


# **Appendix D**

## **Public Consultation Materials**

## **Appendix D1**

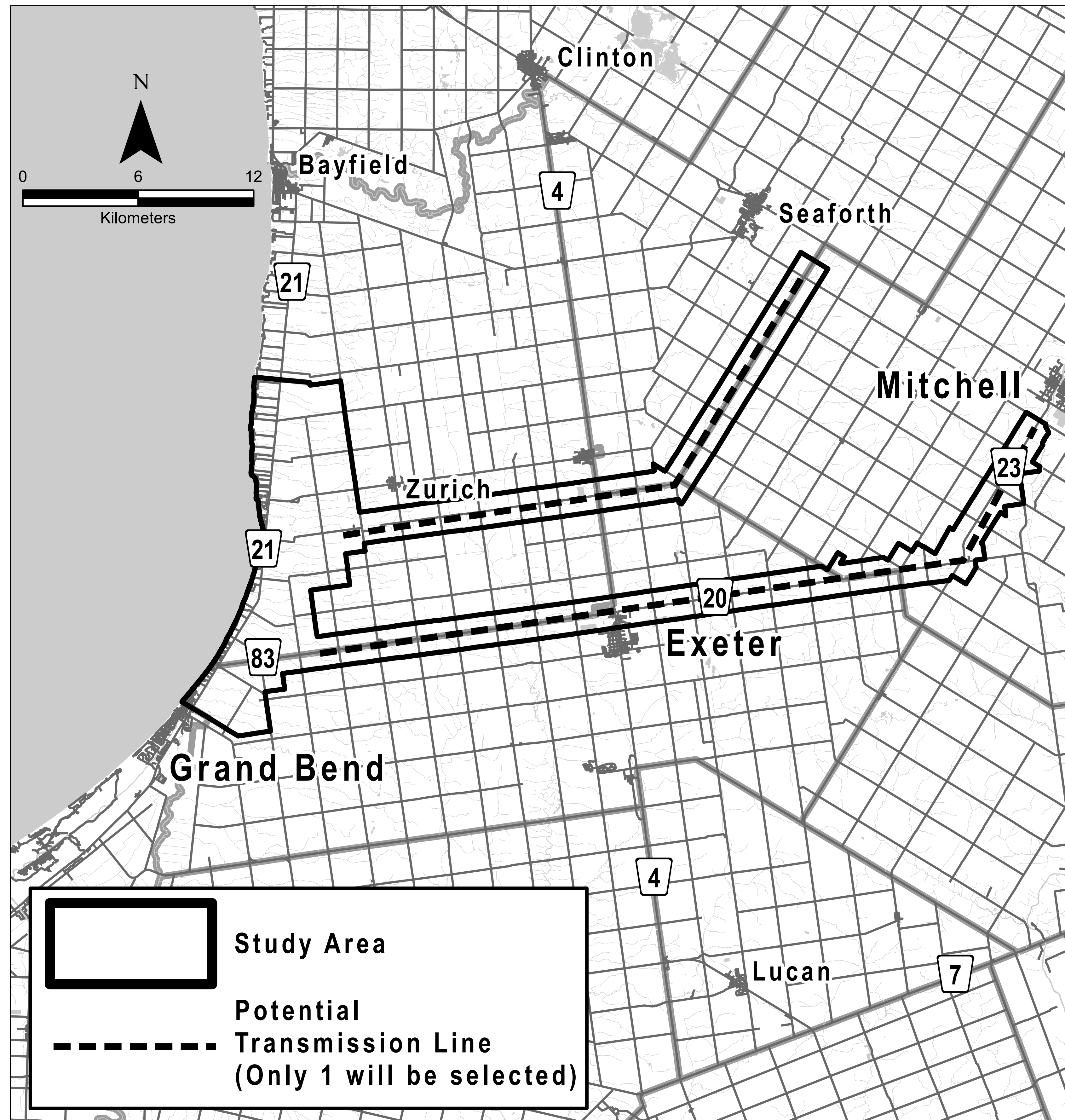
### **Public Meeting #1 (April 2012) Display Boards**



**Grand Bend Wind Farm  
Public Information Centre #1  
April 2<sup>nd</sup>, 3<sup>rd</sup>, 5<sup>th</sup>, 12<sup>th</sup>**

**NEEGAN BURNSIDE**

# Welcome



## Please.....

- Sign In.
- Ask us any questions you may have about the project or the results / scope of study.
- There is an opportunity at any time during the REA process for interested persons to provide comments.
- Complete a comment sheet and place it in the box or mail back to the address shown on the form by April 27, 2012.
- Note: boards and comment sheets are available on the Project website

<http://grandbend.northlandpower.ca>

# Purpose of Today's Meeting



- To provide an overview of the Project participants
- To explain the Project
- To explain the key steps in the Renewable Energy Approvals (REA) Process
- To present the Potential Environmental Negative Impacts and Preliminary Mitigation Measures
- Identify Next Steps in the process
- Listen to your questions and comments
- Collect and consider your feedback
- Representatives from Northland Power and Neegan Burnside Ltd. are available to answer your questions and take your comments



# Importance of the Grand Bend Wind Project



- The Province of Ontario is committed to wind power forming part of Ontario's energy mix.
- Wind energy is generating clean electricity, new jobs and economic development opportunities in communities across the country and tax benefits for municipalities.
- Renewable energy is an important tool in our fight to avoid climate change.
- Wind is an affordable source of new energy supply that protects against unpredictable fuel and carbon costs.
- Feed-In-Tariffs are a way of creating a stable market for renewable energy investment by providing predictable revenue to wind producers and increasing their access to financing.

# Grand Bend Wind Limited Partnership

## Wholly Owned Subsidiary of Northland Power Inc



- Sustainability is a core value at Northland Power. The company was founded on the belief that clean and green energy is vital to the future of our planet. In business since 1987, Northland Power has developed facilities that generate over 1,000 MW of electricity.
- Northland Power is one of the few North American power developers that owns and operates the facilities it builds for the long term. As such, Northland is committed to ensuring that its host communities remain vibrant, healthy places to live:
  - Northland's first priority is to ensure people have the knowledge, tools and time to work safely.
  - Northland is prepared to invest more at a project's front end to increase economic life, minimize future maintenance costs, optimize operating efficiency and minimize disruptions for our neighbours.
  - Northland engages the community by involving local suppliers and First Nations in new project construction and hiring permanent staff locally wherever possible.
  - Construction and operational practices are engineered to meet the highest environmental standards, even in jurisdictions where lower standards are legislated.

