

# Welcome to the Bow Lake Wind Project Public Meeting

Please sign in if you would like your name added to the Project's mailing list so that you will be contacted regarding upcoming Project events.

Thank you to the Batchewana First Nation for welcoming us into their territory for this meeting.



Wind Turbine Installation



Wind Turbines

# Bow Lake Wind Project

## How to have your Questions Answered

- Ask the Project team members at this meeting
- Take time to read the information panels around the room
- Fill out a comment card and hand it in or mail it using the postage paid envelope
- Review the Studies and Reports available on the tables and on the Project Website
- Project Website: <http://www.blueearthrenewables.com/bowlakewind>
- Send us an email: [bowlakewind@blueearth.ca](mailto:bowlakewind@blueearth.ca)
- Give us a call: (519) 821-7319



Yellow Trout Lily



Project Area

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# Bow Lake Wind Project

## Project Development History

- The Project applied for and received Applicant of Record status in 2007 through the MNR's Crown Land Site Release Process
- Public and Aboriginal consultation was initiated in November 2007, and has been ongoing since that time
- Notice of Commencement was issued under O. Reg. 116/01 in January 2008 and Notices of Proposal to Engage under O. Reg. 359/09 were issued in November 2010
- Four public meetings have been held on February 21, 2008, and April 4, 5, and 28, 2011
- Environmental Investigations have been underway since 2008

## Regulatory Change

- The REA regulations (O. Reg. 359/09 and O. Reg. 334) were amended on June 29, 2012. This meeting is being held in accordance with the requirements of the amended regulation
- Both phases of the Project have been combined and will be assessed under the REA process collectively as the Bow Lake Wind Project
- Combining the phases into one REA application will simplify the review process and makes it easier for stakeholders to access and comprehensively evaluate the Project and any potential effects
- Under this single REA process, stakeholders will continue to have two public meeting opportunities to review and comment on all aspects of the Project, maintaining an equivalent opportunity to participate in the process

# Bow Lake Wind Project

## Who is Developing the Project?

- Phase 1 is being developed by Bow Lake Phase 1 Wind Farm Ltd. ("BL1")
- Phase 2 is being developed by Bow Lake Phase 2 Wind Farm Ltd. ("BL2")
- The shareholders of BL1 and BL2 are:
  - BluEarth Renewables Inc. ("BluEarth")
  - DP Energy and Vortex Energy
- BluEarth became the lead partner in 2011 and is leading the development, regulatory approvals, construction and operation of the Project
  - BluEarth is a privately owned Canadian renewable energy developer headquartered in Calgary, Alberta
  - BluEarth strives to build, own, and operate sustainable projects across North America including wind, run-of-river hydroelectric and solar generation
- The Project is located within the territory of the Batchewana First Nation, who are participating in the Project as economic partners
- DP Energy and Vortex Energy are experienced wind developers, who identified the Bow Lake site in 2007 and conducted initial feasibility, engineering and regulatory work on the Project

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# Bow Lake Wind Project

## Bow Lake Wind Project

- The Bow Lake Wind Project is located on Crown Land within the Townships of Smilsky and Peever, in the District of Algoma, Ontario
- The Project is located approximately 80 km north of Sault Ste. Marie and roughly 6 km east of Montreal River Harbour
- The proposed Project will include:
  - Up to 36 wind turbines for a maximum nameplate capacity of 60 MW
  - A 34.5 kV above and below ground electrical collector line system
  - Two permanent meteorological towers
  - Access roads, temporary construction areas, operation and maintenance building and a transformer station
- The electricity generated from each turbine will be transported through the 34.5 kV collector line system to the transformer station proposed to be located adjacent to an existing 115 kV transmission line



