hewitt

Seconded by: Jacqueline Faubert

THAT the Minutes of March 29, 2012, Ad-Hoc Samsung/Pattern Wind project be approved as printed.

Carried

Ad Hoc Committee- Samsung/Pattern Wind Project**7.0 AGENDA ITEMS FOR DISCUSSION WITH DELEGATION****7.1 Project Description Report**

Project Description Report along with all associated reports should be available by the end of June. REA documents Bio, Arch, and Construction etc.

7.2 Airport Vicinity

Draft Memorandum of Understanding was presented to the committee. The memorandum incorporated a number of the policies one was a statement confirming turbines will not be located within the airport vicinity mapping. Committee requested a Memorandum of Understanding to only address the airport. The committee will review the document.

7.3 Lines from Turbines to substation / Buried Lines

Samsung/Pattern confirmed their intentions are to bury the lines underground unless there is interference from other authorities. Information included in the Draft Memorandum of Understanding that was presented.

It was noted that the Substation will be located near the collection lines as there are no transmission lines.

7.4 Buffer Zones

Samsung/Pattern indicated the buffer zones will be met for the Primary Urban and Secondary Urban Communities being Kincardine, Tiverton, and Lakeshore. Samsung explained that the average distance to non-participating properties is 710m, and closer than 550m to participating.

The approval to REA includes– 99 turbines (proposed outside airport vicinity), 90 turbines are actually going to be built as part of the project

7.5 Questions received from Samsung/Pattern

Included in above discussions.

7.6 Green Energy Act Consultation Process

- **Update on Consultation Process - Timeline**

Ad Hoc Committee- Samsung/Pattern Wind Project

- **Municipal Consultation Requirement** – On hold until further information has been received.

8.0 CORRESPONDENCE

None

9.0 SCHEDULE OF MEETINGS

10.0 ADJOURNMENT

Motion

Moved by: Jacqueline Faubert

Seconded by: Candy Hewitt

THAT the Ad-Hoc Committee Samsung/Pattern Wind project now adjourns.

Carried

Chairman

Secretary-Treasurer



MEMORANDUM

TO Jody Law and Brian Edwards

DATE May 30, 2012

CC Ian Callum

FROM Caitlin Burley

PROJECT No. 11-1151-0247

AD HOC COMMITTEE MEETING, MUNICIPALITY OF KINCARDINE, MAY 29, 2012

Project Description update

Jody	<p>We have spent significant time over the past two months reviewing the layout to ensure it meets all regulation requirements and aligns with the municipality's wind development policy.</p> <p>The layout should be made public by the end of June/early July. Reports will go to municipalities at same time. These include biology, archaeology, construction, decommissioning and operations reports (examples – not a full list of reports that will be submitted).</p>
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MOU Update (airport vicinity)

Jody	Airport clause in our MOU states that turbines will not be located in the airport buffer zone (defined in the wind development policy).
Michelle	What is are all of these other clauses?
Brian	The MOU is not meant to act as a Master agreement. It also commits project lines to run underground, where feasible.
Jacqueline	You have included a lot of things that we haven't asked for. I am concerned because it says that decommissioning approach will be determined by the developer. I don't want to sign an MOU commits us to other things (e.g., decommissioning approach) just so we can protect our airport.
Jody/Brian	We will be preparing report that outline decommissioning practices for review of both the municipality and the public. This is standard practice.
Jacqueline	What was the spirit of this MOU (including other clauses) when all we wanted was to protect our airport?
Jody/Brian	We went through the Kincardine wind development policy and addressed as many topics as possible.
Brian	A Master Agreement (MA) will be coming – this is meant to act as a starting point for the MA.
Michelle	MA to be completed by end of year?
Brian	Yes – that is our intent.



MEMORANDUM

Anne	We had asked for MOU on airport. Now that we have other topics covered, can we address the development of a dispute resolution process. This appears to be missing from the MOU.
Brian/Jody	This may be part of an MA, we will also consider adding it in to the MOU. I also believe it is required as part of the REA Reports (Design and Operations Report).
Jacqueline	Clarification question: There is a clause that states that we cannot change our policy or add new development fees. If we sign this to protect our airport, are we signing away our ability to alter policy or existing fee structure?
Brian	We would like a clear path forward for this project. We, in turn, are trying to meet your policy and/or the intent of policy.
Candy	I feel that the inclusion of the clause a little offensive because our job is to govern. By signing this, we are signing away our right to govern. What are the legal implications of signing this? Can our residents carry out litigation against us?
Anne	We will need to have our lawyers look at all of this. I think we may be complicating things by having so many topics covered.
Jody	It was not our intent to complicate things, we wanted to formalize our commitments as part of this MOU.
Anne	I would like to see an individual MOU for the airport so that we can move forward quickly. There is a business motivation here, we have people that won't purchase hangers until this is sorted out.
Jody	We can take this back, but we may get pushback on having individual MOU for different topics. We develop these types of agreements holistically to address requests and concerns of many issues.
Brian	It's taken us a long time to get to this point – asking for a separate MOU will lengthen the process.
Jacqueline	I feel like you're trying to sneak something by us by having us sign agreements on other clauses that I don't agree with.
Candy	I feel as though you're giving us more than what we asked for and we're not actually getting what we asked for.
Anne	There are certain clauses of this agreement that will complicate things.
Brian	The issue that we're struggling with is that we look at things holistically. Our companies would like to address your policy as a whole. We also have business concerns that we want to talk about. You have business concerns about your airport, we have business concerns about our project.



MEMORANDUM

Buried Lines

Jacqueline	The clause about airport says that SP intends to bury the lines – this is not a commitment.
Brian	At this point, we're working with the municipality (Michelle) to get the lines underground.
Jacqueline	We will know by September?
Brian	We are working to get you an answer as soon as possible.
Michelle	Where will the lines connect into the grid?
Brian	Underground to a substation near the 230 kV/500 kV corridor. Mid-North boundary of the Project.

Buffer Zones

Jody	We are able to drop turbines from Kincardine, Lakeshore Tiverton hamlets.
Candy	What about other buffer zones?
Jody	We've been trying to stay out of those (Glamis and Armow). We can not.
Anne	The municipality owns quite a lot of land in the Armow buffer zones – not as many Armow participants as I originally thought.
Jacqueline	Are there any turbines that will be located closer than that 800 m to a receptor?
Jody	We have worked for the past few months to increase the distance between turbines and non-participating receptors. We now have an average distance of 710 m from receptors.
Jacqueline	Are there any turbines closer than 550m to a receptor?
Jody	Not closer than 550m to a non-participating receptor.
Jacqueline	What about participating receptors?
Jody/Brian	Yes. We provide details in the Noise Report.

General Comments/Questions

Jacqueline	There are still three questions from November 2011 that you haven't answered. 1. What percentage of property owners live on the property they are having a turbine on?
Jody	The reason that we have not provided you with a definite answer is that this is actually more difficult than it appears – we can keep going to get you an answer on this. We don't often know where people's residences are. We don't always meet in their homes.
Jacqueline	2. Will you source labour locally?



MEMORANDUM

Brian	This will be addressed when we start working with contractors. We prefer local, but we can't tell them to hire certain people. We have started a local contractor list.
Jacqueline	A certain percentage of the workforce needs to be local under the <i>Green Energy Act</i> , correct?
Brian	Local to Ontario = 95%. Yes. Fit requires 50% local Ontario content. We intend to exceed this.
Jacqueline	When you're looking for local contractors, do you go to open tender?
Brian	Yes.
Jacqueline	3. Are there going to be turbines built in the airport buffer zone?
Brian	This has been addressed over the course of our committee meetings. When can we start MA discussions?
Michelle	July is reasonable.
Jacqueline	What was your intent when you bring this to council? (directed at Anne)
Anne	We will need to discuss with staff (Michelle/Murray) before we bring it to Council.
Michelle	It may be worthwhile for the committee to meet as a group once again before this goes to Council.
Group	Agreed.
Action Items	
<ol style="list-style-type: none"> 1. Check if dispute resolution process is a requirement in the Design and Operations Report (CB/Brian). Not a discreet requirement of the O.Reg. 359/09, but standard practice is to include it in the Non-Emergency Communications section of the Emergency Response and Communications Plan – see example provided in email. 2. Look at closest distance to participating receptor (Jody/Brian). 3. Find out if a separate MOU for airport can be developed as soon as possible (2-3 weeks). 4. Municipality to provide written comments on the airport clause as soon as possible. 5. Municipality to give the entire MOU to council after discussion with staff and an additional committee meeting. 	



MEMORANDUM

Jody Law	It will be made available as part of the REA submission.
<i>Council meeting continues onto other business. Most community members leave.</i>	

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6. Kincardine Wind Generation System Development Policy

POLICY

POLICY NO: PD.1.9

SECTION: PLANNING & DEVELOPMENT

TITLE/SUBJECT: WIND GENERATION SYSTEM DEVELOPMENT
POLICY

ADOPTED DATE: April 13, 2011

REVISION DATE:

1. PURPOSE:

The Municipality of Kincardine shall protect the public and municipal infrastructure from the impact of the development of Wind Generation Systems. This policy will provide developers of Wind Generation Systems in the Municipality of Kincardine a preferred policy in regard to such development.

2. POLICY:

The Municipality of Kincardine will review applications for Renewal Energy Approvals for Wind Energy Conversion Systems (Wind Generation Systems) in accordance with the parameters set out in this policy. The Municipality of Kincardine comments to a Renewal Energy wind project application will be based on compliance with this policy.

3. 1. DEFINITIONS:

Commercial Wind Generation Systems (CWGS): means one or more Wind Generating Systems (WGS) that singly or collectively produce more than a total of 40 kilowatts (kW) based on 'nameplate rating capacity' and are connected to the provincial grid.

Municipality: means The Corporation of the Municipality of Kincardine.

Wind Generation System (WGS): means any device such as a wind charger, windmill, or wind turbine that converts wind energy to electrical energy.

Wind Generation System Accessory Facilities: means those facilities, equipment, machinery, and other devices necessary to the proper

operation and maintenance of a wind energy conversion system, including access roads, collector and feeder lines, and substations.

2. RESPONSIBILITY OF THE DEVELOPER:

The Council for the Municipality of Kincardine deems it advisable to enter into a Wind Power Project Master Agreement with the Developer in order to set out their respective rights and obligations as they relate to the wind energy generation facility financial and otherwise.

The developer is to provide all documents to the Municipality, required by any authority having jurisdiction that are part of the approval process for the project and such documents are to be provided within 60 days of request.

3. THE AGREEMENT:

That agreement shall include but not limited to the following clauses.

Community Development Contribution – may include a negotiated payment to the Municipality to be used for community betterment projects as determined by the Municipality.

Construction Part - which shall include all requirements prior to commencing construction.

Costs – all costs incurred by the Municipality in house and external administration cost with respect to the development shall be borne by the developer including reasonable legal, engineering and inspection costs. Deposits shall be required.

Decommission – shall include a plan for decommissioning acceptable to the Municipality.

Electrical Distribution System – shall address any electrical distribution system required as part of the development.

General Provisions – shall include all other requirements.

Grading – shall address municipal requirements.

Haul Routes – Shall be approved by the Municipality. A review conducted by the Municipal Engineer is required prior to and upon completion of the construction of the project. All costs for the review and reports will be borne by the developer.

Insurance – shall include any requirements the Municipality may require.

Liability – shall save harmless the Municipality and its representatives from all actions, causes of actions, suits, claims, costs, interest and demands whatsoever which may arise either directly or indirectly by reason of the agreement. Also the developer shall purchase and maintain Commercial General Liability insurance in a form satisfactory to the Municipality and with a minimum coverage limit (to be determined) per occurrence.

Lights – shall address municipal requirements and shall be shielded so the light reflection will be directed upward.

Municipal Road Use – shall address all requirements for utilizing municipal roads.

Operation & Maintenance – shall address requirements for the safe operation and maintenance of the development including emergency response plans.

Private Access Roads – shall include locations.

Security – shall include all securities as may be required but will include and not be limited to construction and maintenance. The Developer shall deposit with the Municipality an amount determined by the scope and scale of the project and will be approved by Council through the agreement.