# Project Overview



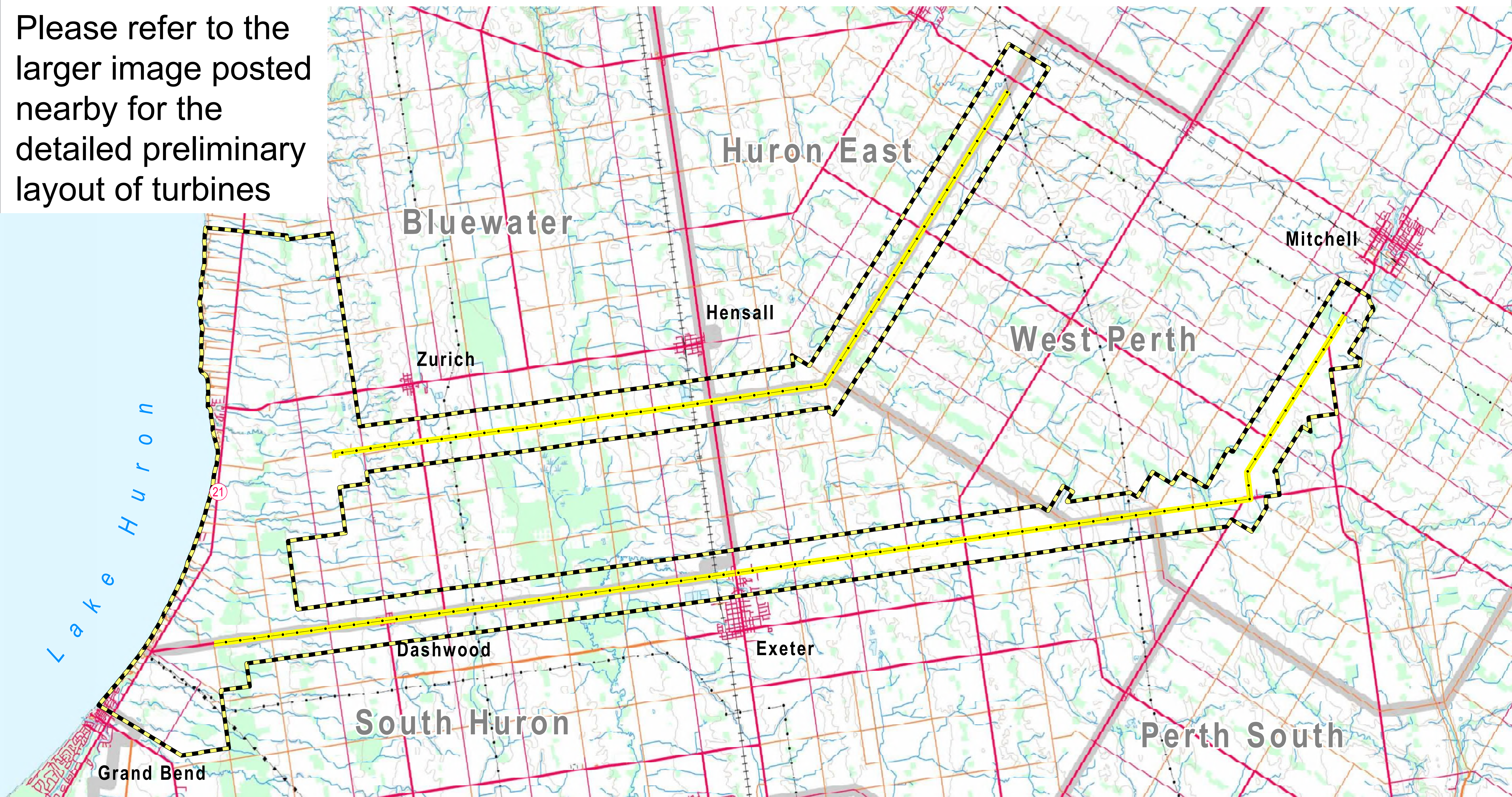
- The Grand Bend Wind Limited Partnership is proposing to develop a 100 MW wind facility north of Grand Bend, Ontario.
- The Project will include approximately 45-48 turbines, turbine access roads, an underground electrical collection system, new overhead lines within municipal road right of ways and connection to the provincial power grid.
- All turbines are located to the east of Highway 21. The closest turbine is 650 m from the Highway. The majority of the turbines are over 1,000 m from the Highway.
- The Project is located on private land within the County of Huron, spanning the lower-tier Municipalities of Bluewater and South Huron. Portions of the transmission line traverse the municipality of Huron East and municipality of West Perth in Perth County



# Project Study Area



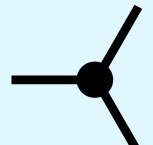

Please refer to the larger image posted nearby for the detailed preliminary layout of turbines



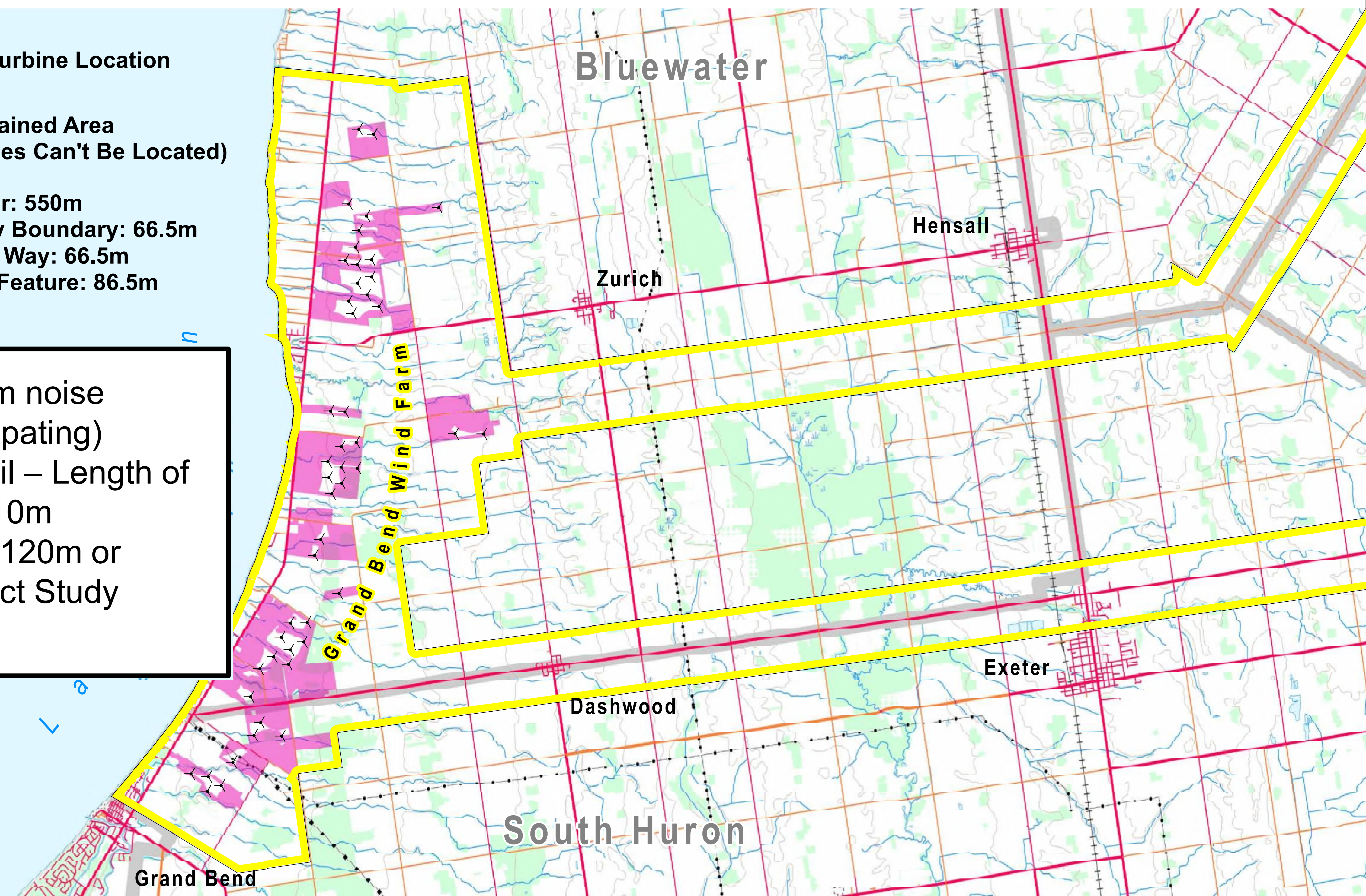
Note: turbine layout in unconstrained areas is preliminary

# Regulated Setbacks



-  Wind Turbine Location
-  Constrained Area (Turbines Can't Be Located)
- Setback from Receptor: 550m
- Setback from Property Boundary: 66.5m
- Setback from Right of Way: 66.5m
- Setback from Natural Feature: 86.5m