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# Draft Site Plan



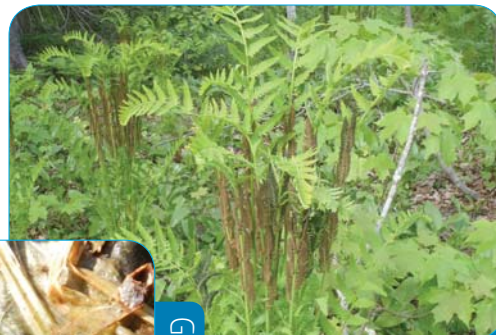
# Bow Lake Wind Project

## Why this Location?

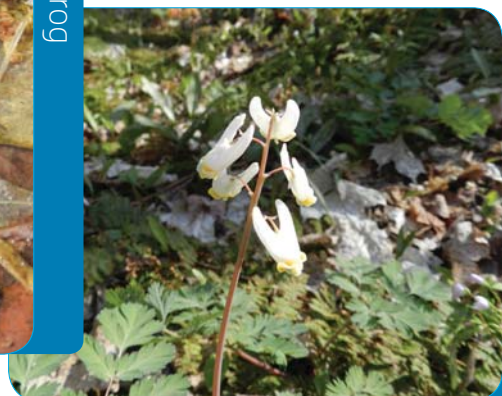
- Good wind regime
- Access to suitable Crown Lands through the MNR Site Release process.
- Proximity to existing infrastructure such as logging roads
- Electrical interconnection – agreement with the Ontario Power Authority to generate and transmit electricity into the Provincial grid
- Environment – Based on studies to date and the implementation of appropriate mitigation measures, the project is anticipated to have minimal net effects



Green Frog



Interrupted Fern

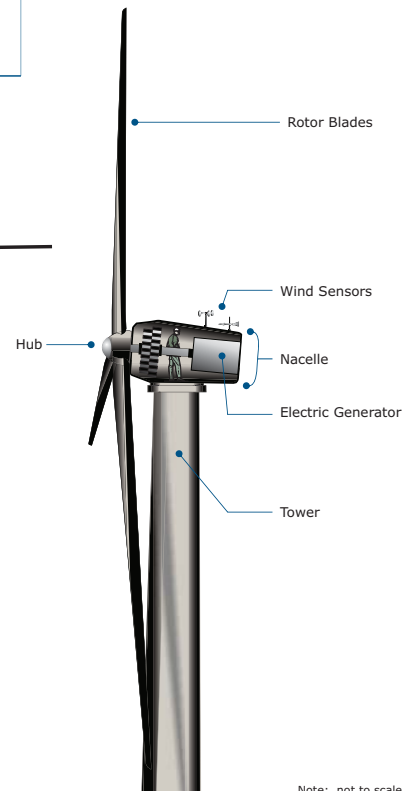
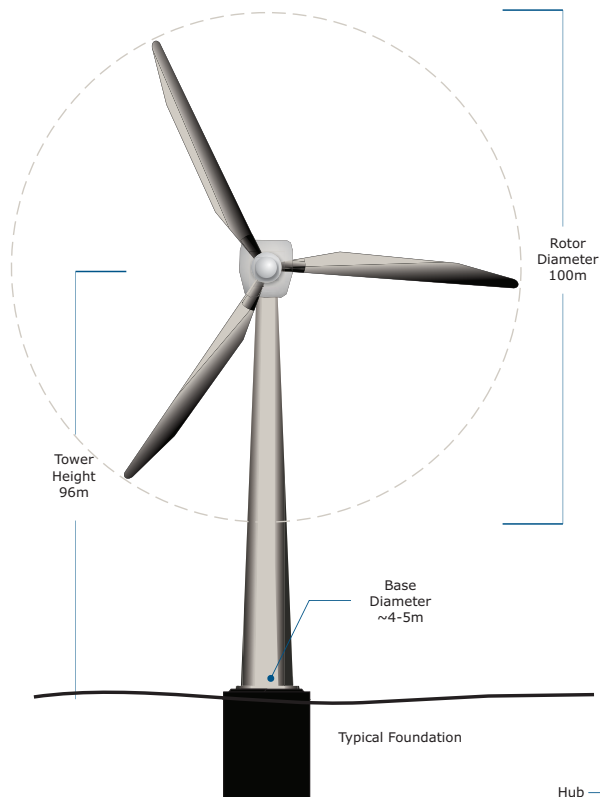