Tree Preservation – cutting and trimming shall be limited and if required a tree replacement plan will be required.

4. SITE GUIDELINES:

Council will evaluate the suitability of the location and land use compatibility of proposed commercial wind generating systems and require the following:

Commercial Wind Generation Systems are permitted in Rural Areas and may be permitted in Agricultural Areas where they can be located on land of lower agricultural capability or ensure the continued use of prime agricultural land for farm use and minimize the loss of production farm land.

A detailed site plan for each property that is identified as part of the project.

The Municipality of Kincardine has established the following General Provisions for Wind Generation Systems.

(These are minimum setbacks and greater setbacks that are required by Provincial legislation or as a result of a health study shall prevail).

Site Provisions:

	Feature	Provision
1	'CWGS' Minimum Setback to: 'Rural Recreation Area', Primary Urban Community' or 'Secondary Urban' Area Boundary as defined in the Municipality of Kincardine Official Plan	3000 metres
2	'WGS' minimum Setback to: Hamlets, Inland Lakeshore Residential or Estate Residential etc. or structures designated for human habitation as defined in the Municipality of Kincardine Official Plan/County of Bruce Official Plan	2750 metres
3	'WGS' minimum setback to: 'Rural Residence' either participating or non participating	800 metres
4	'WGS' Minimum setback to: County or Provincial road or highway	1.25 times the 'Total WGS Height' from the right-of-way line.
5	'WGS' Minimum setback to: Front Yard or Exterior Side Yard	'Total WGS Height' minus 10 metres
6	'WGS' Minimum setback to: Interior Side Yard or Rear Yard of Non-Participating Properties	1.0 times the 'Total WGS Height'
7	'WGS' Minimum setback to: Interior Side Yard or Rear Yard of participating properties if the abutting landowner is participating.	Length of turbine blade plus 5 metres
8	Minimum setback for 'Wind Generation System Accessory Facilities' (buildings and structures only)	10 metres from all lot lines or in accordance with the setback provisions for buildings/structures adjacent to a Provincial or County road, whichever is greater
9	Maximum 'Total WGS Height'	Measured from average grade to the uppermost extension of any blade, or maximum height reached by any part of the turbine whichever is greater.
10	Signs/Advertising/Logos	No advertising sign or logo on any 'WGS'; no more than 2 project identification signs not to exceed 1.49 square metres in area or 2.44 metres in height.

5. AIRPORT POLICY:

The development shall not affect the flight approach of the airport or any future development. Have regard to Appendix 'A' –Airport Vicinity Mapping behind By-law No. 2003-25 Comprehensive Zoning By-law.

6. USE OF MUNICIPALITY RIGHT-OF-WAY:

All utilities to be installed by the developer in the Municipality's right-of-way shall be approved by the Public Works Manager (PD 1.6) and will be approved by council through the agreement.

All lines carrying unfiltered electricity from the wind turbines to the substation shall be located underground (to prevent possible harmonics and induction occurring at local residences and business).

7. DISPUTE RESOLUTION PROTOCOL:

A Dispute Resolution Protocol shall be submitted and accepted by the Municipality which outlines a process to address concerns between neighbours and wind farm operators quickly and in a cost effective manner.



APPENDIX G

Agency Consultation Materials and Documentation



1. Cover Letter to Director of MOE
Accompanying Draft Project
Description Report

October 12, 2011

Director, Environmental Assessment and Approvals Branch
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, ON M4V 1L5

RE: SP Ontario's Armow Wind Project – Request for Director's Review of Draft Project Description and List of Aboriginal Communities

Dear Director,

This letter is to provide you with information about the proposed SP Ontario Armow Wind Project (the Project). The proposed Project, formerly known as the Armow Wind Power Project, was being developed by Acciona Renewable Energy Canada Holdings Inc. (Acciona). In August 2011, Acciona sold all rights to the Project to SP Ontario, effectively transferring ownership. SP Ontario is proposing to expand the nameplate capacity from 80 MW to 180 MW within the same Project Area.

According to Ontario Regulation 359/09 (O. Reg. 359/09), requires that proponents provide the Director with a draft Project Description Report (PDR) in accordance with Table 1 of O. Reg. 359/09. The Aboriginal communities, to be confirmed by the Director, will subsequently be consulted and engaged with by AET throughout the consultation period of the Project. AET will initiate consultation activities with the Aboriginal communities identified in the PDR (attached), while we await your response.

We request that, having provided you with these materials, you:

- Review the list of Aboriginal communities suggested in the draft PDR and provide confirmation that this list is acceptable;
- Confirm that the draft PDR meets the form outlined in Table 1 of O. Reg. 359/09; and
- Confirm that the attached notice meets the requirements of O. Reg. 359/09.

If there are aspects that either exceed or fail to meet expectations listed or inferred by O. Reg. 359/09 we would appreciate any clarification of the Ministry's expectations. If you have any questions or comments regarding the Project, please do not hesitate to contact me at 514-842-1923 or mark.gallagher@tcir.net.

We look forward to your response and would be happy to meet and discuss the attached at your earliest convenience, should you feel it appropriate.

Yours Faithfully,

A handwritten signature in blue ink, appearing to read "Mark Gallagher", with a stylized flourish at the end.

Mark Gallagher
(Development Manager)

Attachments:

Draft Project Description Report
Draft Notice of Proposal

c.c. Peter Brown, Golder Associates
Jeff Wright, Golder Associates



2.MNR Letters of Confirmation

October 26, 2012

Attn: Jody Law
Pattern Energy
100 Simcoe Street, Suite 105
Toronto, ON M5H 3G2

and

Brian Edwards
Samsung Renewable Energy
55 Standish Court, 9th Floor
Mississauga, ON L5R 4B2

RE: NHA Confirmation for Armow Wind Project

Dear Jody Law and Brian Edwards,

In accordance with the Ministry of the Environment's (MOE's) Renewable Energy Approvals (REA) Regulation (O.Reg.359/09), the Ministry of Natural Resources (MNR) has reviewed the Natural Heritage Assessment and Environmental Impact Study for Armow Wind Project in the Township of Kincardine, County of Bruce, submitted by Samsung Renewable Energy and Pattern Energy on October 26, 2012.

In accordance with Section 28(2) and 38(2)(b) of the REA regulation, MNR provides the following confirmations following review of the natural heritage assessment:

1. The MNR confirms that the determination of the existence of natural features and the boundaries of natural features was made using applicable evaluation criteria or procedures established or accepted by MNR.
2. The MNR confirms that the site investigation and records review were conducted using applicable evaluation criteria or procedures established or accepted by MNR, if no natural features were identified.
3. The MNR confirms that the evaluation of the significance or provincial significance of the natural features was conducted using applicable evaluation criteria or procedures established or accepted by MNR.
4. The MNR confirms that the project location is not in a provincial park or conservation reserve.
5. The MNR confirms that the environmental impact study report has been prepared in accordance with procedures established by the MNR.

In accordance with Section 28(3)(c) and 38(2)(c), MNR also offers the following comments in respect of the project.

Preconstruction Monitoring

In accordance with Appendix D of MNR's NHA Guide, a commitment has been made to complete pre-construction assessments of habitat use for the following candidate significant wildlife habitats:

- Waterfowl Stopover and Staging Area (Terrestrial) (features WST-017, WST-018)
- Waterfowl Stopover and Staging Area (Aquatic) (features WSA-001, WSA-002, WSA-003, WSA-004, WSA-005, WSA-006, WSA-007, WSA-009, WSA-010, WSA-011, WSA-012, WSA-013, WSA-014, WSA-015, WSA-017, WSA-018, WSA-019, WSA-020, WSA-021, WSA-022, WSA-023, WSA-024, WSA-025)
- Shorebird Migratory Stopover Area (SHM-001, SHM-002)
- Bat Maternity Colony (BMA-001, BMA-004, BMA-020, BMA-021, BMA-024, BMA-028, BMA-032)
- Colonially-Nesting Bird Breeding Habitat (Ground) (CBG-001, CBG-002, CBG-003, CBG-004, CBG-005, CBG-006, CBG-007, CBG-008)
- Waterfowl Nesting Area (WFN-004, WFN-005, WFN-006, WFN-007, WFN-008, WFN-009, WFN-010, WFN-011, WFN-013, WFN-014, WFN-015, WFN-016, WFN-017, WFN-018, WFN-019, WFN-020, WFN-021, WFN-022)
- Amphibian Breeding Habitat (Woodland) (AWO-005, AWO-007, AWO-008, AWO-009, AWO-016, AWO-018, AWO-020, AWO-021, AWO-026, AWO-027, AWO-028, AWO-036, AWO-039, AWO-040, AWO-044)
- Marsh Bird Breeding Habitat (MBB-002)
- Open Country Bird Breeding Habitat (OCB-001, OCB-004, OCB-008, OCB-009, OCB-010, OCB-011, OCB-012, OCB-013, OCB-014, OCB-015, OCB-017, OCB-018, OCB-020, OCB-021, OCB-023, OCB-024, OCB-025, OCB-026, OCB-027, OCB-028, OCB-029, OCB-030)

MNR has reviewed and confirmed the assessment methods and the range of mitigative options. Pending completion of the assessments and determination of significance, the appropriate mitigation is expected to be implemented, as committed to in the environmental impact study.

Post-Construction Monitoring

In addition to the NHA, an Environmental Effects Monitoring Plans (EEMP) that address post-construction mortality monitoring and mitigation for birds and bats must be prepared and implemented. Environmental Effects Monitoring Plans for birds and bats must be prepared in accordance with MNR Guidelines and should be reviewed by MNR in advance of submitting a REA application to MOE in order to minimize potential delays in determining if the application is complete. Comments provided by the MNR with respect to the EEMP must be submitted as part of the application for a REA.

A commitment must be made in the Environmental Effects Monitoring Plan, part of the Design and Operations Report, to conduct post-construction monitoring and if

determined necessary, implement mitigation measures. For the Armow Wind Project this includes:

- Waterfowl Stopover and Staging Area (Terrestrial) (features WST-017, WST-018)
- Waterfowl Stopover and Staging Area (Aquatic) (features WSA-001, WSA-002, WSA-003, WSA-004, WSA-005, WSA-006, WSA-007, WSA-009, WSA-010, WSA-011, WSA-012, WSA-013, WSA-014, WSA-015, WSA-017, WSA-018, WSA-019, WSA-020, WSA-021, WSA-022, WSA-023, WSA-024, WSA-025)
- Shorebird Migratory Stopover Area (SHM-001, SHM-002)
- Bat Maternity Colony (BMA-001, BMA-004, BMA-020, BMA-021, BMA-024, BMA-028, BMA-032)
- Colonially-Nesting Bird Breeding Habitat (Ground) (CBG-001, CBG-002, CBG-003, CBG-004, CBG-005, CBG-006, CBG-007, CBG-008)
- Waterfowl Nesting Area (WFN-004, WFN-005, WFN-006, WFN-007, WFN-008, WFN-009, WFN-010, WFN-011, WFN-013, WFN-014, WFN-015, WFN-016, WFN-017, WFN-018, WFN-019, WFN-020, WFN-021, WFN-022)
- Amphibian Breeding Habitat (Woodland) (AWO-001, AWO-002, AWO-005, AWO-007, AWO-008, AWO-009, AWO-016, AWO-018, AWO-020, AWO-021, AWO-026, AWO-027, AWO-028, AWO-036, AWO-039, AWO-040, AWO-044)
- Marsh Bird Breeding Habitat (MBB-002)
- Open Country Bird Breeding Habitat (OCB-001, OCB-004, OCB-008, OCB-009, OCB-010, OCB-011, OCB-012, OCB-013, OCB-014, OCB-015, OCB-017, OCB-018, OCB-020, OCB-021, OCB-023, OCB-024, OCB-025, OCB-026, OCB-027, OCB-028, OCB-029, OCB-030)

Mitigation Measures

The terms “wherever possible”, “where possible” and “whenever possible” have been used when referring to mitigation measures identified for the following features for which no further identification of alternative mitigation measures have been identified:

- Winter Deer Yard, 0-30m, 30-120m (disturbance to yarding deer)
- Valleylands, Overlapping (VAL-002, VAL-007 – sedimentation and erosion mitigation; changes to surface water hydrology)
- Valleylands, 0-30m (VAL-002, VAL-006, VAL-007, VAL-008 – sedimentation and erosion mitigation; changes to surface water hydrology)
- Waterfowl Stopover and Staging Area (Terrestrial), Overlapping (WST-018 – changes in surface hydrology, noise disturbance/avoidance behaviour)
- Waterfowl Stopover and Staging Area (Aquatic), Overlapping (WSA-001, WSA-002, WSA-003, WSA-004, WSA-005, WSA-006, WSA-007, WSA-009, WSA-010, WSA-011, WSA-012, WSA-013, WSA-014, WSA-015, WSA-017, WSA-018, WSA-019, WSA-020, WSA-021, WSA-022, WSA-023, WSA-024, WSA-025 – changes in surface hydrology)
- Waterfowl Stopover and Staging Area (Terrestrial), 0-30m (WST-017 – changes in surface hydrology, disturbance to staging waterfowl)
- Amphibian Breeding Habitat (Woodland), 0-30m (AWO-001, AWO-002, AWO-005, AWO-007, AWO-008, AWO-009, AWO-013, AWO-016, AWO-018, AWO-020, AWO-021, AWO-026, AWO-027, AWO-028, AWO-031, AWO-033, AWO-034, AWO-036, AWO-038, AWO-039, AWO-040, AWO-043, AWO-044 – habitat degradation caused by sedimentation and erosion, disturbance of local wildlife)

- Amphibian Breeding Habitat (Woodland), 30-120m (AWO-004, AWO-012, AWO-017, AWO-022, AWO-023, AWO-025, AWO-029, AWO-041 – disturbance of local wildlife)

If during pre-construction planning it is determined that a mitigation measure is not possible, MNR requests to be consulted regarding additional mitigation measures that will be employed to address negative environmental effects that may result.

This confirmation letter is valid for the project as proposed in the natural heritage assessment and environmental impact study, including those sections describing the Environmental Effects Monitoring Plan and Construction Plan Report. Should any changes be made to the proposed project that would alter the NHA, MNR may need to undertake additional review of the NHA.

Where specific commitments have been made by the applicant in the NHA/EIS with respect to project design, construction, rehabilitation, operation, mitigation, or monitoring, MNR expects that these commitments will be considered in MOE's Renewable Energy Approval decision and, if approved, be implemented by the applicant.

In accordance with S.12 (1) of the Renewable Energy Approvals Regulation, this letter must be included as part of your application submitted to the MOE for a Renewable Energy Approval.

Please be aware that your project may be subject to additional legislative approvals as outlined in the Ministry of Natural Resources' *Approvals and Permitting Requirements Document*. These approvals are required prior to the construction of your renewable energy facility.

If you wish to discuss any part of this confirmation or additional comments provided, please contact Amy Cameron at amy.cameron@ontario.ca or 705-875-7481.

Sincerely,



Amy Cameron
Coordinator
Renewable Energy Operations Team
Southern Region MNR

cc Emily Gryck, Renewable Energy Operations Team, Project Manager, MNR
 Erin Cotnam, Renewable Energy Operations Team, Project Manager, MNR
 Mark Shoreman, District Manager, Midhurst District, MNR
 Narren Santos, Environmental Approvals Access & Service Integration Branch, MOE
 Zeljko Romic, Environmental Approvals Access & Service Integration Branch, MOE

**Ministry of
Natural Resources**

Renewable Energy Operations Team
300 Water Street
4th Floor, South Tower
Peterborough, Ontario K9J 8M5

**Ministère des
Richesses naturelles**



November 16, 2012

Attn: Jody Law
Pattern Energy
100 Simcoe Street, Suite 105
Toronto, ON M5H 3G2

and

Brian Edwards
Samsung Renewable Energy
55 Standish Court, 9th Floor
Mississauga, ON L5R 4B2

RE: Modifications to project location for Armow Wind Project

Dear Jody Law and Brian Edwards,

The Ministry of Natural Resources (MNR) has received the document dated November 16, 2012, which describes modifications to the project location for Armow Wind Project made subsequent to MNR's letter confirming the Natural Heritage Assessment in respect of the project.

Upon review of the modifications, MNR is satisfied that the Natural Heritage Assessment requirements of Ontario Regulation 359/09 have been met. Please add this letter as an addendum to the confirmation letter issued October 26, 2012 for the Armow Wind Project.

If you wish to discuss, please contact me at amy.cameron@ontario.ca.

Sincerely,

A handwritten signature in blue ink that reads "Amy Cameron".

Amy Cameron
Renewable Energy Operations Team
Southern Region MNR

cc Emily Gryck, Renewable Energy Operations Team, Project Manager, MNR
 Erin Cotnam, Renewable Energy Operations Team, MNR
 Emily Gryck, Renewable Energy Operations Team, MNR
 Mark Shoreman, District Manager, Midhurst District, MNR
 Narren Santos, Environmental Approvals Access & Service Integration Branch, MOE
 Zeljko Romic, Environmental Approvals Access & Service Integration Branch, MOE

Gurski, Chris

From: Metcalfe, Kalena
Sent: Thursday, November 29, 2012 12:58 PM
To: Gurski, Chris
Subject: FW: Armow WF; Removal of Infrastructure
Attachments: image002.jpg

Kalena Metcalfe | Environmental Assessment Coordinator | Golder Associates Ltd.
2390 Argentia Road, Mississauga, Ontario, Canada L5N 5Z7
T: +1 (905) 567 4444 | D: +1 (905) 567 6100 Ext. 1110 | F: +1 (905) 567 6561
E: Kalena.Metcalfe@golder.com | www.golder.com

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Please consider the environment before printing this email.

-----Original Message-----

From: Andrew Ryckman [<mailto:aryckman@nrsl.on.ca>]
Sent: Friday, November 23, 2012 2:27 PM
To: 'Jody Law'; 'zBrian Edwards'; 'Bridgette Miranda'; 'AshbyBeatrice'
Cc: 'Cameron, Amy (MNR)'; 'Beal, Jim (MNR)'; 'Pamela Tucciarone'; Callum, Ian; Metcalfe, Kalena; SP Ontario - Armow
Subject: FW: Armow WF; Removal of Infrastructure

Hi all,

Please see the note from Amy (who is also copied on this email). She was able to review the memo, has acknowledged receipt (see below), and does not require any additional information for this change. I have since provided the revised, and compiled, addendum for their files. Based on Amy's comments, no additional information is needed and they do not need to re-issue the confirmation letter.

Thanks again Amy for your attentiveness to this project, and your help to keep things moving along! It's greatly appreciated!

Have a great weekend!!

Cheers,
Andrew

Andrew Ryckman
Natural Resource Solutions Inc.
519-725-2227

-----Original Message-----

From: Cameron, Amy (MNR) [<mailto:Amy.Cameron@ontario.ca>]
Sent: Friday, November 23, 2012 12:19 PM

To: Andrew Ryckman; Beal, Jim (MNR)
Cc: 'Pamela Tucciarone'
Subject: RE: Armow WF; Removal of Infrastructure

Andrew,

This email acknowledges receipt of the information. I have read through the memo and have no concerns. Because the only change is the removal of turbine 39 and associated cables/roads etc. there is no need for re-confirmation.

I have added this report to our files. I tried to download the map from the link your provided but it was not posted. Can you please re-post and I'll add it to our file as well.

Thanks,

Amy

From: Andrew Ryckman [aryckman@nrsl.on.ca]
Sent: November 23, 2012 9:13 AM
To: Cameron, Amy (MNR); Beal, Jim (MNR)
Cc: 'Pamela Tucciarone'
Subject: FW: Armow WF; Removal of Infrastructure

Amy/Jim,

I received a notification that this message didn't go through yesterday (likely as a result of a 1MB map). I've removed the map and left the memo summarizing the removal of infrastructure from the Armow WF. See my original email below and attached memo. I will forward instructions for the sharing site shortly.

Cheers,
Andrew

Andrew Ryckman
Natural Resource Solutions Inc.
519-725-2227

From: Andrew Ryckman [<mailto:aryckman@nrsl.on.ca>]
Sent: Thursday, November 22, 2012 5:04 PM
To: 'Cameron, Amy (MNR)'
Cc: 'Beal, Jim (MNR)'; 'Pamela Tucciarone'; 'Jody Law'; 'zBrian Edwards'; 'Callum, Ian'; 'Metcalf, Kalena'; 'SP Ontario - Armow'
Subject: Armow WF; Removal of Infrastructure

Hi Amy,

As a follow-up to our email discussion, please find attached a brief memo that outlines the removal of a single turbine (T39) and the access road and cabling associated with that turbine location. After considering this change, NRSI has determined that other project components are still present within 120m of the natural features that were within 120m of this removed infrastructure, resulting in no changes to any aspect of the already confirmed Natural Heritage Assessment or the subsequent Addendum.

NRSI understands that based on the removal of infrastructure and no content changes to the NHA, that a re-confirmation letter is not required, and instead an email acknowledgement of this information will be provided by the MNR. Please give

me a call if you'd like to discuss in more detail. We are now targeting the full REA submission on Monday, November 26th.

Upon your review of the attached information (memo and map), NRSI will PDF a final document and circulate to be included in the file.

Thanks!
Andrew

[NRSI_ESignature_AGR_Outlook]



3.MTCS Letters of Confirmation

**Ministry of Tourism,
Culture and Sport**

Culture Services Unit
Programs and Services Branch
Culture Division
401 Bay Street, Suite 1700
Toronto ON M7A 0A7
Tel.: 416 314-3108
Fax: 416 314-7175

**Ministère du Tourisme,
de la Culture et du Sport**

Unité des services culturels
Direction des programmes et des services
Division de culture
401, rue Bay, bureau 1700
Toronto ON M7A 0A7
Tél. : 416 314-3108
Télec. : 416 212-7175



March 13, 2012

Meaghan Nelligan-Rivard
Cultural Heritage Specialist
Golder Associates Ltd
309 Exeter Road, Unit #1
London, ON
N6L 1C1

Dear Ms. Rivard,

Subject:	Heritage Assessment Report
Project:	Armow Wind Energy Project
Applicant:	Samsung Renewable Energy Inc.
Location:	Various Lots in former Townships of Bruce and Kincardine, current Municipality of Kincardine, Bruce County
MTC File No.:	PLAN-41EA016

We hereby acknowledge receipt of the heritage assessment report for the above-referenced project, as part of the Renewable Energy Approvals (REA) process under Ontario Regulation 359/09.

The Ministry of Tourism, Culture and Sport's (MTCS) interest in this proposed project relates to our mandate of conserving, protecting and preserving Ontario's heritage, including cultural heritage landscapes, built heritage resources and archaeological sites.

We have reviewed the report and have the following comments on the document:

2.2 Regulatory Framework

While the Bruce County Official Plan and the Municipality of Kincardine Official Plan provide important context and include policies relating to heritage conservation, and while the PPS is a clear articulation of the provincial interest in the conservation of cultural heritage resources, they do not apply to projects applying for a Renewable Energy Approval under O. Reg. 359/09. Sections 19 to 23 of O. Reg. 359/09 provide for the consideration and conservation of cultural heritage resources, including the need to evaluate project impacts and propose measures to avoid, eliminate, or mitigate the impact.

With that said, the Official Plans and the PPS may provide helpful context, definitions and terminology for the report. If reference to the PPS and Official Plans are to remain in the report, it is suggested that they are accompanied by a statement explaining they are referenced for background information and definitions only.

4.1 Protected Properties

The table on page 30 states that verification from the Ontario Heritage Trust about easements is pending, however the following page states that the Trust has confirmed that there are no conservation easements in the Study Area. The table should be revised to reflect this.

This section states that MTCS confirmed that “there are no designated properties within the Study Area.” MTCS confirms that the protected property types referenced in items 4., 5., and 8. in the table on page 30 of the report, however, MTCS cannot confirm whether there are municipally designated properties in the study area. This statement should be modified to reflect only the protected property types for which MTCS is responsible.