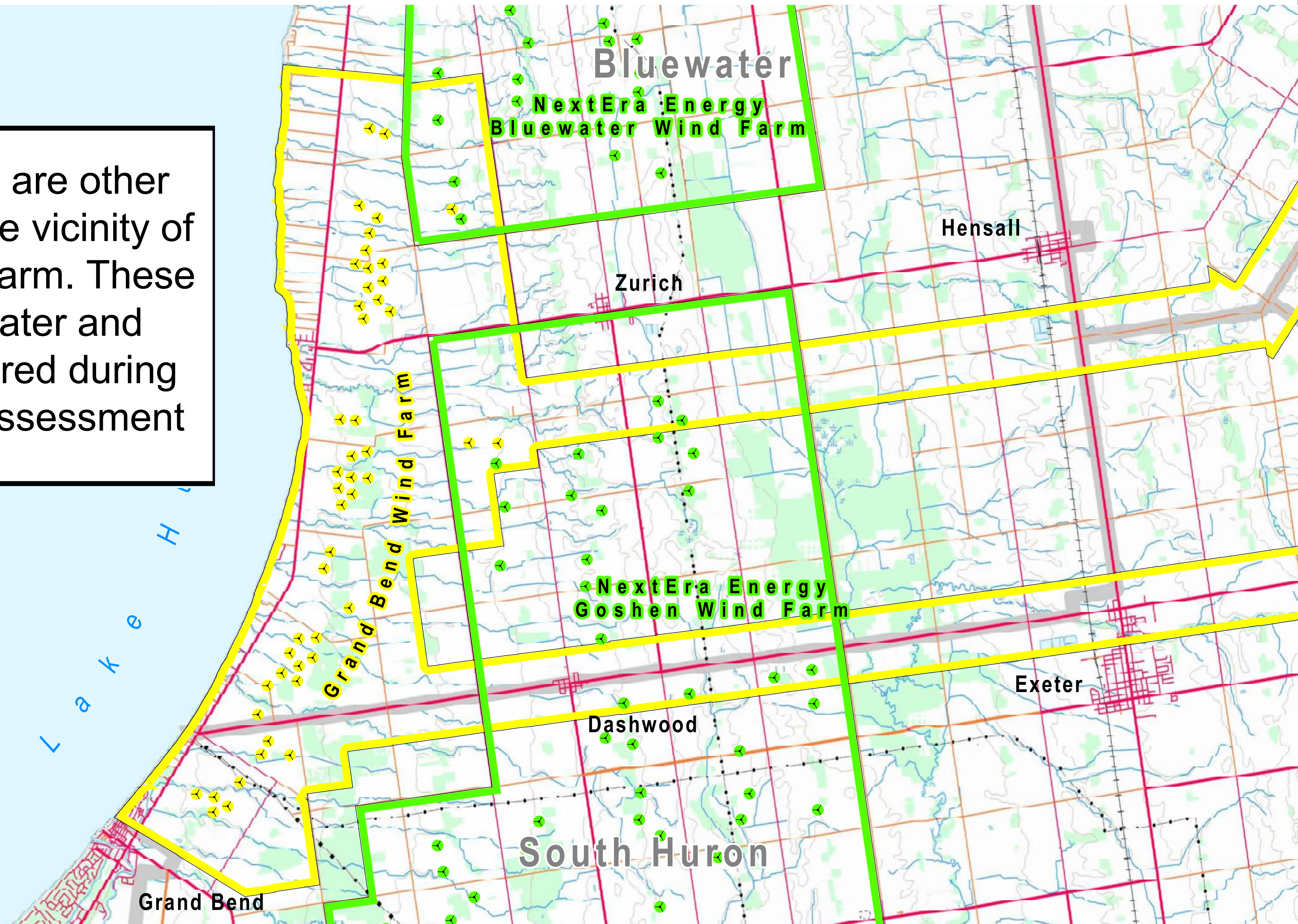
- Noise - 550 m from noise receptor (non-participating)
- Property/Road/Rail – Length of blade (56.5m) plus 10m
- Natural Features – 120m or Environmental Impact Study required



# Other Projects in Immediate Vicinity



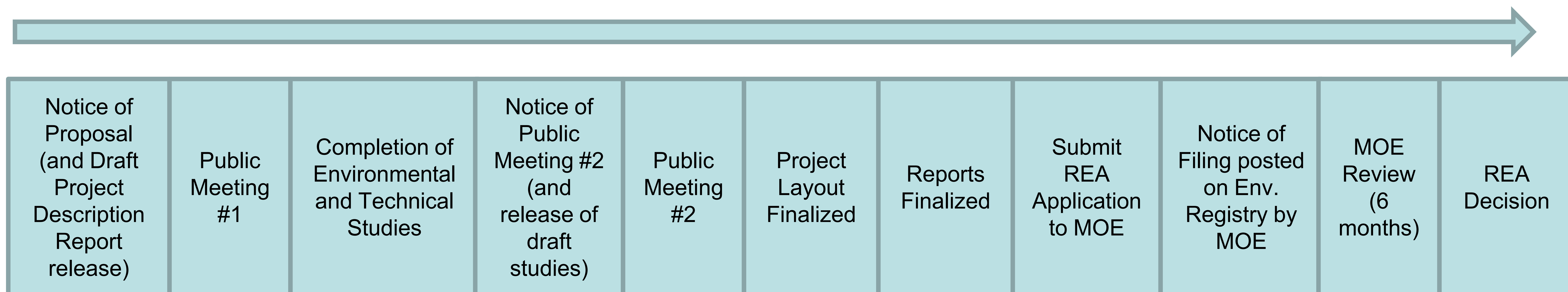
We recognize that there are other projects in the immediate vicinity of the Grand Bend Wind Farm. These projects (such as Bluewater and Goshen) will be considered during the cumulative effects assessment



# Renewable Energy Approvals (REA) An Overview



The Project is subject to the REA process, subject to the provisions of the Environmental Protection Act and Ontario Regulation 359/09. The REA process entails consideration of environmental aspects, natural heritage features and water bodies as well as heritage and archaeological resources. In addition, the REA process includes, public, agency and First Nation consultations. Throughout the REA process, Northland Power will do everything in its power to ensure that negative environmental impacts are reduced and/or eliminated.



↑  
WE ARE  
HERE

# Overview of How the Technology Works

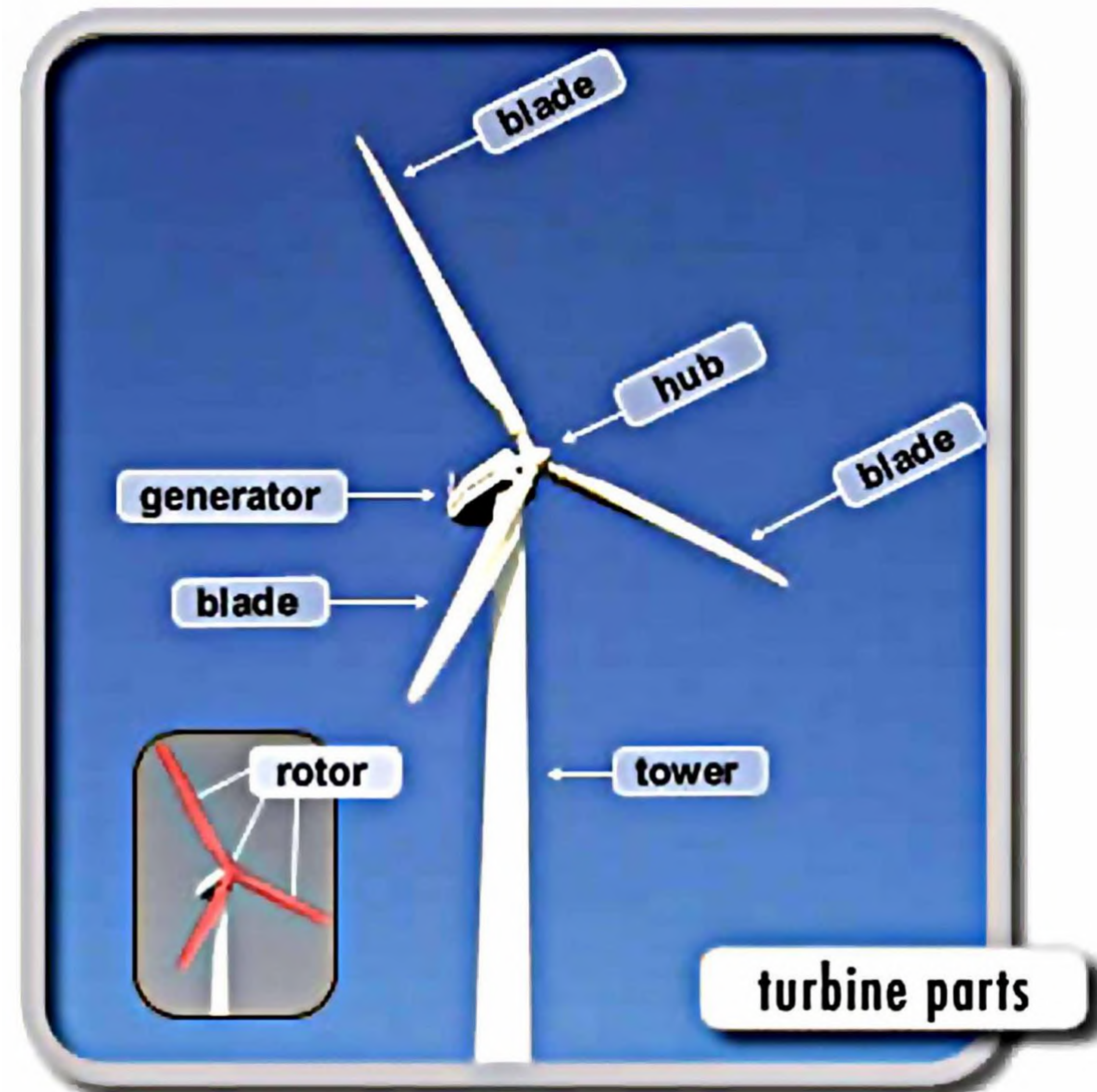
- Wind moves over the turbine blades causing a “lift”. This “lift” force results in rotation of the blade assembly.
- Inside the nacelle, the blades propel a shaft that drives a generator through a gearbox and converts the mechanical power to electrical power.
- The electricity is carried down the cables inside the tower to underground distribution lines.
- Transmission lines carry the power to the provincial power grid.