Dutchman's-Breeches

# Bow Lake Wind Project

## Turbine Specifications

Approximate Dimensions



Note: not to scale

### Key Parameters:

- height at hub: 96 m
- blade length: 48.7 m
- tip height: 146 m

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# Bow Lake Wind Project

## Turbine Setback Distances

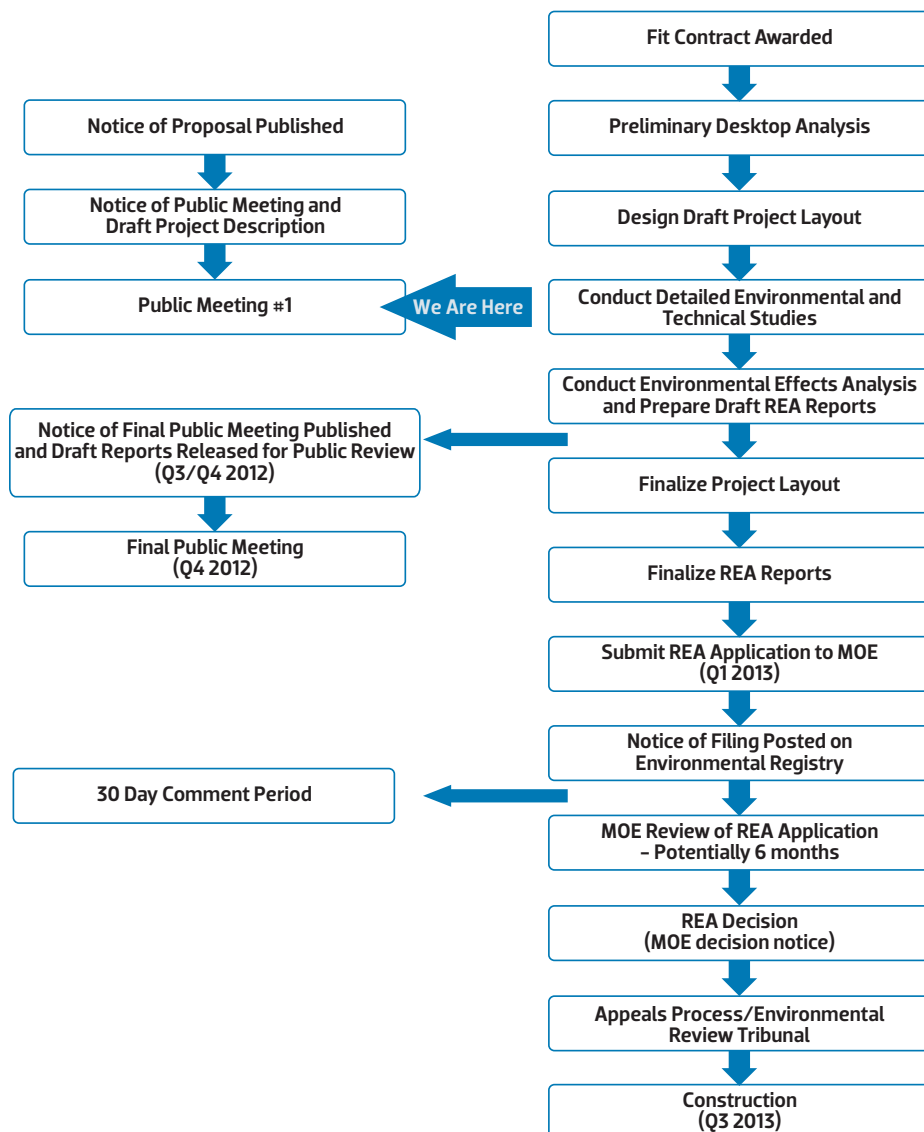
As defined by O. Reg. 359/09.