4.3 Inventory of Cultural Features at the Project Location

Section 2.3 “Public Consultation and Recognition” states that the Bruce County Museum & Cultural Centre was consulted with regards to potential historic structures within the Study Area beyond those identified by the municipal registry. Did this consultation yield any potential heritage resources in the Study Area and inform the analysis of the properties discussed in section 4.3 and Appendix A? It is suggested that the report expand on how this information was used.

Appendix A

During a March 12, 2012 meeting between Golder staff and MTCS staff, a new format for presenting the evaluation of all potential heritage resources was discussed. It is our understanding that Golder will be sending a mock up of this format to MTCS for feedback. It is recommended that once this format is established, it is applied to Appendix A of this report.

Maps

It is requested that the report identify the locations of the potential Cultural Heritage Landscapes, and structures identified in Appendix A on a map that also shows the location of project infrastructure.

MTC Recommendations:

The heritage assessment report is not considered complete until the following activities are undertaken:

- revise the regulatory framework section of the report as outlined above;
- revise protected property section as outlined above;
- expand on how consultation with local sources of information informed the identification and evaluation of resources, if applicable;
- revise Appendix A format as outlined above;
- include mapping showing of all potential heritage resources identified in the report as well as project infrastructure.

The above are comments from the Ministry of Tourism, Culture and Sport on the submitted report. These recommendations should be incorporated into a report, to be resubmitted to the MTCS. If the consultant prefers, the revised report may be submitted electronically as a pdf. Once the report is finalized and MTCS has issued a letter of acceptance, hard copies of the report may follow.

Please contact me if you have any questions or wish to discuss these comments further.

Sincerely,

Laura Hatcher
Heritage Planner

**Ministry of Tourism,
Culture and Sport**

**Ministère du Tourisme,
de la Culture et du Sport**

Culture Programs Unit
Programs and Services Branch
Culture Division
435 S. James St., Suite 334
Thunder Bay, ON, P7E 6S7
Telephone: 807-475-1632
Facsimile: 807-475-1291

Unité des programmes culturels
Direction des programmes et des services
Division de culture
435 rue James sud, Bureau 334
Thunder Bay, ON, P7E 6S7
Téléphone: 807-475-1632
Télécopieur: 807-4751291



Email: andrew.hinshelwood@Ontario .ca

March 8, 2012

SP Ontario
c/o Samsung Renewable Energy
55 Standish Court, 9th Floor
Mississauga, ON L5R 4B2

Attn.: Brian Edwards

RE: SP Arnow Wind Energy Project

Various Lots and Concessions (within the area bounded by Highway 21, Bruce County Road 20, North Line and Bruce County Road 1), Geographic Townships of Bruce and Kincardine, now Municipality of Kincardine, Bruce County, Ontario.

MTC File HD000681

MTC PIF P084-223-2010 (Stage 1)
P084-230-2010 & P243-256-2011 (Stage 2)

Dear Proponent:

This letter constitutes the Ministry of Tourism and Culture's written comments as required by s. 22(3)(a) of O. Reg. 359/09 under the *Environmental Protection Act* regarding archaeological assessments undertaken for the above project.

Based on the information contained in the report(s) you have submitted for this project, the Ministry believes the archaeological assessment complies with the *Ontario Heritage Act's* licensing requirements, including the licence terms and conditions and the Ministry's 1993 Archaeological Assessment Technical Guidelines or the 2011 Standards and Guidelines for Consultant Archaeologists (whichever apply). Please note that the Ministry makes no representation or warranty as to the completeness, accuracy or quality of the report(s).*

The Archaeological Assessment Report Entitled, *Stage 1 Archaeological Assessment SP Ontario Armow Wind Energy Project, Various Lots and Concessions, Geographic Townships of Bruce and Kincardine, now Municipality of Kincardine, Bruce County, Ontario*, report dated January 23, 2012, received by MTC Toronto Office on January 24, 2012, recommends the following:

Golder applied archaeological potential criteria commonly used by the Ontario Ministry of Tourism and Culture to determine areas of archaeological potential within the study area. The archaeological potential for Aboriginal and Euro-Canadian sites was deemed to be moderate to high on these properties. For pre-contact Aboriginal sites this assessment is based on the presence of nearby potable water sources, level topography, agriculturally suitable soils and known archaeological sites. For post-contact Aboriginal sites this assessment is based on the presence of nearby potable water sources, level topography and historic documentation. The determination of historic Euro-Canadian archaeological potential is based on the documentation indicating occupation from the middle of the 19 century onwards as well as the presence of historic transportation routes. As a result, Stage 2 archaeological assessment is recommended for potential wind turbine sites and their associated infrastructure.

Further Stage 2 archaeological assessment is recommended for any areas to be impacted by turbine construction, access road construction, or other infrastructure construction related activities. The Ontario Ministry of Tourism and Culture is asked to review the results presented and to accept this report into the Provincial Register of archaeological reports. Additional archaeological assessment is still required; hence the archaeological sites recommended for further archaeological fieldwork remain subject to Section 48(1) of the Ontario Heritage Act and may not be altered, or have artifacts removed, except by a person holding an archaeological licence.

This report is submitted to the Minister of Tourism and Culture as a condition of licensing in accordance with Part VI of the Ontario Heritage Act, R.S.O. 1990, c 018. The report is reviewed to ensure that the licensed consultant archaeologist has met the terms and conditions of their archaeological licence, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario.

Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48(1) of the Ontario Heritage Act. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with sec. 48(1) of the Ontario Heritage Act.

The Cemeteries Act requires that any person discovering human remains must notify, the police or coroner and the Registrar of Cemeteries, Ministry of Consumer Services.

The Archaeological Assessment Report Entitled, *Stage 2 Archaeological Assessment SP Ontario Armow Wind Energy Project, Various Lots and Concessions, Geographic Townships of Bruce and Kincardine, now Municipality of Kincardine, Bruce County, Ontario*, dated January 23, 2012, received by MTC Toronto Office January 24, 2012, recommends the following:

The Stage 2 assessment of the Armow Wind Energy Project resulted in the identification of 36 archaeological sites, including 20 historic Euro-Canadian and 16 pre-contact Aboriginal. Recommendations for each location are found below.

Location 1 (BbHi-23)

Given that the Stage 2 assessment of Location 1 (BbHi-23) resulted in the recovery of a spatial discrete area yielding pre-contact Aboriginal artifacts, **it is recommended that a Stage 3 archaeological assessment be conducted in advance of any ground disturbance activities at Location 1 to further test the nature and density of the site.** The Stage 3 assessment should employ both the controlled surface pick-up and hand excavated test unit methodology as outlined in Table 3.1 of the Ministry of Tourism, Culture and Sport's *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). Prior to conducting the field work the area should be re-ploughed and allowed to weather for the controlled surface pick-up. The test unit excavation should consist of one metre by one metre square test units laid out in a five metre grid and should be excavated by hand to a depth of five centimetres within the subsoil.

Location 2 (BbHi-24)

The Stage 2 assessment of Location 2 (BbHi-24) revealed a spatially discrete cluster of early-to-mid 19th century Euro-Canadian historic artifacts. Early-to-mid 19th century whiteware and pearlware ceramics dominate the recovered artifacts, making up 84.3% of the recovered ceramic assemblage. Given that a significant number of early-to-mid 19th century pearlware and whiteware artifacts were recovered, **it is recommended that Location 2 be subject to a Stage 3 assessment prior to any ground disturbance activities to further test the nature and density of the site.** The Stage 3 assessment should employ both the controlled surface pick-up and hand excavated test unit methodology as outlined in Table 3.1 of the Ministry of Tourism, Culture and Sport's *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). Prior to conducting the field work the area should be re-ploughed and allowed to weather for the controlled surface pick-up. The test unit excavation should consist of one metre by one metre square test units laid out in a five metre grid and should be excavated by hand to a depth of five centimetres within the subsoil. Site specific land registry research should also be conducted as part of the Stage 3 assessment.

Location 3

The Stage 2 assessment of Location 3 resulted in the recovery of an isolated pre-contact Aboriginal biface tool. Despite the intensification of survey intervals no additional artifacts were recovered. Given that the cultural heritage value or interest of the site has been sufficiently documented, **no further archaeological assessment is recommended for Location 3.**

Location 4

The Stage 2 assessment of Location 4 resulted in the recovery of primarily late 19th century and early 20th century historic Euro-Canadian artifacts. Given that the cultural heritage value or interest of the site has been sufficiently documented, **no further archaeological assessment is recommended for Location 4.**

Location 5 (BbHi-25)

The Stage 2 assessment of Location 5 (BbHi-25) resulted in the recovery of mid-to-late 19th century Euro- Canadian historic artifacts. Ironstone ceramics clearly dominate the recovered artifacts, making up 47.8% of the entire artifact assemblage. However given that a significant number of mid-19th century whiteware artifacts were also recovered **it is recommended that Location 5 be subject to a**

Stage 3 assessment prior to any ground disturbance activities to further test the nature and density of the site. The Stage 3 assessment should employ both the controlled surface pick-up and hand excavated test unit methodology as outlined in Table 3.1 of the Ministry of Tourism, Culture and Sport's *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). Prior to conducting the field work the area should be re-ploughed and allowed to weather for the controlled surface pick-up. The test unit excavation should consist of one metre by one metre square test units laid out in a five metre grid and should be excavated by hand to a depth of five centimetres within the subsoil. Site specific land registry research should also be conducted as part of the Stage 3 assessment.

Location 6 (BbHi-26)

The Stage 2 assessment of Location 6 (BbHi-26) resulted in the recovery of primarily early-to-mid 19th century Euro-Canadian historic artifacts. Early-to-mid 19th century whiteware and pearlware ceramics dominate the recovered artifacts, making up 59.5% of the recovered ceramic assemblage. Given that a significant number of early-to-mid 19th century pearlware and whiteware artifacts were recovered, **it is recommended that Location 6 be subject to a Stage 3 assessment prior to any ground disturbance activities to further test the nature and density of the site.** The Stage 3 assessment should employ both the controlled surface pick-up and hand excavated test unit methodology as outlined in Table 3.1 of the Ministry of Tourism, Culture and Sport's *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). Prior to conducting the field work the area should be re-ploughed and allowed to weather for the controlled surface pick-up. The test unit excavation should consist of one metre by one metre square test units laid out in a five metre grid and should be excavated by hand to a depth of five centimetres within the subsoil. Site specific land registry research should also be conducted as part of the Stage 3 assessment to determine if any additional occupants owned this lot in the early part of the 19th century. This would aid, in conjunction with excavated artifacts, to determine if Location 6 represents the structure identified in the 1880 map, or an earlier structure.

Location 7 (BbHj-38)

The Stage 2 assessment of Location 7 (BbHj-38) resulted in the recovery of early to late 19th century Euro- Canadian historic artifacts. Whiteware and ironstone ceramics clearly dominate the recovered artifacts, making up 69.5% of the recovered ceramic assemblage. Additionally, early 19th century pearlware ceramics account for 16.3% of the recovered ceramic assemblage. Given that a significant number of early-to-mid 19th century pearlware and whiteware artifacts were recovered, **it is recommended that Location 7 be subject to a Stage 3 assessment prior to any ground disturbance activities to further test the nature and density of the site.** The Stage 3 assessment should employ both the controlled surface pick-up and hand excavated test unit methodology as outlined in Table 3.1 of the Ministry of Tourism, Culture and Sport's *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). Prior to conducting the field work the area should be re-ploughed and allowed to weather for the controlled surface pick-up. The test unit excavation should consist of one metre by one metre square test units laid out in a five metre grid and should be excavated by hand to a depth of five centimetres within the subsoil. Site specific land registry research should also be conducted as part of the Stage 3 assessment.