# Facility Components

## Wind Turbines

- 50% Ontario content will be achieved for the Project – Steel from Ontario, Blades and Towers formed in Ontario
- Siemens SWT-2.3 -113
- Nameplate capacity - 2.3 MW
- Hub height – 99.5 m
- Blade length – 55 m
- Rotor diameter – 113 m
- Rotor sweep area – 10,000 m<sup>2</sup>
- Speed range – 6-13 rpm
- Frequency – 60 Hz



# Facility Components Electrical



- Step-up transformers adjacent to each turbine at the base of the tower;
- 36 kV underground collector electrical power lines between each turbine connection into the transformer sub-station; and,
- 115 or 230 KV transmission line from the sub-station along existing Road Rights of Way (ROW) to the existing 115 Kv or 230 kV Hydro One transmission system to the east of the Project Study Area;
- Connection to the 115 or 230 KV Hydro One power grid at one of the following two alternatives: south of Seaforth TS location (preferred); or, west of Mitchell.
- A 30 m X 30 m (approx. size) substation will be constructed at one of the two alternative locations



Both photos show existing infrastructure along northern transmission route

# Facility Components

## Roads/Service Building



- A service and parts storage building will be located close to one of the transformer locations proposed. The building will be approximately 50' x 120' and include a parking area. The building will be serviced with water and wastewater (well/septic).
- Existing provincial and municipal roads will be used to transport project-related components, equipment and personnel to the Study Area
- Some agricultural laneways are present in the vicinity of the Project and will be utilized where possible. New laneways will be constructed as required and in consultation with landowners
- Construction access laneways will be approximately 10 m wide during construction. Permanent access laneways may be reduced in size to approximately 6 m wide with the exception of entrances off municipal roads and all turning areas which require wider turning radii



# Temporary Construction Activities



- **Turbine Staging Areas** – At this time, plans are for turbine components to be delivered directly to the staging areas for each turbine. The components will be temporarily stored within these staging areas until assembled; there will be no central laydown area.
- **Access Road Staging Areas** - A staging area will be required for construction of the access road.
- **Delivery Truck Turnaround Areas** - These turnaround areas will be the same width as access roads, with additional space as required for turning radii, and will be constructed in the same manner. There is a similar turnaround requirement for staging areas.
- **Access Road Entrances** - Access road entrances require a wider turning radius for construction/delivery vehicles.
- **Crane Laydown Areas** – An area will be identified within which crane components will be assembled.
- **Crane Pads** - Crane pads will consist of pads on which the construction crane will sit. A crane pad would be located at each turbine location at the end of each access road to be used during turbine assembly.



Highway 21 (near Elmwood Road) looking East



Highway 21 (near Danceland Road) looking East

# Construction Phase Project Activities

## Turbine Sites:

Delineation of temporary work areas;  
Completion of necessary site clearing and grading;  
Construction of access roads, including installation of culverts, where required;  
Component transportation to work areas;  
Installation of crane pads;  
Installation of tower foundations;  
Tower/turbine erection;  
Connection of wind turbines to electrical collection system;  
Remediation of temporary work areas;  
Completion of permanent access roads and decommissioning of portions of temporary access roads;  
Site landscaping (final grading, topsoil replacement, fence installation, tile drain replacement etc.)

## Collection System:

ROW clearing, as required;  
Installation of 36 kV electrical collection system within private land easements and municipal ROWs;  
Step-up transformer substation and operations building.

## Transmission Line and Interconnection:

ROW clearing, as required;  
Installation of transmission lines;  
Installation of switch gear at connection point with Hydro One transmission line (provincial grid);  
Commissioning of the project.



# Operation and Maintenance Phase Project Activities



## Turbine Sites:

- Periodic vehicle access for maintenance;
- Remote condition monitoring and meter calibrations;
- Grounds keeping.

## Collection System:

- Testing and maintenance of electrical equipment.

## Transmission Line:

- Ongoing clearing of vegetation within ROW;
- Testing and maintenance of electrical equipment;
- Maintenance and replacement of poles and other transmission components, as required.



Highway 21 (near Poplar Beach Road) looking East



Highway 21 (near Sunset Cove) looking East

# Decommissioning Phase Project Activities



## Turbine Sites:

- Removal of tower and turbine infrastructure;
- Removal of foundation to not less than 3 ft below grade;
- Turbine site grading and rehabilitation (dependent on new proposed use);
- Removal of all waste from the site.

## Access Roads:

- Access roads will be left at landowner's request or graded to restore topography and soils (to the extent possible) and vegetated (dependent on new proposed use).

## Collection Lines:

- Removal of below ground collection lines and restoration of terrain.

## Transmission Line and Substation:

- Removal of overhead transmission line and conductors;
- Removal of substation components;
- Removal of poles;
- Removal of all waste from the site.



Highway 21 (near Old Driftwood Line) looking East



Highway 21 (near Sararas Road) looking East

# Project Schedule



<b>Project Activity</b>	<b>Anticipated Schedule</b>
Issue First Draft Project Description Report	January 2012
REA Technical Studies	Ongoing 2011 through 2012
Public Information Centre #1	Spring 2012
Issue Draft REA Reports to the Public	Late summer 2012
Public Information Centre #2	Late 2012/Early 2013
REA Submission/Approval	Early 2013
Additional Permitting and Approvals Completed	Ongoing 2012 through 2013
Start of Construction	Fall 2013
Commercial Operation Date ("COD")	Fall 2014
Project Operation	2014- 2035
New Contract or Decommissioning	Approximately 20 years after COD

# Potential Environmental Impacts/Additional Studies



Environmental Component	Potential Effects	Proposed Mitigation/Additional Studies	Anticipated Residual Effect
Heritage/Archaeology	<ul style="list-style-type: none"> <li>•Disturbance to archaeological and cultural heritage resources during construction or decommissioning activities.</li> <li>•No anticipated effects during operation/maintenance</li> </ul>	<ul style="list-style-type: none"> <li>•A Stage 1 Archaeological Assessment and consultation with agencies regarding Heritage Resources is currently underway.</li> <li>•Additional Archaeological and Cultural Assessments will be undertaken (by a licensed archaeologist) if it is determined that there is potential for resources to be present.</li> <li>•Consultation will be undertaken with relevant First Nations and Métis communities.</li> <li>•Should any unknown/unexpected artifacts or human remains be encountered during construction the construction contractor will stop work and the Ministry of Culture will be notified.</li> </ul>	<ul style="list-style-type: none"> <li>•Appropriate clearance will be obtained by the Ministry of Tourism and Culture.</li> <li>•No residual effects anticipated</li> </ul>
Woodlands and Natural Vegetation	<ul style="list-style-type: none"> <li>•Potential introduction of invasive species during construction.</li> <li>•Vegetation loss during construction, although project is primarily located in agricultural areas</li> <li>•No direct impact on Significant Woodlands anticipated during construction.</li> <li>•Indirect impacts on vegetation as a result of dust during operation.</li> </ul>	<ul style="list-style-type: none"> <li>•Field studies are ongoing to confirm the presence, significance, sensitivity and abundance of woodlands and natural vegetation, including:               <ul style="list-style-type: none"> <li>•Vegetation inventories;</li> <li>•Ecological Land Classification; and,</li> <li>•Species at Risk surveys.</li> </ul> </li> <li>•An Environmental Impact Study will be completed to identify potential impacts and recommend mitigation measures to minimize impacts.</li> <li>•If required, a permit or permits under the <i>Ontario Endangered Species Act</i> will be obtained.</li> <li>•Consultation will be undertaken with relevant First Nations and Métis communities.</li> <li>•Dust control measures (such as wetting of surfaces with water) will be implemented</li> </ul>	<ul style="list-style-type: none"> <li>•Appropriate clearances will be obtained from the MNR.</li> <li>•Impact anticipated to be short term in duration and of limited geographic extent.</li> <li>•No residual effects anticipated</li> </ul>