| Feature                                                                                 | Setback Distance                                                            | Study Alternative When Within Setback                                                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Non-participating receptor                                                              | 550 m (from wind turbine base)                                              | Project site is remote. Closest receptor is 860 m from a wind turbine and is located on Crown Land on the South Side of Negick Lake.<br><br>An Environmental Noise Impact Assessment will be completed for the Project according to MOE Noise Guidelines. |
| Public road right-of-way                                                                | Wind turbine blade length + 10 m (from the centre of the wind turbine base) | N/A                                                                                                                                                                                                                                                       |
| Provincially significant wetland                                                        | 120 m                                                                       | Development not permitted within feature.<br><br>Development and site alteration may be possible within setback area; Environmental Impact Study required.                                                                                                |
| Provincially significant Area of Natural and Scientific Interest (ANSI) (Earth Science) | 50 m                                                                        | Development and site alteration may be possible within natural feature and setback area; EIS required.                                                                                                                                                    |
| Provincially significant ANSI (Life Science)                                            | 120 m                                                                       | Development and site alteration may be possible within natural feature and setback area; EIS required.                                                                                                                                                    |
| Significant wildlife habitat                                                            | 120 m                                                                       | Development and site alteration may be possible within natural feature and setback area; EIS required.                                                                                                                                                    |
| Lake                                                                                    | 120 m from the average annual high water mark                               | Development and site alteration may be possible within setback area; additional report required. No wind turbine or transformer located within a lake or within 30 m of the average annual high water mark.                                               |
| Permanent or intermittent stream                                                        | 120 m from the average annual high water mark                               | Development and site alteration may be possible within setback area; additional report required. No wind turbine or transformer located within a permanent or intermittent stream or within 30 m of the average annual high water mark.                   |
| Seepage area                                                                            | 120 m                                                                       | Development and site alteration may be possible within setback area; additional report required. No wind turbine or transformer located within 30 m of a seepage area.                                                                                    |

# Bow Lake Wind Project

## Renewable Energy Approval Process

- The Project will require a Renewable Energy Approval (REA) according to Ontario Regulation 359/09 under the Environmental Protection Act
- Bow Lake has re-initiated the REA Process for the combined Project, including continuation of the natural heritage reporting and the consultation program



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# Bow Lake Wind Project

## Reports included in an REA Application

**Project Description Report** – Provides an overview of the project

**Construction Plan Report** – describes the activities associated with construction and identifies any potential effects resulting from construction of the project

**Design and Operations Report** – describes the activities associated with operation of the project and identifies any potential effects resulting from operation of the project

**Noise Study Report** – Ensures the project is in compliance with noise regulations

**Natural Heritage Assessment and Environmental Impact Study** (includes technical studies for wildlife and wildlife habitat) – identifies potential effects on natural environment

**Consultation Report** – Demonstrates how the proponents engaged with various stakeholders through the development of the Project

**Archaeological and Cultural Heritage Report** – identifies potential effects on archaeological or cultural heritage resources

**Water body and Water Assessment Report** – identifies potential effects on streams, rivers, seepage areas and lakes

**Wind Turbine Specifications Report** – describes the turbine technology selected for the Project

**Decommissioning Plan Report** – describes the activities associated with and identifies any potential effects resulting from decommissioning the Project

**Crown Land Interests Report** – describes existing land uses and users, potential effects and mitigations measure to users, land use compatibility and site access controls

All reports, with exception of the Consultation Report, will be made available in draft form for public review and comment at least 60 days prior to the Final Public Open House. Notification of the release of the draft reports will be provided in newspapers and on the Project website (<http://www.blueearthrenewables.com/bowlakewind>).

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# Bow Lake Wind Project

## MNR Approvals and Permitting

Because the Project is located on Crown Land, the Project will require the following land tenures from MNR:

- Applicant of Record Status (obtained in 2007)
- Land Use Permit and Work Permits to install and maintain meteorological towers obtained
- Work Permits – to undertake clearing and construction activities
- Land Use Permit – for construction activities
- Crown Lease – for project infrastructure (turbines) during operations
- Land Use Permit or Easement– for electrical collector lines and roads
- Land Purchase – for substation

Other permits from MNR include:

- Endangered Species Act – MNR has determined that no permits for the Project are required under this Act
- Aggregate Resources Act – MNR has issued three permits under this Act to the Project for potential aggregate extraction in the Project area

The Project will meet and adhere to MNR's standards for forest fire prevention and preparedness.

Shared use agreements are required with existing tenure holders in the area, including the Sustainable Forest License holder, and other power producers.