Location 8 (BbHi-27)

The Stage 2 assessment of Location 8 (BbHi-27) resulted in the recovery of mid-to-late 19th century Euro-Canadian historic artifacts. Ironstone ceramics clearly dominate the recovered artifacts, making up 66.7% of the recovered ceramic assemblage. Whiteware ceramics were they second most

recovered ceramic class, representing 23% of the ceramic assemblage. Additionally, evidence of post-contact Aboriginal worked glass artifacts were identified in the Location 8 assemblage. Given that a significant number of mid 19th century whiteware artifacts were recovered as well as post-contact Aboriginal artifacts, **it is recommended that Location 8 be subject to a Stage 3 assessment prior to any ground disturbance activities to further test the nature and density of the site.** The Stage 3 assessment should employ both the controlled surface pick-up and hand excavated test unit methodology as outlined in Table 3.1 of the Ministry of Tourism, Culture and Sport's *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). Prior to conducting the field work the area should be re-ploughed and allowed to weather for the controlled surface pick-up. The test unit excavation should consist of one metre by one metre square test units laid out in a five metre grid and should be excavated by hand to a depth of five centimetres within the subsoil. Site specific land registry research should also be conducted as part of the Stage 3 assessment.

Location 9

The Stage 2 assessment of Location 9 resulted in the recovery of two pre-contact Aboriginal artifacts, pieces of chipping detritus. Despite the intensification of survey intervals no additional artifacts were recovered. Given that the cultural heritage value or interest of the site has been sufficiently documented, **no further archaeological assessment is recommended for Location 9.**

Location 10 (BbHi-28)

The Stage 2 assessment of Location 10 ((BbHi-28) resulted in the recovery of predominantly mid 19th century Euro-Canadian historic artifacts. Whiteware ceramics clearly dominate the recovered artifacts, making up 60% of the entire artifact assemblage and 65% of the recovered ceramic artifacts. Early 19th century pearlware ceramics and late 19th century ironstone ceramics are also present in the assemblage. Given that a significant number of mid 19th century whiteware artifacts were recovered in addition to early 19th century pearlware artifacts, **it is recommended that Location 10 be subject to a Stage 3 assessment prior to any ground disturbance activities to further test the nature and density of the site.** The Stage 3 assessment should employ both the controlled surface pick-up and hand excavated test unit methodology as outlined in Table 3.1 of the Ministry of Tourism, Culture and Sport's *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). Prior to conducting the field work the area should be re-ploughed and allowed to weather for the controlled surface pick-up. The test unit excavation should consist of one metre by one metre square test units laid out in a five metre grid and should be excavated by hand to a depth of five centimetres within the subsoil. Site specific land registry research should also be conducted as part of the Stage 3 assessment.

Location 11

The Stage 2 assessment of Location 11 resulted in the recovery of an isolated pre-contact Aboriginal retouched flake. Despite the intensification of survey intervals no additional artifacts were recovered. Given that the cultural heritage value or interest of the site has been sufficiently documented, **no further archaeological assessment is recommended for Location 11.**

Location 12

The Stage 2 assessment of Location 12 resulted in the recovery of an isolated fragment of bottle glass. Although the bottle glass fragment exhibits evidence of intentional flaking, no other artifacts were found associated with the artifact. The artifact could be attributed to either a post-contact Aboriginal or historic Euro-Canadian group using knapped glass as an expedient tool. Given that the cultural

heritage value or interest of the site has been sufficiently documented, **no further archaeological assessment is recommended for Location 12.**

Location 13

The Stage 2 assessment of Location 13 resulted in the recovery of primarily late 19th century early 20th century historic Euro-Canadian artifacts. Given that the cultural heritage value or interest of the site has been sufficiently documented, **no further archaeological assessment is recommended for Location 13.**

Location 14

The Stage 2 assessment of Location 14 resulted in the recovery of an isolated pre-contact Aboriginal utilized flake. Despite the intensification of survey intervals no additional artifacts were recovered. Given that the cultural heritage value or interest of the site has been sufficiently documented, **no further archaeological assessment is recommended for Location 14.**

Location 15

The Stage 2 assessment of Location 15 resulted in the recovery of an isolated pre-contact Aboriginal artifact. The artifact was catalogued as miscellaneous modified ground stone. Despite the intensification of survey intervals around the recovered artifact no additional artifacts were recovered. Given that the cultural heritage value or interest of the site has been sufficiently documented, **no further archaeological assessment is recommended for Location 15.**

Location 16

The Stage 2 assessment of Location 16 resulted in the recovery of primarily late 19th century early 20th century historic Euro-Canadian artifacts. Given that the cultural heritage value or interest of the site has been sufficiently documented, **no further archaeological assessment is recommended for Location 16.**

Location 17 (BbHi-29)

The Stage 2 assessment of Location 17 (BbHi-29) resulted in the recovery of mid-to-late 19th century Euro- Canadian historic artifacts. Only the western edge of the site protruded onto the study area and yielded a surface collection of 28 artifacts; a higher concentration of artifacts was observed to the east of the study area but only artifacts located on the proposed access corridor were recovered. Mid-to-late 19th century whiteware and ironstone ceramics comprised 75% of the recovered ceramic assemblage. Given that almost 40% of the ceramic assemblage consisted of mid 19th century whiteware ceramics, **it is recommended that Location 17 be subject to a Stage 3 assessment prior to any ground disturbance activities to further test the nature and density of the site.** The Stage 3 assessment should employ both the controlled surface pick-up and hand excavated test unit methodology as outlined in Table 3.1 of the Ministry of Tourism, Culture and Sport's *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). Prior to conducting the field work the area should be re-ploughed and allowed to weather for the controlled surface pick-up. The test unit excavation should consist of one metre by one metre square test units laid out in a five metre grid and should be excavated by hand to a depth of five centimetres within the subsoil. Site specific land registry research should also be conducted as part of the Stage 3 assessment.

Location 18

The Stage 2 assessment of Location 18 resulted in the recovery of an isolated pre-contact Aboriginal biface tool. Despite the intensification of survey intervals no additional artifacts were recovered. Given that the cultural heritage value or interest of the site has been sufficiently documented, **no further archaeological assessment is recommended for Location 18.**

Location 19

The Stage 2 assessment of Location 19 resulted in the recovery of an isolated pre-contact Aboriginal retouched flake. Despite the intensification of survey intervals no additional artifacts were recovered. Given that the cultural heritage value or interest of the site has been sufficiently documented, **no further archaeological assessment is recommended for Location 19.**

Location 20

The Stage 2 assessment of Location 20 resulted in the recovery of primarily late 19th century early 20th century historic Euro-Canadian artifacts. Given that the cultural heritage value or interest of the site has been sufficiently documented, **no further archaeological assessment is recommended for Location 20.**

Location 21 (BbHi-30)

The Stage 2 assessment of Location 21 (BbHi-30) resulted in the recovery of a small amount of pre-contact Aboriginal artifacts. Given that the cultural heritage value or interest of the site has been sufficiently documented, **no further archaeological assessment is recommended for Location 21.**

Location 22(BbHi-31)

The Stage 2 assessment of Location 22 (BbHi-31) resulted in the recovery of two pre-contact Aboriginal artifacts. Given that the Stage 2 assessment of Location 22 resulted in the recovery of a spatial discrete area yielding precontact Aboriginal artifacts **it is recommended that a Stage 3 archaeological assessment be conducted in advance of any ground disturbance activities at Location 22 to further test the nature and density of the site.** The Stage 3 assessment should employ both the controlled surface pick-up and hand excavated test unit methodology as outlined in Table 3.1 of the Ministry of Tourism, Culture and Sport's *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). Prior to conducting the field work the area should be re-ploughed and allowed to weather for the controlled surface pick-up. The test unit excavation should consist of one metre by one metre square test units laid out in a five metre grid and should be excavated by hand to a depth of five centimetres within the subsoil.

Location 23

The Stage 2 assessment of Location 23 resulted in the recovery of primarily late 19th century early 20th century historic Euro-Canadian artifacts. Given that the cultural heritage value or interest of the site has been sufficiently documented, **no further archaeological assessment is recommended for Location 23.**

Location 24 (BbHi-32)

The Stage 2 assessment of Location 24 (BbHi-32) resulted in the recovery of two pre-contact Aboriginal artifacts, a retouched flake on Collingwood chert and a secondary flake on Kettle Point chert. Given that Collingwood chert is considered diagnostic of the Paleo-Indian period in southern

Ontario, **it is recommended that a Stage 3 archaeological assessment be conducted in advance of any ground disturbance activities at Location 24 to further test the nature and density of the site.** The Stage 3 assessment should employ both the controlled surface pick-up and hand excavated test unit methodology as outlined in Table 3.1 of the Ministry of Tourism, Culture and Sport's *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). Prior to conducting the field work the area should be re-ploughed and allowed to weather for the controlled surface pick-up. The test unit excavation should consist of one metre by one metre square test units laid out in a five metre grid and should be excavated by hand to a depth of five centimetres within the subsoil.

Location 25

The Stage 2 assessment of Location 25 resulted in the recovery of a small collection of mid-to-late 19th century and early 20th century Euro-Canadian historic artifacts. Given that the cultural heritage value or interest of the site has been sufficiently documented, **no further archaeological assessment is recommended for Location 25.**

Location 26

The Stage 2 assessment of Location 26 resulted in the recovery of primarily late 19th century early 20th century historic Euro-Canadian artifacts. Given that the cultural heritage value or interest of the site has been sufficiently documented, **no further archaeological assessment is recommended for Location 26.**

Location 27

The Stage 2 assessment of Location 27 resulted in the recovery of late 19th century early 20th century historic Euro-Canadian artifacts. Given that the cultural heritage value or interest of the site has been sufficiently documented, **no further archaeological assessment is recommended for Location 27.**

Location 28 (BbHi-33)

The Stage 2 assessment of Location 28 (BbHi-33) resulted in the recovery of mid-to-late 19th century Euro- Canadian historic artifacts. Whiteware and ironstone ceramics clearly dominate the recovered artifacts, making up 88% of the recovered ceramic assemblage. Given that a significant number of mid-to-late 19th century whiteware artifacts were recovered **it is recommended that Location 28 be subject to a Stage 3 assessment prior to any ground disturbance activities to further test the nature and density of the site.** The Stage 3 assessment should employ both the controlled surface pick-up and hand excavated test unit methodology as outlined in Table 3.1 of the Ministry of Tourism, Culture and Sport's *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). Prior to conducting the field work the area should be re-ploughed and allowed to weather for the controlled surface pick-up. The test unit excavation should consist of one metre by one metre square test units laid out in a five metre grid and should be excavated by hand to a depth of five centimetres within the subsoil. Site specific land registry research should also be conducted as part of the Stage 3 assessment.

Location 29

The Stage 2 assessment of Location 29 resulted in the recovery of an isolated pre-contact piece of chipping detritus. Despite the intensification of survey intervals no additional artifacts were

recovered. Given that the cultural heritage value or interest of the site has been sufficiently documented, **no further archaeological assessment is recommended for Location 29.**

Location 30

The Stage 2 assessment of Location 30 resulted in the recovery of an isolated pre-contact piece of chipping detritus. Despite the intensification of survey intervals no additional artifacts were recovered. Given that the piece of chipping detritus was the only find at this location and it is temporally undiagnostic the cultural heritage value or interest of this site is low and **no further archaeological assessment is recommended for Location 30.**

Location 31

The Stage 2 assessment of Location 31 resulted in the recovery of an isolated pre-contact piece of chipping detritus. Despite the intensification of survey intervals no additional artifacts were recovered. Given that the cultural heritage value or interest of the site has been sufficiently documented, **no further archaeological assessment is recommended for Location 31.**

Location 32

The Stage 2 assessment of Location 32 resulted in the recovery of late 19th century early 20th century historic Euro-Canadian artifacts. Given that the cultural heritage value or interest of the site has been sufficiently documented, **no further archaeological assessment is recommended for Location 32.**

Location 33

The Stage 2 assessment of Location 33 resulted in the recovery of late 19th century early 20th century historic Euro-Canadian artifacts. Given that the cultural heritage value or interest of the site has been sufficiently documented, **no further archaeological assessment is recommended for Location 33.**

Location 34

The Stage 2 assessment of Location 34 resulted in the recovery of an isolated pre-contact piece of chipping detritus. Despite the intensification of survey intervals no additional artifacts were recovered. Given that the cultural heritage value or interest of the site has been sufficiently documented, **no further archaeological assessment is recommended for Location 34.**

Location 35

The Stage 2 assessment of Location 35 resulted in the recovery of an isolated pre-contact Aboriginal utilized flake. Despite the intensification of survey intervals no additional artifacts were recovered. Given that the cultural heritage value or interest of the site has been sufficiently documented, **no further archaeological assessment is recommended for Location 35.**

Location 36 (BbHi-34)

The Stage 2 assessment of Location 36 (BbHi-34) resulted in the recovery of early-to-mid 19th century Euro- Canadian historic artifacts. Whiteware ceramics clearly dominate the recovered artifacts, making up 72% of the recovered ceramic assemblage. Additionally, early 19th century pearlware ceramics account for 22% of the recovered ceramic assemblage. Given that a significant number of early-to-mid 19th century pearlware and whiteware artifacts were recovered **it is**

recommended that Location 36 be subject to a Stage 3 assessment prior to any ground disturbance activities to further test the nature and density of the site. The Stage 3 assessment should employ both the controlled surface pick-up and hand excavated test unit methodology as outlined in Table 3.1 of the Ministry of Tourism, Culture and Sport's *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). Prior to conducting the field work the area should be re-ploughed and allowed to weather for the controlled surface pick-up. The test unit excavation should consist of one metre by one metre square test units laid out in a five metre grid and should be excavated by hand to a depth of five centimetres within the subsoil. Site specific land registry research should also be conducted as part of the Stage 3 assessment.