# Potential Environmental Impacts/Additional Studies



Environmental Component	Potential Effects	Proposed Mitigation/Additional Studies	Anticipated Residual Effect
Wetlands	<ul style="list-style-type: none"> <li>•No direct impacts on wetlands anticipated during construction.</li> <li>•Potential impacts to the hydrological regime due to changes in surface water runoff and groundwater drawdown as a result of construction activities.</li> <li>•Indirect impacts on vegetation as a result of dust during operation.</li> </ul>	<ul style="list-style-type: none"> <li>•Field studies are ongoing to confirm the presence and potential significance of wetlands.</li> <li>•An Environmental Impact Study will be completed to identify potential impacts and recommend mitigation measures to minimize impacts.</li> <li>•Mitigation measures will be developed to ensure that above and below ground water flow to wetlands is not altered as a result of the project.</li> <li>•Consultation will be undertaken with relevant First Nations and Métis communities.</li> <li>•Dust control measures (such as wetting of surfaces with water) will be implemented</li> </ul>	<ul style="list-style-type: none"> <li>•Appropriate clearances will be obtained from the MNR.</li> <li>•No residual effects anticipated</li> </ul>
Life Science Areas of Natural and Scientific Interest (ANSIs”)	<ul style="list-style-type: none"> <li>•No impacts anticipated</li> </ul>	<ul style="list-style-type: none"> <li>•N/A</li> </ul>	<ul style="list-style-type: none"> <li>•N/A</li> </ul>
Terrestrial Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> <li>•Disruption (disturbance and direct mortality) to terrestrial species and their breeding, feeding and migration habitats during construction and operation, including:               <ul style="list-style-type: none"> <li>–birds;</li> <li>–bats;</li> <li>–mammals;</li> <li>–amphibians;</li> <li>–reptiles;</li> <li>–insects; and,</li> <li>–species at risk.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>•Field studies are ongoing to confirm the presence, significance, sensitivity and abundance of wildlife and wildlife habitat, including:               <ul style="list-style-type: none"> <li>–various bird surveys;</li> <li>–bat habitat surveys;</li> <li>–dens, tracks and scat surveys;</li> <li>–amphibian call surveys;</li> <li>–turtle and snake surveys;</li> <li>–incidental observations; and,</li> <li>–targeted species at risk surveys.</li> </ul> </li> <li>•An Environmental Impact Study will be completed to identify potential impacts and recommend mitigation measures to minimize impacts.</li> <li>•If required, a permit or permits under the <i>Ontario Endangered Species Act</i> will be obtained.</li> <li>•Consultation will be undertaken with relevant First Nations and Métis communities.</li> </ul>	<ul style="list-style-type: none"> <li>•Appropriate clearances will be obtained from the MNR.</li> <li>•Potential mortality (bird and bat) is anticipated to be intermittent and of short duration.</li> <li>•No residual effects anticipated</li> </ul>

# Potential Environmental Impacts/Additional Studies



Environmental Component	Potential Effects	Proposed Mitigation/Additional Studies	Anticipated Residual Effect
Provincial Parks, Conservation Reserves or Valleylands	<ul style="list-style-type: none"> <li>•These features are not present within 120m of the Project Location. No effects are anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>•No mitigation is currently proposed.</li> <li>•If the Project Location changes, effects on these features will be reviewed and mitigation developed, as required.</li> </ul>	<ul style="list-style-type: none"> <li>•No residual effects anticipated</li> </ul>
Surface Water	<ul style="list-style-type: none"> <li>•Erosion during construction could affect water quality due to increased sediment load.</li> <li>•Water quality impacts due to potential fuel and oil spills during construction and operation.</li> </ul>	<ul style="list-style-type: none"> <li>•Work is ongoing to characterize watercourses in the Project Area.</li> <li>•Mitigation measures will be developed to minimize potential impacts associated with erosion and spills.</li> <li>•Erosion and sediment control measures would be implemented during all construction activities.</li> <li>•Measures would be inspected regularly.</li> <li>•Materials removed or stockpiled would be contained in a manner to ensure sediment does not enter a watercourse.                             <ul style="list-style-type: none"> <li>○All spills that could potentially have an adverse environmental effect, are outside the normal course of events, or are in excess of the prescribed regulatory levels would be reported to the MOE's Spills Action Centre.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>•No residual effects anticipated</li> </ul>
Groundwater	<ul style="list-style-type: none"> <li>•Dewatering during construction of turbine foundations, if needed (not expected to exceed 50,000L/day).</li> <li>•Potential to encounter non-documented shallow dug wells during construction.</li> <li>•Water quality impacts due to potential fuel and oil spills during construction and operation.</li> </ul>	<ul style="list-style-type: none"> <li>•Work is ongoing to characterize groundwater in the Project Area and identify any wells which could potentially be affected.</li> <li>•Mitigation measures will be developed to minimize potential impacts associated with dewatering and spills.</li> </ul>	<ul style="list-style-type: none"> <li>•Potential spills would be spatially limited and of short duration. An emergency response plan will address spills.</li> <li>•No residual effects anticipated</li> </ul>



# Potential Environmental Impacts/Additional Studies



Environmental Component	Potential Effects	Proposed Mitigation/Additional Studies	Anticipated Residual Effect
Soils	<ul style="list-style-type: none"> <li>•Soil compaction from construction equipment.</li> <li>•Loss of soils due to erosion during construction.</li> <li>•Soil quality impacts due to potential fuel and oil spills during construction and operation.</li> </ul>	<ul style="list-style-type: none"> <li>•Soils compacted in temporary construction areas will be rehabilitated as soon as possible after construction.</li> <li>•Soils compacted as a result of ongoing operations will be rehabilitated in accordance with an approved decommissioning plan.</li> <li>•Mitigation measures will be developed to minimize potential impacts associated with erosion and spills.</li> </ul>	<ul style="list-style-type: none"> <li>•No residual effects anticipated</li> </ul>
Aquatic Species and Aquatic Habitat	<ul style="list-style-type: none"> <li>•Potential impacts to fish habitat due to the installation of culverts along access roads during construction activities.</li> <li>•Potential sedimentation during construction.</li> </ul>	<ul style="list-style-type: none"> <li>•Work is ongoing to characterize watercourses in the Project Area.</li> <li>•Detailed fish habitat assessments will be undertaken in areas where culverts are proposed.</li> <li>•Permits will be obtained from the Conservation Authority and/or Department of Fisheries and Oceans, as required for all culverts or other infrastructure within watercourse or within the Conservation Authority Regulation Limit. Appropriate DFO Operational statements will be followed.</li> <li>•Mitigation measures will be developed to minimize potential impacts associated with erosion, spills and dewatering.</li> </ul>	<ul style="list-style-type: none"> <li>•No residual effects anticipated</li> </ul>
Air, Odour, Dust	<ul style="list-style-type: none"> <li>•Increases in air-borne dust and particulate matter, increased emissions from construction vehicles during construction and decommissioning.</li> <li>•Positive effects include a reduction in greenhouse gasses by utilizing renewable energy.</li> <li>•Positive effects of reducing air emissions from coal fired electrical energy generation.</li> </ul>	<ul style="list-style-type: none"> <li>•The Contractor would implement good site practices with regard to air/odour which may include:                             <ul style="list-style-type: none"> <li>•Multi-passenger vehicles would be utilized to the extent practical;</li> <li>•Company and contractor personnel would avoid idling of vehicles when not necessary for construction activities;</li> <li>•Equipment and vehicles would be turned off when not in use unless required for activities and/or effective operation of the equipment or vehicle;</li> <li>•Equipment and vehicles would be maintained in good working order with functioning mufflers and emission control systems as available;</li> <li>•All vehicles would be fitted with catalytic converters as required;</li> </ul> </li> <li>•The Contractor would implement good site practices with regard to dust which may include:                             <ul style="list-style-type: none"> <li>•Protecting stockpiles of friable material with a barrier;</li> <li>•Dust suppression (e.g. water) of source areas;</li> <li>•Covering loads of friable materials during transport.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>•Increased emissions will be short term in duration and of limited geographic extent.</li> <li>•No residual effects anticipated</li> </ul>