Ruffed Grouse

# Bow Lake Wind Project

## Public Access

### Existing Roads

- The Project has tried to maximize the use of existing public multi-use roads
- Some upgrades to existing roads will be required

### New Roads

- Approximately 6 km of new roads (public multi-use and Project specific) will be constructed to install and operate the Project – these roads are being evaluated under the REA
- The Project has worked with the local forest licensee to align new Project roads with approved forestry road corridors – approximately 21 km of forestry roads approved under the current Sustainable Forest Management Plan will be used by the Project

### Public Access

- There will be some short and localized restrictions to public access during the construction period to ensure public safety
- During Project operations public access on existing roads will remain unchanged from the present
- A gate is proposed on the new access road on private property near Turbine #3 and on Project specific spur access roads which are used solely to access turbine locations
- The area will remain fully accessible to hunters, trappers, and recreational users during project operations

## Archaeological and Cultural Heritage Studies

**Archaeology** – A Stage I Archaeological Assessment has been conducted and it was determined that a Stage II (site survey) was to be conducted. The Stage II Archaeological Assessment revealed no archaeological resources within the Project Location

**Cultural Heritage** – A Heritage Impact Assessment ("HIA") has been prepared to assess potential effects on cultural heritage resources in the region. The HIA report is available, in draft form, on the project website: <http://www.blueearthrenewables.com/bowlakewind>

- The HIA report documented that no heritage resources are known to occur in or adjacent to the Project Location
- The report evaluated potential effects on regional cultural heritage resources within the Zone of Visual Impact, considering features such as:
  - Aboriginal Interests
  - Great Lakes Heritage Coast
  - Highway 17 Scenic Drive
  - Algoma Central Railway
  - Lake Superior Provincial Park
  - Other parks and recreation areas
  - Montreal River
  - Group of Seven landscapes
- While the wind turbines will be visible to varying extents from different cultural heritage resource locations, the Project will have limited effects on cultural heritage resources in the area
- Various design and turbine siting considerations have already been undertaken in order to minimize potential effects on cultural heritage resources, and the HIA did not recommend further mitigation
- The Ministry of Tourism, Culture and Sport has reviewed the report and was satisfied with this recommendation

## Cultural Heritage– Group of Seven

An assessment was undertaken of the potential for Project components to be visible from the original site of inspiration for specific pieces of art, particularly those attributed to the Group of Seven artists.

- The sites within the Algoma District where Group of Seven paintings were inspired or created are known to some individuals
- Much of the information on Group of Seven painting locations is considered confidential by those who have invested time and resources in identifying them.
- Many thanks are owed to local experts and others who were willing to share their expertise in order to assist with this assessment
- 26 painting locations were identified within the region, twelve of which were potentially within the Zone of Visual Impact (the area within which the wind turbines would be visible).
- Of these, it would not be possible to see proposed wind turbines within any of the painted viewsapes, several of which have already been significantly altered from their painted state by hydroelectric development on the Montreal River

# Bow Lake Wind Project

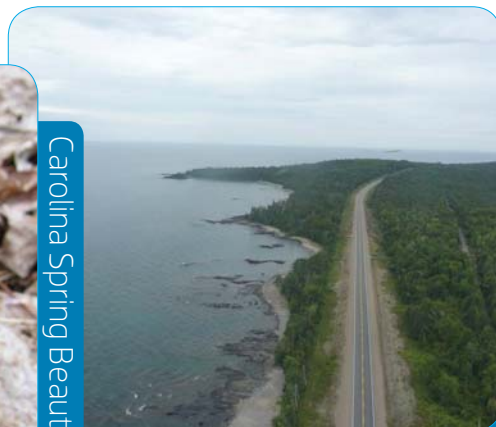
## Tourism

Potential effects of the development of the Project on tourism in the area were raised as a concern during previous public meetings.

- The Project commissioned a Tourism Impact Assessment ("TIA") to supplement the HIA
- The TIA is included with the HIA report and is available, in draft form, on the Project website <http://www.blueearthrenewables.com/bowlakewind>
- The TIA included market research and an independent survey targeted towards 100 tourism-related business operators in the region
- Only 15 business operators responded to the survey, with a range of responses
- It was noted "wilderness experience" is considered an important element in the marketing of products offered by tourist operators in the region
- The TIA concluded that the impact of a single wind farm such as Bow Lake on the wilderness experience of the region and its marketability to tourists will be minimal, if any
- The Project is not expected to have any negative impacts on tourism in the area



Carolina Spring Beauty



Tourism

# Bow Lake Wind Project

## Natural Heritage and Water Assessment

Natural Heritage and water body studies are being completed to understand the local environment and assist with the development of the project layout.