Summary

The above recommendations determine that 12 sites require further Stage 3 assessment. In addition to the 12 recommended sites, 24 sites would not be recommended for further archaeological work. Table 91 provides a breakdown of Golder's recommendations:

Table 91: Recommendations for further Stage 3 assessment

Location	Borden Number	Affiliation	Stage 3 Recommended?
1	BbHi-23	Pre contact Aboriginal	Yes
2	BbHi-24	Historic Euro Canadian	Yes
3		Pre contact Aboriginal	No
4		Historic Euro Canadian	No
5	BbHi-25	Historic Euro Canadian	Yes
6	BbHi-26	Historic Euro Canadian	Yes
7	BbHj-38	Historic Euro Canadian	Yes
8	BbHi-27	Historic Euro Canadian	Yes
9		Pre contact Aboriginal	No
10	BbHi-28	Historic Euro Canadian	Yes
11		Pre contact Aboriginal	No
12		Post contact Aboriginal?	No
13		Historic Euro Canadian	No
14		Pre contact Aboriginal	No
15		Pre contact Aboriginal	No
16		Historic Euro Canadian	No
17	BbHi-29	Historic Euro Canadian	Yes
18		Pre contact Aboriginal	No
19		Pre contact Aboriginal	No
20		Historic Euro Canadian	No
21	BbHi-30	Pre contact Aboriginal	No
22	BbHi-31	Pre contact Aboriginal	Yes
23		Historic Euro Canadian	No
24	BbHi-32	Pre contact Aboriginal	Yes
25		Historic Euro Canadian	No
26		Historic Euro Canadian	No
27		Historic Euro Canadian	No
28	BbHi-33	Historic Euro Canadian	Yes
29		Pre contact Aboriginal	No
30		Pre contact Aboriginal	No
31		Pre contact Aboriginal	No
32		Historic Euro Canadian	No
33		Historic Euro Canadian	No
34		Pre contact Aboriginal	No
35		Pre contact Aboriginal	No
36	BbHi-34	Historic Euro Canadian	Yes

While all of these sites were documented during the archaeological field work conducted within the SP Ontario Armow Wind Energy Project study area, not all of these sites will be impacted by the construction of the turbines or infrastructure for this project. Therefore, only those sites recommended for Stage 3 archaeological assessment that are to be impacted by construction activities will be subjected to Stage 3 archaeological assessment at this time. The remainder of the sites avoided by all soil disturbance activities related to the wind farm construction will not be subjected to Stage 3 archaeological assessment at this time. Since all sites recommended for Stage 3 archaeological assessment fall outside of the proposed turbine and infrastructure layout impact area, no Stage 3 field work will be conducted in relation to the Project Location.

The Ministry of Tourism, Culture and Sport is asked to accept this report into the Ontario Public Register of Archaeological Reports. Additional archaeological assessment is still required; hence the archaeological sites recommended for further archaeological fieldwork remain subject to Section 48(1) of the *Ontario Heritage Act* and may not be altered, or have artifacts removed, except by a person holding an archaeological licence.

The Archaeological Assessment Report Entitled, *Stage 2 Archaeological Assessment, SP Ontario Armow Wind Project Additional Field Work, Various Lots and Concessions, Geographic Townships of Bruce and Kincardine, now Municipality of Kincardine, Bruce County, Ontario*, dated July 13, 2012, received by MTC Toronto Office July 16, 2012, recommends the following:

This Stage 2 assessment of the SP Ontario Armow Wind Project resulted in the identification of one pre-contact Aboriginal site and one Euro-Canadian historic site. Recommendations for these sites are found below.

5.1 Location 37 (BbHi-35)

The Stage 2 assessment of Location 37 (BbHi-35) resulted in the recovery of an isolated pre-contact Aboriginal Otter Creek projectile point. Despite the intensification of survey intervals, no additional artifacts were recovered. Given that the cultural heritage value or interest of the site has been sufficiently documented, **no further archaeological assessment is recommended for Location 37 (BbHi-35).**

5.2 Location 38

The Stage 2 assessment of Location 38 resulted in the recovery of primarily late 19th century and early 20th century historic Euro-Canadian artifacts. Given that the cultural heritage value or interest of the site has been sufficiently documented, **no further archaeological assessment is recommended for Location 38.**

5.3 Summary

Neither site documented during the additional Stage 2 assessment conducted on the SP Ontario Armow Wind Project was recommended for Stage 3 archaeological assessment. As a result, the Stage 2 field work documented in this report did not identify any archaeological site requiring further assessment or mitigation of impacts and so it is recommended that **no further archaeological assessment of the study area is required.** The Ministry of Tourism, Culture and Sport is asked to accept this report into the Ontario Public Register of Archaeological Reports and to issue a letter stating that the Ministry is satisfied that concerns for archaeological resources have been met for this study area.

This letter does not waive any requirements which you may have under the Ontario *Heritage Act*. A separate letter addressing archaeological licensing obligations under the Act will be sent to the archaeologist who completed the assessment and will be copied to you.

This letter does not constitute approval of the renewable energy project. Approvals of the project may be required under other statutes and regulations. It is your responsibility to obtain any necessary approvals or licences.

Please feel free to contact me if you have questions or require additional information.

Sincerely,

A handwritten signature in dark ink, reading "A Hinshelwood.", is displayed on a light blue rectangular background.

Andrew Hinshelwood
Archaeology Review Officer

cc. Scott Martin (scott.martin@golder.com)
Mansoor Mahmood (Mansoor.mahmood@ontario.ca)

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July 31, 2012

Scott Martin
Golder Associates Ltd.
2390 Argentia Road
Mississauga, ON L5N 5Z7

RE: Entry into the Ontario Public Register of Archaeological Reports: Archaeological Assessment Report Entitled, *Stage 2 Archaeological Assessment, SP Ontario Armow Wind Project Additional Field Work, Various Lots and Concessions, Geographic Townships of Bruce and Kincardine, now Municipality of Kincardine, Bruce County, Ontario.* Dated July 13, 2012, received by MTC Toronto Office July 16, 2012.

**MTC Project Information Form Number P218-206-2012
MTC RIMS Number HD00681**

Dear Scott,

This office has reviewed the above-mentioned report, which has been submitted to this Ministry as a condition of licensing in accordance with Part VI of the Ontario Heritage Act, R.S.O. 1990, c 0.18. This review has been carried out in order to determine whether the licensed professional consultant archaeologist has met the terms and conditions of their licence, that the licensee assessed the property and documented archaeological resources using a process that accords with the 2011 *Standards and Guidelines for Consultant Archaeologists* set by the Ministry, and that the archaeological fieldwork and report recommendations are consistent with the conservation, protection and preservation of the cultural heritage of Ontario.*

The report documents the Stage 2 archaeological assessment of the proposed Additional Lands for the SP Ontario Armow Wind Project, Various Lots and Concessions, Bruce County, as indicated in Table 1, and as depicted on the map, Figure A included in the above titled report, and recommends the following:

This Stage 2 assessment of the SP Ontario Armow Wind Project resulted in the identification of one pre-contact Aboriginal site and one Euro-Canadian historic site. Recommendations for these sites are found below.

5.1 Location 37 (BbHi-35)

The Stage 2 assessment of Location 37 (BbHi-35) resulted in the recovery of an isolated pre-contact Aboriginal Otter Creek projectile point. Despite the intensification of survey intervals, no additional artifacts were recovered. Given that the cultural heritage value or interest of the site has been sufficiently documented, **no further archaeological assessment is recommended for Location 37 (BbHi-35).**

5.2 Location 38

The Stage 2 assessment of Location 38 resulted in the recovery of primarily late 19th century and early 20th century historic Euro-Canadian artifacts. Given that the cultural heritage value or interest of the site has been sufficiently documented, **no further archaeological assessment is recommended for Location 38.**

5.3 Summary

Neither site documented during the additional Stage 2 assessment conducted on the SP Ontario Armow Wind Project was recommended for Stage 3 archaeological assessment. As a result, the Stage 2 field work documented in this report did not identify any archaeological site requiring further assessment or mitigation of impacts and so it is recommended that **no further archaeological assessment of the study area is required.** The Ministry of Tourism, Culture and Sport is asked to accept this report into the Ontario Public Register of Archaeological Reports and to issue a letter stating that the Ministry is satisfied that concerns for archaeological resources have been met for this study area.

Based on the information contained in the report, the ministry is satisfied that the fieldwork and reporting for the archaeological assessment is consistent with the ministry's 2011 *Standards and Guidelines for Consultant Archaeologists* and the terms and conditions for archaeological licences. This report will be entered into the Ontario Public Register of Archaeological Reports. Please note that the ministry makes no representation or warranty as to the completeness, accuracy or quality of reports in the register.

This letter does not constitute the Ministry's written comments for the purposes of O. Reg. 359/09.

Should you require any further information regarding this matter, please feel free to contact me. For further guidance on the Standards and Guidelines and the Terms and Conditions for Archaeological Licences please visit the ministry's website www.ontario.ca/archaeology.

Yours,



Andrew Hinshelwood
Archaeology Review Officer

cc. Archaeological Licensing Office

* In no way will the Ministry be liable for any harm, damages, costs, expenses, losses, claims or actions that may result: (a) if the Report(s) or its recommendations are discovered to be inaccurate, incomplete, misleading or fraudulent; or (b) from the issuance of this letter. Further measures may need to be taken in the event that additional artifacts or archaeological sites are identified or the Report(s) is otherwise found to be inaccurate, incomplete, misleading or fraudulent.

**Ministry of Tourism,
Culture and Sport**

Culture Services Unit
Programs and Services Branch
Culture Division
401 Bay Street, Suite 1700
Toronto ON M7A 0A7
Tel.: 416 314-3108
Fax: 416 314-7175

**Ministère du Tourisme,
de la Culture et du Sport**

Unité des services culturels
Direction des programmes et des services
Division de culture
401, rue Bay, bureau 1700
Toronto ON M7A 0A7
Tél. : 416 314-3108
Télec. : 416 212-7175



June 28, 2012

Mr. Brian Edwards, Project Developer
SP Ontario Wind Development LP Inc.
c/o Samsung Renewable Energy Inc.
55 Standish Court, 9th Floor
Mississauga, ON
L5R 4B2

Mr. Jody Law, Project Developer
Pattern Renewable Holdings Canada ULC
100 Simcoe Street, Suite 105
Toronto, ON
M5H 3T4

RE: Armow Wind Energy Project

Location: Various Communities, Municipality of Kincardine, Bruce County, Ontario

MTC DPR File No. 41EA016

Dear Mr. Edwards and Mr. Law:

This letter constitutes the Ministry of Tourism, Culture and Sport's written comments as required by s. 23(3)(a) of O. Reg. 359/09 under the *Environmental Protection Act* regarding heritage assessments undertaken for the above project.