# Potential Environmental Impacts/Additional Studies



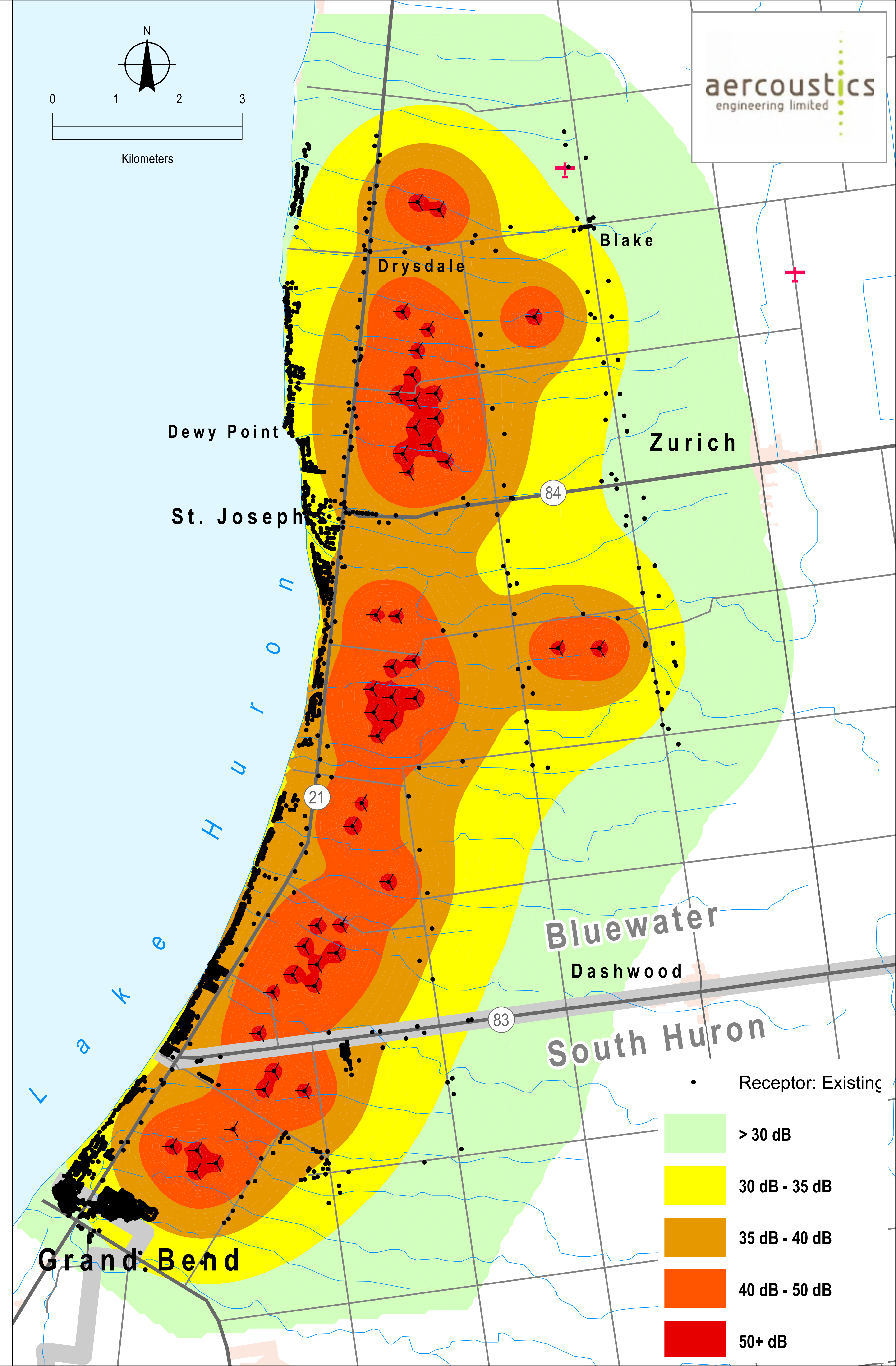
Environmental Component	Potential Effects	Proposed Mitigation/Additional Studies	Anticipated Residual Effect
Noise	<ul style="list-style-type: none"> <li>•Noise effects from the operation of construction machinery and transport of materials into the project area;</li> <li>•Noise associated with the operation of turbines and transformer station (all turbines are expected to meet the 40 dBA limit for non-participating noise receptors);</li> <li>•Noise effects associated with decommissioning and dismantling activities.</li> </ul>	<ul style="list-style-type: none"> <li>•Mitigation measures will be developed to minimize noise impacts during construction and decommissioning. For example, all engines associated with construction equipment would be equipped with mufflers and/or silencers in accordance with MOE and/or MTO guidelines and regulations. To the greatest extent possible, activities that could create excessive noise would be restricted to regular construction hours and adhere to any local noise by-laws.</li> <li>•Setbacks from noise receptors will be applied to ensure that the 40 dBA limit is met at non-participating residences and to the extent possible at participating residences.</li> <li>•Operational Plans will include an appropriate maintenance schedule to ensure that turbines function properly in order to reduce noise due to malfunctioning equipment.</li> </ul>	<ul style="list-style-type: none"> <li>•Noise is anticipated to be short term in duration and of limited geographic extent.</li> <li>•No residual effects anticipated</li> </ul>
Telecommunications	<ul style="list-style-type: none"> <li>•Potential interference to communication systems, including radar, cellular and broadcasting systems.</li> </ul>	<ul style="list-style-type: none"> <li>•A detailed broadcast, radar and telecommunications study will be undertaken which will identify mitigation measures, as appropriate.</li> </ul>	<ul style="list-style-type: none"> <li>•No residual effects anticipated</li> </ul>
Agricultural Resources	<ul style="list-style-type: none"> <li>•Removal of a small portion of active agricultural land from production during construction and adjustments to agricultural operations during operations;</li> <li>•Potential temporary disturbance or disruption to tile drainage infrastructure during construction;</li> <li>•Potential temporary disturbance to livestock fencing during construction.</li> </ul>	<ul style="list-style-type: none"> <li>•Northland Power will work with all participating landowners to identify access road routing that will minimize fragmentation of agricultural lands.</li> <li>•Landowners will also be consulted regarding impacts to private infrastructure, such as tile drainage and fencing such that any problems will be addressed, mitigated and restored, as required.</li> <li>•If required, mitigation measures will be implemented for wet soil shutdown practices, decompaction, topsoil replacement and sedimentation/erosion control.</li> </ul>	<ul style="list-style-type: none"> <li>•Effect is anticipated to be short term in duration and of limited geographic extent.</li> <li>•No residual effects anticipated</li> </ul>