The Natural Heritage Assessment (NHA) and Water Assessment (WA) include; Records Review, Site Investigation, Evaluation of Significance, and an Environmental Impact Study (where required) .

Previous site investigation work has been underway since 2008. Stantec has been coordinating the NHA and WA since April 2012.

- Natural Heritage Assessment Studies Include:
  - Vegetation communities, rare plants and wetlands
  - Specialized wildlife habitat, seasonal concentration areas, habitat for species of conservation concern, animal movement corridors.
  - Wildlife monitoring surveys (e.g., mammals including bats, amphibians, reptiles and birds)
- Water body assessment includes an inventory of surface water features including fisheries investigations and aquatic habitat assessments
- Site investigation work will be completed in early September 2012
- The results of the studies will be documented in the NHA and WA report. These reports will be made available for public review at least 60 days before the Second Open House

One Natural Heritage Assessment report will be prepared that incorporates both Phase 1 and Phase 2.

# Bow Lake Wind Project

## Community Benefits

### Benefits to the Community include:

- Job creation
  - approximately 60–80 persons during construction/decommissioning
  - approximately 4–6 full-time permanent positions during operation)
- Local investment including the procurement of local supplies and specialized services
- Upgrades and maintenance of public multi-use roads for recreational users
- Creation of electricity through the use of a renewable resource
- Contributes to the stabilization of long-term electricity costs because wind is not a finite resource to be depleted, and it does not increase in price over time
- Partnership with the local First Nation



Wind Turbine Installation

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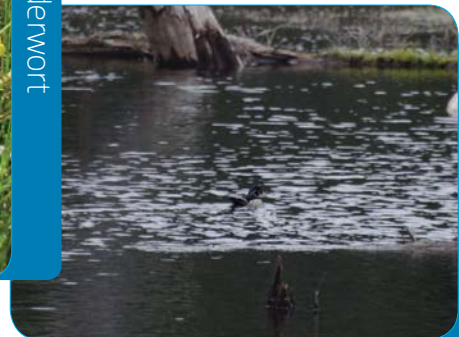
# Bow Lake Wind Project

## Sound Levels of a Wind Farm

- There are two potential sources of sound typically associated with wind turbines:
  - **Aerodynamic** – blades pass through the air and create a "swishing" sound
  - **Mechanical** – originated from the gearbox and generator that are housed in the nacelle
- A project this size requires a Noise Assessment Report be completed to ensure the project complies with Ministry of Environment requirements
- Turbines have been and will continue to be sited to ensure compliance with Ministry of Environment requirements
- The Project is located in a Class 3 area, which is defined as "a rural area with an acoustical environment that is dominated by natural sounds having little or no road traffic" as per the MOE Noise Guideline. The Project site is in a remote area with no residential receptors nearby
- Common game species are known to adapt to the noise and presence of operational wind turbines



Horned Bladderwort



Wood Duck

# Bow Lake Wind Project

## 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).
- **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".
- Overall, health and medical agencies agree that when sited properly, wind turbines are not causally related to adverse effects\*.
- The Project is not located near any residential receptors and there is minimal increased or new risk to public health and safety.
- BL1 and BL2 support the responsible development of wind energy and continue to monitor ongoing scientific research in the area of wind turbines and human health. Health Canada's proposed new study will contribute to the scientific literature and our knowledge base.

\* 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(MassDEP) and Massachusetts Department of Public Health (MDPH), 2012.

# Bow Lake Wind Project

## Batchewana First Nation

The Project lies within the territory of the Batchewana First Nation.

Project developers have been working closely with the Batchewana First Nation on the Project since 2008. The Batchewana First Nation community has a strong relationship with its land and resources, and has been conducting its own assessments of potential effects on their cultural and natural heritage.

The Batchewana First Nation will be economic partners in the Project.

As partners in the Project, the Batchewana First Nation has recommended that Project development activities recognize and respect the spirituality of the Bow Lake area, and that the developers follow the spiritual lessons of the ancestors in undertaking any of the work contemplated by the Project. All Project partners have worked and will continue to work with the BFN to ensure that Project activities are respectful of the BFN's relationship with its land and resources.