Based on the information contained in the report you have submitted for this project, the Ministry is satisfied with the heritage assessment. Please note that the Ministry makes no representation or warranty as to the completeness, accuracy or quality of the heritage assessment report.*

The report recommends the following:

5.0 RECOMMENDATIONS

The Project Location was determined to contain three landscapes of potential heritage value or interest. These landscapes include a vernacular rural landscape consisting of a homogeneous land use pattern of pastures, agricultural fields, woodlots and associated farmsteads, a hydro and wind turbine corridor and swamp lands. Evaluation according to *Ontario Regulation 9/06* concluded that the identified landscapes were not of cultural heritage value or interest.

All individual cultural features that are located within the Project Location were photographed and evaluated according to *Ontario Regulation 9/06*. The 83 features (46 houses and 37 barns) that were identified to be greater than 40 years old at the Project Location have been determined to have general historical interest as they contribute to the character of the vernacular rural landscape. When further applying the criteria set out in *Ontario Regulation 9/06*, 69 structures (37 houses and 30 barns) were determined to have cultural heritage value or interest.

No further mitigation is recommended as it was determined that there are no anticipated direct or indirect impacts as a result of the undertaking. The recommendations contained in this report are based on current provincial regulations and guidelines pertaining to the approvals process for wind energy projects in Ontario.

The Ministry is satisfied with these recommendations.

This letter does not waive any requirements which you may have under the *Ontario Heritage Act*. Also, this letter does not constitute approval of the renewable energy project. Approvals of the project may be required under other statutes and regulations. It is your responsibility to obtain any necessary approvals or licences.

Please feel free to contact me if you have questions or require additional information.

Sincerely,

Laura Hatcher
Heritage Planner

cc. Christopher Andreae, Project Manager
Golder Associates

Meaghan Rivard, Cultural Heritage Specialist
Golder Associates

Chris Schiller, Manager, Culture Services Unit
Ministry of Tourism, Culture and Sport

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4. Transport Canada Correspondence

Gurski, Chris

From: Callum, Ian
Sent: Tuesday, August 21, 2012 9:52 AM
To: Gurski, Chris; Metcalfe, Kalena
Subject: FW: CLASS EA ARROW WIND PROJECT, KINCARDINE NEATS 34428
Attachments: RDIMS-#6077714-v2-NWP_APP_GUIDE_EN.PDF; RDIMS-#6077727-v2-FORM-TC_APPLICATION_FORM.PDF

Follow Up Flag: Follow up
Flag Status: Flagged

FYI and for the record...

Ian

Ian Callum (MSc, BSc) | Environmental Assessment Project Manager | Golder Associates Ltd.
2390 Argenta Road, Mississauga, Ontario, Canada L5N 5Z7
T: +1 (905) 567 6100 ext. 1524 | C: +1 (416) 303-9646 | F: +1 (905) 567 6561 | E: Ian.Callum@golder.com |
www.golder.com

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Please consider the environment before printing this email.

From: EnviroOnt [<mailto:EnviroOnt@tc.gc.ca>]
Sent: Tuesday, August 21, 2012 9:48 AM
To: 'info@arrowwind.com'
Cc: Callum, Ian
Subject: CLASS EA ARROW WIND PROJECT, KINCARDINE NEATS 34428

Thank you for the information regarding the above referenced project. We have reviewed the information, and note the following:

Transport Canada is responsible for the administration of the *Navigable Waters Protection Act* (NWP), which prohibits the construction or placement of any "works" in navigable waters without first obtaining approval. If any of the related project undertakings cross or affect a potentially navigable waterway, the proponent should prepare and submit an application in accordance with the requirements as outlined in the attached Application Guide and Form. Any questions about the NWP application process should be directed to the Navigable Waters Protection Program at (519) 383-1863 or NWPontario-PENontario@tc.gc.ca.

Please review the *Minor Works and Waters (Navigable Waters Protection Act) Order*, established to outline the specific standards and criteria under which Transport Canada considers a work as a minor and does not require an application under the NWP. It is the responsibility of the applicant, prior to submitting an application to the Navigable Waters Protection Program for review, to assess whether their work meets the criteria, as described, and, therefore, falls within one of the excluded classes. An application will only be required if it is determined that the work cannot meet the criteria established for that particular "class" of excluded work.

Transport Canada is also responsible for inspecting and auditing federally regulated railway companies that are subject to the *Railway Safety Act*. Transport Canada also regulates some provincial shortlines from the Province of Ontario that are part of an Agreement between the Federal Government and the Province of Ontario. The *Railway Safety Act*, with related regulations and rules, provides the legislative and regulatory framework for safe railway operations in Canada. The rail safety program develops, implements and promotes

safety policy, regulations, standards and research, and in the case of railway grade crossings, subsidizes safety improvements. A list of all the Rail Safety legislations (the *Act*, Regulations, Rules, Guidelines, Policies and Standards) that applies to the federally regulated railways, can be found here:

<http://www.tc.gc.ca/eng/railsafety/legislation.htm>

The *Act* also addresses the construction and alteration of railway works, the operation and maintenance of railway equipment and certain non-railway operations that may affect the safety of federally regulated railways. If a proposed railway work is of a prescribed kind, pursuant to the *Notice of Railway Works Regulations*, the proponent shall not undertake the work unless it has first given notice of the work in accordance with the regulation. More information related to railway works is available at the following internet sites:

- *Railway Safety Act*: <http://www.tc.gc.ca/acts-regulations/acts/1985s4-32/menu.htm>
- *Notice of Railway Works Regulations*: <http://laws.justice.gc.ca/en/SOR-91-103/>
- *Standards Respecting Pipeline Crossings Under Railways*: <http://www.tc.gc.ca/eng/railsafety/standards-tce10-236.htm>
- *Guideline on Requesting Approval to Undertake Certain Railway Works*: <http://www.tc.gc.ca/eng/railsafety/guideline-283.htm>

General inquiries about the Rail Safety Program can be directed to RailSafety@tc.gc.ca or by calling 613-998-2985.

Thank you,
Environmental Coordinator, Transport Canada - Ontario Region (PHE)
4900 Yonge Street, North York, ON M2N 6A5 EnviroOnt@tc.gc.ca



5. RABC Technical Memorandum and Responses

From: Callum, Ian [mailto:Ian_Callum@golder.com]

Sent: Tuesday, September 25, 2012 4:47 PM

To: r.a.b.c@on.aibn.com; info@canwea.ca; lavoie.mj6@forces.gc.ca; francine.boucher@rcmp-grc.gc.ca; Weather Radars Contact, National Radar Program [Ontario]; FerrisD@navcanada.ca; windturbines@forces.gc.ca; mojicaif@djo-mpo.gc.ca; cormack@seismo.nrcan.gc.ca; jlyons@nrcan.gc.ca

Cc: Jody Law; zBrian Edwards; SP Ontario - Armow; Metcalfe, Kalena; Clinch, Rachelle

Subject: Armow Wind Project

On behalf of SP Armow Wind Ontario LP ("SP Ontario"), a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC and Samsung Renewable Energy Inc., please find attached a technical memo providing information regarding the project. We would appreciate your input regarding any concerns you may have regarding the potential for the Armow Wind Project to result in electromagnetic interference with your systems.

Kind regards,

Ian

Ian Callum (MSc, BSc) | Environmental Assessment Project Manager | Golder Associates Ltd.

2390 Argentinia Road, Mississauga, Ontario, Canada L5N 5Z7

T: +1 (905) 567 6100 ext. 1524 | **C:** +1 (416) 303-9646 | **F:** +1 (905) 567 6561 | **E:** Ian_Callum@golder.com |

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DATE September 25, 2012**DOCUMENT No.** 11-1151-0247 DOC085Rev0**CC** Brian Edwards, Manager Project Development, Samsung Renewable Energy Inc.
Jody Law, Project Developer, Pattern Energy**FROM** Ian Callum, on behalf of SP Ontario**EMAIL** Ian_Callum@golder.com**RE: POTENTIAL FOR ELECTROMAGNETIC INTERFERENCE FROM THE PROPOSED ARMOW WIND FARM**

SP Armow Wind Ontario LP (the "Proponent") by its general partner SP Armow Wind Ontario GP Inc. is currently developing the Armow Wind Project (the "Project"). The Proponent is a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC ("Pattern") and Samsung Renewable Energy Inc. ("Samsung"). The Proponent has retained Golder Associates Ltd. (Golder) to prepare an Application for a Renewable Energy Approval (REA) under Ontario Regulation (O. Reg.) 359/09, as amended by O. Reg 195/12. The Proponent is proposing to develop, construct, and operate the Project in response to the Government of Ontario's plan to integrate more renewable energy into the province's power grid.

The proposed Project is located in the vicinity of the Municipality of Kincardine, in the County of Bruce approximately 3 km from Lake Huron, and approximately 2 km northeast of Kincardine, Ontario. The Project is a Class 4 wind facility with a nameplate generation capacity of up to 180 MW, which will generate electricity through approximately 90 Siemens SWT-2.3-101 wind turbines rated between 1.8 MW and 2.3 MW. A total of 99 turbines will be permitted to provide contingency positions. The proposed wind turbine model to be used in the Project is Siemens SWT-2.3-101, with a height of 99.5 m above ground level, 3 material blades and a 49 m diameter of rotating blades.

We understand that there may be concerns related to potential effects of wind turbine towers on a variety of radio frequency, radar signal, and seismoacoustic recording equipment. In order to proactively address these concerns, this letter is being circulated to solicit comments from relevant stakeholders. The distribution includes all systems listed in the Coordination Mandatory Contact List provided in the guidance document: *Technical Information and Coordination Process between Wind Turbines and Radiocommunication and Radar Systems* (Radio Advisory Board of Canada and Canadian Wind Energy Association, 2010).

Please find attached a draft site plan outlining the Project's study area, the proposed locations of the 99 wind turbines and the location of the proposed substation (Figure 1). The proposed wind turbine locations and associated infrastructure as shown on the attached draft site plan (Figure 1) are deemed to be in draft form until consultation for the Project is completed and the final REA application for the proposed Project is submitted. Please also find attached Appendix A which summarizes the UTM coordinates of the proposed wind turbine locations as shown on the attached draft site plan (Figure 1).



We welcome your comments regarding the potential for interference with your electromagnetic equipment.

The contacts for the Project are as follows:

Proponent

Brian Edwards
Manager, Project Development
Samsung Renewable Energy Inc.
55 Standish Court, 9th Floor
Mississauga, ON, L5R 4B2
Phone: (519) 396-9433
Email: b.edwards@samsungrenewableenergy.ca

Jody Law
Project Developer
Pattern Energy
100 Simcoe Street, Suite 105
Toronto, ON M5H 3G2
Phone (519) 396-9433
Fax: (416) 979-8428
Email: Jody.Law@patternenergy.com

Consultant

The Proponent has retained Golder Associates Ltd. (Golder) to prepare a REA Application under O. Reg. 359/09, as amended. Contact information for the Golder Project Manager is as follows:

Ian Callum, Project Manager
Golder Associates Ltd.
2390 Argentia Road
Mississauga, Ontario L5N 5Z7
Phone: (905) 567-4444
Fax: (905) 567-6561
E-mail: Ian_Callum@golder.com

Sincerely,



Ian Callum
Project Manager



Anthony Ciccone, Ph.D., P.Eng.
Project Director

Attachments: Figure 1: Armow Wind Project – Draft Site Plan
Appendix A: Proposed UTM Coordinates of Project Turbines