# Sound Level Assessment

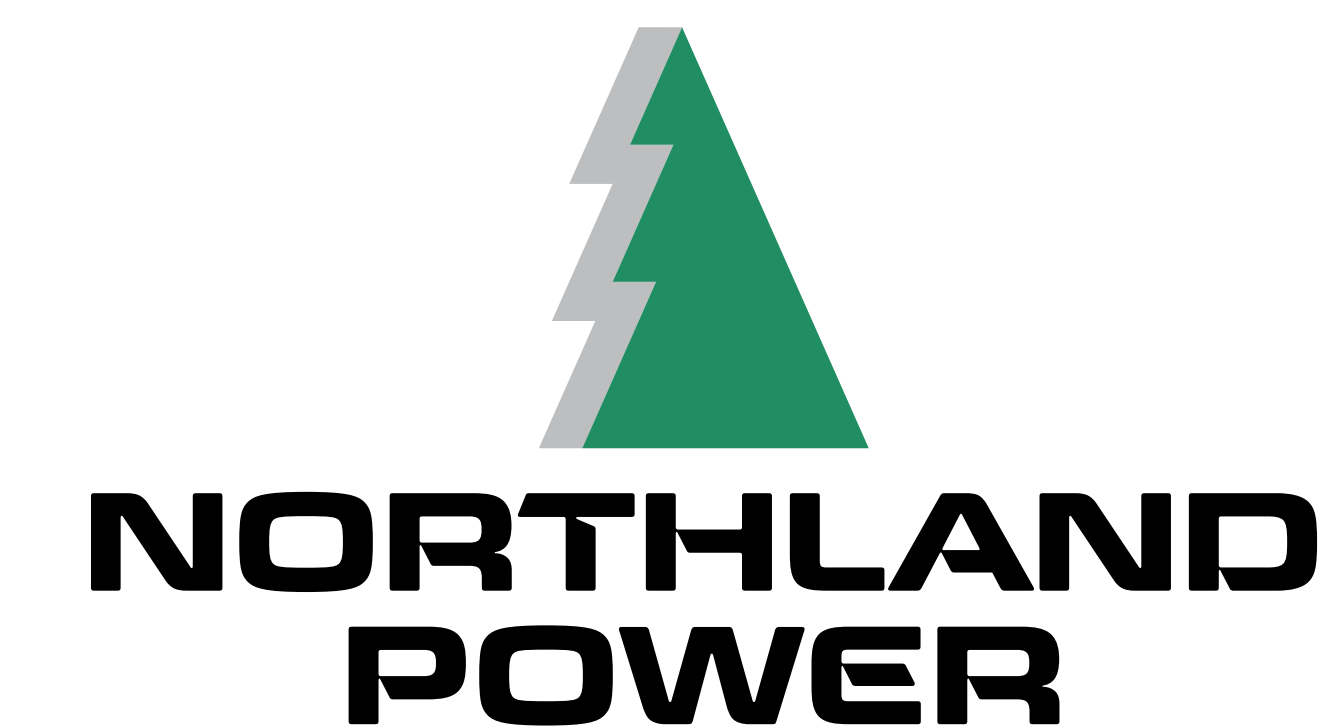
- You can stand directly beneath an operating turbine and carry on a conversation without raising your voice.
- 45 ideal Siemens 2.3MW SWT23 turbine locations modeled with sound PWL between 103-105dBA
  - o note, on their own, these 45 turbine locations and PWLs meet noise limits (minimum 40 dBA, the hourly background sound level established in accordance with the requirements of MOE NPC-232/233) at all receptors
  - o 22 turbines @ 103 dBA; 13 turbines @ 104 dBA; 10 turbines @ 105 dBA
- Noise contributions from the alternate 3 turbine locations (T-16, T-36, T-44) are also included, modelled at sound PWL 101dBA
- These noise contours are subject to optimization as the project progresses. However, the final noise study will confirm that all receptors have a predicted noise level below 40dBA, in compliance with the regulations.



Source: URS Corporation, 2008



# Potential Environmental Impacts/Additional Studies



Environmental Component	Potential Effects	Proposed Mitigation/Additional Studies	Anticipated Residual Effect
Petroleum, Oil and Gas Resources	<ul style="list-style-type: none"> <li>•A review of the MNR's oil, gas and petroleum library indicated that there are no resources within 75m of the Project Area.</li> <li>•No effects are anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>•N/A</li> </ul>	<ul style="list-style-type: none"> <li>•N/A</li> </ul>
Viewscape and Aesthetics	<ul style="list-style-type: none"> <li>•Change in viewscape due to construction and operation.</li> <li>•Temporary disruption to enjoyment of use of property due to short term effects of dust, noise or traffic.</li> </ul>	<ul style="list-style-type: none"> <li>•Visual assessment</li> <li>•Studies will identify appropriate mitigation, if required.</li> </ul>	<ul style="list-style-type: none"> <li>•A changed visual landscape will be present throughout the life of the project</li> </ul>
From Economy/Real Estate Values	<ul style="list-style-type: none"> <li>•Perceived effects on adjacent property values during construction and operation.</li> <li>•Positive impacts to local economy associated with local labour and equipment procurement during construction and operation.</li> </ul>	<ul style="list-style-type: none"> <li>•Ongoing consultation will be maintained with the public and adjacent landowners to identify concerns and resolve significant issues.</li> <li>•Northland Power would make all reasonable efforts, to the extent possible, to source required services and materials from local suppliers where these items are available in sufficient quantity and quality and at competitive prices.</li> </ul>	<ul style="list-style-type: none"> <li>•No residual effects anticipated</li> </ul>
Provincial and Local Infrastructure	<ul style="list-style-type: none"> <li>•Temporary pressure on local services and inconvenience to local residents during construction.</li> <li>•Traffic delays on municipal and provincial roads due to construction activities within the ROWs and as a result of construction-related traffic (i.e. movement of heavy equipment and turbine components);</li> <li>•Damage to roads as a result of the movement of heavy equipment and turbine components during construction.</li> </ul>	<ul style="list-style-type: none"> <li>•Traffic Management Plans will be developed to manage the delivery of equipment and large machinery to minimize local traffic disruptions to the extent possible.</li> <li>•A Road Condition Survey will be conducted. Any damage to local or provincial infrastructure as a result of construction or decommissioning activities will be repaired as quickly as possible.</li> <li>•Consultation will take place with the MTO and municipalities regarding the need to upgrade or widen any roads in order to allow for the delivery of equipment.</li> <li>•Any upgrades and/or subsequent rehabilitation and maintenance/repair will be negotiated with the appropriate authorities.</li> </ul>	<ul style="list-style-type: none"> <li>•Effects are anticipated to be short term and of limited geographic extent.</li> <li>•No residual effects anticipated</li> </ul>

# Potential Environmental Impacts/Additional Studies



Environmental Component	Potential Effects	Proposed Mitigation/Additional Studies	Anticipated Residual Effect
Waste	<ul style="list-style-type: none"> <li>• Disposal of wastes associated with construction, operations and decommissioning.</li> </ul>	<ul style="list-style-type: none"> <li>• The Contractor would implement a site-specific waste collection and disposal management plan</li> </ul>	<ul style="list-style-type: none"> <li>• No residual effects anticipated</li> </ul>
Public Health and Safety	<ul style="list-style-type: none"> <li>• Safety issues related to the operation of heavy equipment during construction.</li> <li>• Accidents/Spills or malfunctions associated with project components and electrical systems.</li> <li>• Threats from ice fall and throw and catastrophic failure.</li> <li>• Low frequency noise/infrasound.</li> <li>• Stray voltage.</li> </ul>	<ul style="list-style-type: none"> <li>• A Health and Safety Plan will be developed by the construction contractor and operator.</li> <li>• A Response Plan to outline a procedure for responding to emergencies will also be developed, as required under O. Reg. 359/09. This will include specific details with respect to communication with the public and agencies during emergencies.</li> <li>• Standard containment facilities and emergency response materials would be maintained on-site as required.</li> <li>• Refuelling, equipment maintenance, and other potentially contaminating activities would occur in designated areas.</li> <li>• As appropriate spills would be reported immediately to the MOE Spills Action Centre.</li> </ul>	<ul style="list-style-type: none"> <li>• No residual effects anticipated</li> </ul>
Provincial Land Use Plans	<ul style="list-style-type: none"> <li>• The Project is not protected under the Greenbelt Plan, Lake Simcoe Protection Plan, Niagara Escarpment Plan or Oak Ridges Moraine Conservation Plan. No impacts under provincial plans or policies are anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>