Batchewana Bay



Obadiwan Reserve

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# Bow Lake Wind Project

## Visual Simulations

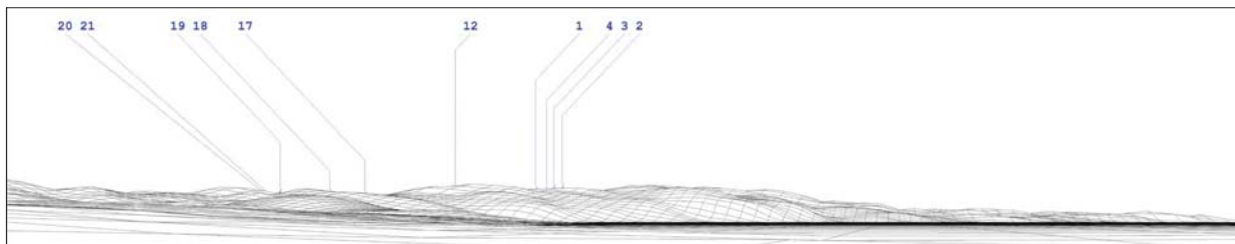
A number of photomontages have been produced to illustrate the potential visual impacts of the Bow Lake wind turbines.

Single photographic images taken with a normal or standard lens gives a relatively narrow field of view and whilst giving a sense of scale, and possible visibility does not give the same sense of setting that is seen by the naked eye. In order to mimic the eyes naturally wider field of view the photomontages provided have a view angle of approximately 100 degrees and have been produced by stitching individual images together.

The suns strength and its position in the sky, along with local weather (particularly cloud cover) can have an effect on how a turbine stands out against its background. The photomontages illustrate turbines under a range of different conditions and in order to ensure they are clearly visible on a number of images the turbine contrast has been increased by either making the turbines appear darker or brighter as appropriate.

### PM10 – Agawa Bay Interpretive Center and Campground – Beach

Description: The main view from the beach at the Agawa Bay Interpretive Centre is towards Lake Superior. The distance to nearest turbine is approximately 12km. For this image taken on a brighter day, the turbines brightness has been enhanced in order to simulate the effect of direct strong sunlight striking the machines.



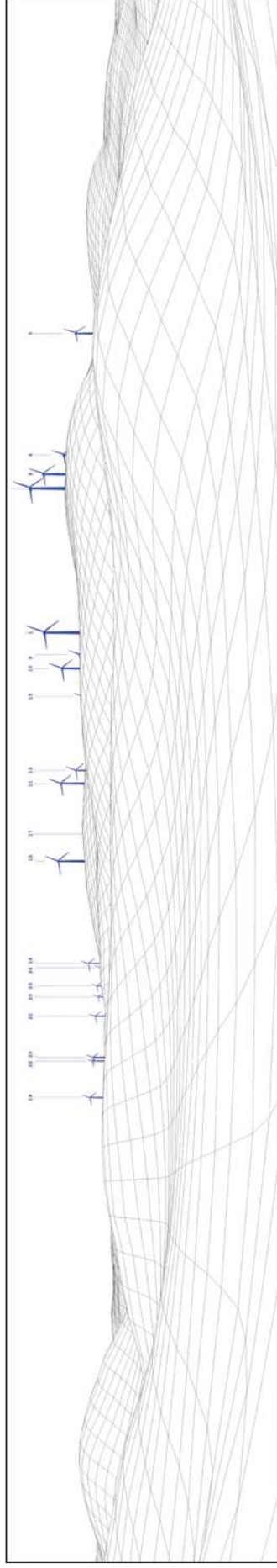
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## Bow Lake Wind Project

# Visual Simulations

### PM01 – Highway 17 overlooking Gartshore Dam

Description: The view is representative of the intermittent views from Highway 17 afforded by gaps in the tree line. At 2km this is one of closest views of the Wind Farm from Highway 17.



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### PM02 – View from the Crescent Lake and Campground

Description: The view is representative of views from one the closest campsites areas to the wind farm, Crescent Lake Campground located in the Lake Superior Park. The photograph was taken from the frozen lake surface looking south towards the wind farm and campground (views from the campground itself) are obscured by tree growth. Distance to nearest turbine is around 5km.