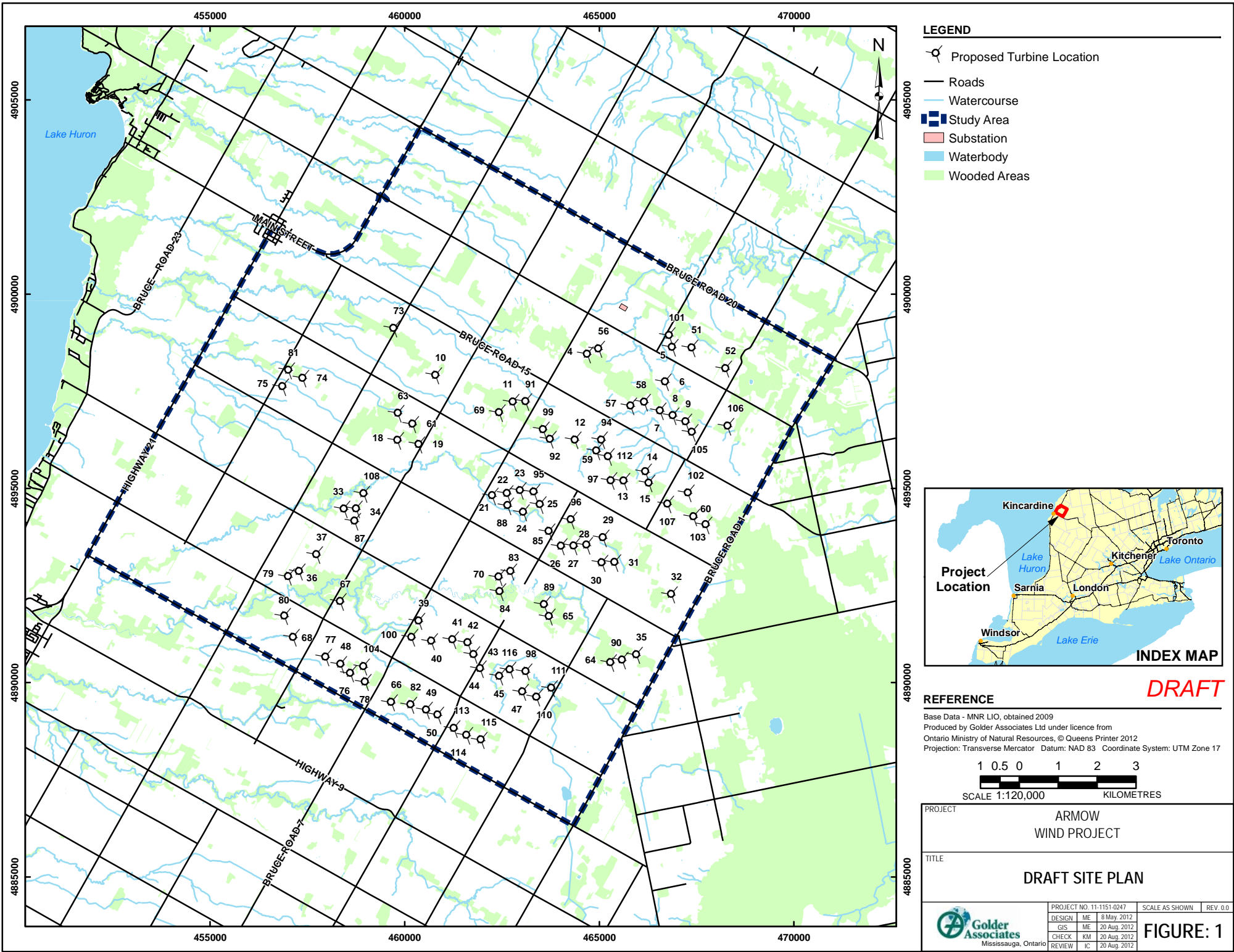
KM/IC/rc

\\mis1-s-filesrv1\data\active\2011\1151\11-1151-0247-sp ontario-armow\5000 consultation\rabc\11-1151-0247 doc085_rev0_rabc consultation letter to stakeholders_25sept12.docx

FIGURE 1

Draft Site Plan

G:\Projects\2011\11-1151-0247 - SamsungArmow\GIS\MapX\Reporting\ABCDraftSitePlan.mxd



APPENDIX A

Proposed Wind Turbine UTM Coordinates

Table 1: Proposed Wind Turbine UTM coordinates
Datum: NAD 83, Coordinate System: UTM Zone 17

Wind turbine ID	Easting	Northing
4	464682	4898466
5	466865	4898641
6	466690	4897755
7	466554	4897005
8	466884	4896882
9	467210	4896729
10	460785	4897921
11	462777	4897234
12	464367	4896252
13	465621	4895205
14	466182	4895442
15	466268	4895147
18	459810	4896249
19	460352	4896143
21	462245	4894821
22	462622	4894878
23	462959	4894956
24	463039	4894395
25	463465	4894592
26	464009	4893522
27	464337	4893527
28	464666	4893553
29	465090	4893742
30	465060	4893097
31	465388	4893104
32	466845	4892281
33	458435	4894474
34	458746	4894479
35	465945	4890725
36	457280	4892873
37	457729	4893302
39	460352	4891598
40	460681	4891076
41	461220	4891113
42	461614	4891037

43	461768	4890734
44	461935	4890372
45	462426	4890172
47	463020	4889772
48	458346	4890486
49	460549	4889305
50	460839	4889178
51	467371	4898626
52	468239	4898092
56	464971	4898601
57	465799	4897131
58	466148	4897228
59	464921	4895976
60	467413	4894276
61	460197	4896667
63	459822	4896943
64	465279	4890523
65	463701	4891711
66	459648	4889504
67	458335	4892100
68	457127	4891173
69	462419	4896959
70	462409	4892727
73	459708	4899129
74	457373	4897847
75	456855	4897632
76	458595	4890252
77	457961	4890664
78	458976	4890025
79	457000	4892740
80	456905	4891725
81	457006	4898054
82	460147	4889442
83	462716	4892873
84	462437	4892354
85	463695	4893900
87	458708	4894168
88	462642	4894569

89	463573	4892018
90	465579	4890590
91	463100	4897245
92	463725	4896277
94	465047	4896257
95	463309	4894916
96	464266	4894203
97	465289	4895208
98	463109	4890298
99	463549	4896523
100	460169	4891172
101	466788	4898947
102	467274	4894893
103	467729	4894074
104	458938	4890421
105	467373	4896459
106	468294	4896614
107	466747	4894603
108	458941	4894875
110	463381	4889634
111	463760	4889869
112	465221	4895826
113	461259	4888833
114	461585	4888655
115	461956	4888538
116	462694	4890339

Gurski, Chris

From: MARIO.LAVOIE2@forces.gc.ca
Sent: Wednesday, September 26, 2012 7:32 AM
To: Callum, Ian
Cc: +WindTurbines@forces.gc.ca
Subject: FW: Armow Wind Project
Attachments: 11-1151-0247 DOC085_Rev0_RABC Consultation Letter to Stakeholders_25Sept12.pdf

I have reviewed your proposal in respect to DND's radio communication systems, and I have no objections or concerns.

Thank you for coordinating with DND.

Have a good Day.

Mr. Mario Lavoie
Spectrum Engineering Technician
National Defence | Défense nationale
Ottawa, Canada K1A 0K2
mario.lavoie2@forces.gc.ca
Telephone | Téléphone 613-992-3479
Facsimile | Télécopieur 613-991-3961
Government of Canada | Gouvernement du Canada

From: Callum, Ian [mailto:Ian_Callum@golder.com]
Sent: Tuesday, 25, September, 2012 16:47 PM
To: r.a.b.c@on.aibn.com; info@canwea.ca; Lavoie MJ@ADM(IM) J6 Coord@Ottawa-Hull; francine.boucher@rcmp-grc.gc.ca; weatherradars@ec.gc.ca; FerrisD@navcanada.ca; +WindTurbines@ATESS@TRENTON; mojicaif@djo-mpo.gc.ca; cormack@seismo.nrcan.gc.ca; jlyons@nrcan.gc.ca
Cc: Jody Law; zBrian Edwards; SP Ontario - Armow; Metcalfe, Kalena; Clinch, Rachelle
Subject: Armow Wind Project

On behalf of SP Armow Wind Ontario LP ("SP Ontario"), a joint venture limited partnership owned by affiliates of Pattern Renewable Holdings Canada ULC and Samsung Renewable Energy Inc., please find attached a technical memo providing information regarding the project. We would appreciate your input regarding any concerns you may have regarding the potential for the Armow Wind Project to result in electromagnetic interference with your systems.

Kind regards,

Ian

Ian Callum (MSc, BSc) | Environmental Assessment Project Manager | Golder Associates Ltd.
2390 Argentia Road, Mississauga, Ontario, Canada L5N 5Z7
T: +1 (905) 567 6100 ext. 1524 | C: +1 (416) 303-9646 | F: +1 (905) 567 6561 | E: Ian_Callum@golder.com | www.golder.com

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Gurski, Chris

From: Weather Radars Contact,National Radar Program [Ontario] <weatherradars@ec.gc.ca>
Sent: Friday, September 28, 2012 12:23 PM
To: Callum, Ian; Weather Radars Contact,National Radar Program [Ontario]
Cc: SP Ontario - Armow
Subject: RE: Armow Wind Project

Dear Mr. Ian Callum,

Thank you for contacting the Meteorological Service of Canada, a branch of Environment Canada, regarding your wind energy intentions.

Our preliminary assessment of the information provided to us via e-mail on September 25, 2012 indicates that any potential interference that may be created by the Armow Wind Farm located near Kincardine, ON will not be severe. Although we would prefer our radar view to be interference free, this is not always reasonable. As a consequence, we do not have strong objections to the current proposal.

If your plans are modified in any manner (e.g. number of turbines, height, placement or materials) this analysis would no longer be valid. An updated analysis must be conducted.

Please contact us at: weatherradars@ec.gc.ca.

Thank you for your ongoing cooperation and we wish you success.

Best Regards,

Carolyn Rennie
National Radar Program
Meteorological Service of Canada
Environment Canada
4905 Dufferin Street
Toronto, Ontario M3H 5T4
Office : 3N-WS12
Carolyn.Rennie@ec.gc.ca
Phone : 416-739-4931

Carolyn Rennie
Le Programme Nationale de Radar
Service météorologique du Canada
Environnement Canada
4905, rue Dufferin
Toronto, Ontario M3H 5T4
Bureau : 3N-WS12
Carolyn.Rennie@ec.gc.ca
Téléphone : 416-739-4931

From: Callum, Ian [mailto:Ian_Callum@golder.com]
Sent: Thursday, September 27, 2012 9:59 AM
To: Weather Radars Contact,National Radar Program [Ontario]
Cc: SP Ontario - Armow
Subject: RE: Armow Wind Project

Hi Carolyn,

Please find attached a spreadsheet containing the requested coordinates.

Kind regards,

Ian

Ian Callum (MSc, BSc) | Environmental Assessment Project Manager | Golder Associates Ltd.
2390 Argentia Road, Mississauga, Ontario, Canada L5N 5Z7
T: +1 (905) 567 6100 ext. 1524 | C: +1 (416) 303-9646 | F: +1 (905) 567 6561 | E: Ian_Callum@golder.com |
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From: Weather Radars Contact,National Radar Program [Ontario] [<mailto:weatherradars@ec.gc.ca>]
Sent: Wednesday, September 26, 2012 9:38 AM
To: Callum, Ian; Weather Radars Contact,National Radar Program [Ontario]
Subject: RE: Arrow Wind Project

Dear Mr. Ian Callum,

Thank you for contacting the Meteorological Service of Canada, a branch of Environment Canada, regarding your wind energy intentions.

In order to complete a preliminary assessment of a wind farm we require the turbine coordinates to be input into our analysis program. Unfortunately, I am having trouble extracting the coordinates from the PDF letter you had sent. If it is at all possible would we be able to receive the coordinates in a spreadsheet?

Once this information is received we will endeavor a response to you as soon as possible.

We will aim to complete our analysis within 2-3 weeks.

If you require any additional information or clarification please do not hesitate to contact us at weatherradars@ec.gc.ca

Best Regards,

Carolyn Rennie
National Radar Program
Meteorological Service of Canada
Environment Canada
4905 Dufferin Street
Toronto, Ontario M3H 5T4
Office : 3N-WS12
Carolyn.Rennie@ec.gc.ca
Phone : 416-739-4931

Carolyn Rennie
Le Programme Nationale de Radar
Service météorologique du Canada
Environnement Canada
4905, rue Dufferin
Toronto, Ontario M3H 5T4
Bureau : 3N-WS12
Carolyn.Rennie@ec.gc.ca
Téléphone : 416-739-4931

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