# Next Steps

- Continue Fieldwork
- Continue Consultation with Stakeholders
- Finalize Site Layout
- Issue Draft REA Reports for Public Review (Archaeology, Construction Plan, Decommissioning, Design and Operations, Natural Heritage, Project Description, Wind Turbine Specification)
- Undertake Second Public Information Centre
- Submit REA Package to the Ministry of Environment for Approval



# Contact Information



- If you have any questions or concerns regarding the proposed project, Please feel free to contact:

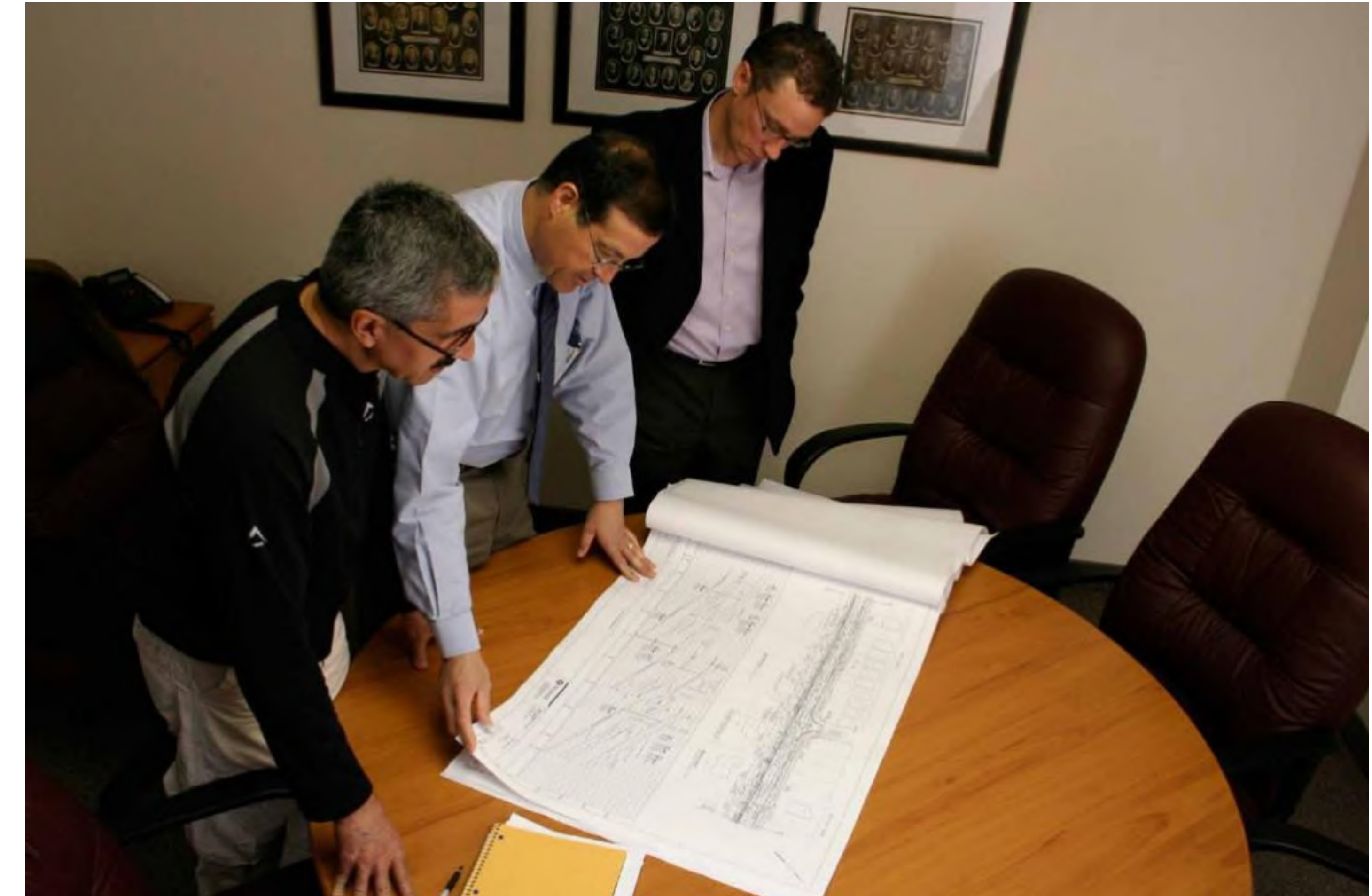
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## **Appendix D2**

### **Frequently Asked Questions for Public Meeting #1**



## Grand Bend Wind Farm

### Frequently Asked Questions – Provided for PIC #1 (Alphabetical Order)

**Approval Process** – The Project is subject to the Renewable Energy Approval (REA) process, subject to the provision of the Environmental Protection Act and Ontario Regulation 359/09. The REA process involves consideration of environmental aspects, natural heritage features and water bodies as well as heritage and archaeological resources. In addition, the process involves public, agency and First Nations consultation.

The Grand Bend Wind Farm Project will undertake the following general steps:

- 1) Notice of Proposal and Public Meeting
- 2) Public Meeting #1
- 3) Completion of Environmental and Technical Studies
- 4) Notice of Public Meeting #2
- 5) Public Meeting #2
- 6) Reports Finalized
- 7) REA submitted/Decision.

The following reports will be available for public review prior to the second public meeting:

- Archaeology and Heritage Resources
- Construction Plan
- Decommissioning Plan
- Design and Operations Report
- Natural Heritage Report
- Project Description Report
- Wind Turbine Specification Report

**Archaeology/Heritage** – A Heritage Assessment and Archaeological Assessment will be conducted, which will consider whether engaging in the project may have an impact on any archaeological resources or heritage resources. The project layout will be designed to avoid features where possible.

**Aviation Safety** – Aviation safety is the jurisdiction of the Federal Government. The project locations will be submitted to Department of National Defense (DND), Transport Canada (TC) and NAV Canada. The project will be assessed for Federal Airport Zoning Regulations for lighting and marking requirements, impacts to radar instrument approaches and other applicable safety elements.

At present Northland is considering alternatives with regard to turbine lighting, such as installing radar equipment to only turn on lighting only when an aircraft is present – ultimately this option would only be viable with approval from NAV Canada.

There are no provincially regulated setbacks from private airstrips in Ontario, however, the turbines have been set back more than 1,000 m from any known private airstrip.

**Benefits of Wind Energy** – The Province of Ontario is committed to wind power forming part of Ontario's energy mix. Wind energy is generating clean electricity, new jobs and economic development opportunities in communities across the country, in addition to providing tax benefits for municipalities.

Wind is an affordable source of new energy supply that protects against unpredictable fuel and carbon costs. It is an important tool in our fight to avoid climate change.

Wind requires no fuel, produces very little waste and consumes barely any water during operation. This makes it an important part of our energy framework, given the potential risk and uncertain costs of complying with future greenhouse gas emission restrictions and other environmental legislation that may be imposed to deal with climate change.

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, which is in excess of 20 years. In a time of increasing price volatility of traditional sources of energy, the price stability of wind farms provides important protection for consumers. Jurisdictions in Canada have developed strategies for capturing the value that wind energy brings to a power system. Feed-in-tariffs (FIT) are one way of creating a stable market for renewable energy investment by providing predictable revenue to wind producers and increasing their access to financing.

**Community Benefits** – The Project will bring benefits to the local community, including:

- Employment opportunities (up to 300 employed during the construction phase and 10 during the operation phase).
- Financial benefits:
  - New additional tax revenue to the municipality
  - Supplemental income for participating landowners, and
  - Improvements to some local roadways.

A Community investment fund will be developed in discussion with municipalities.

**Complaint Response** – Northland will continue its pre-construction contact with Project stakeholders during construction and operation as long as this is an effective two-way channel for communications. A complaint response protocol will be implemented by the construction contractor/Northland Power during construction/operation.

**Decommissioning** – Northland Power will repower or decommission the project after 20 years. Northland Power is responsible for the decommissioning of the project, including the cost of component removal.

Northland has committed to returning the site to safe and clean conditions after decommissioning of the Project. Components will be recycled or reused wherever possible.

**Health** - A growing body of peer-reviewed scientific evidence indicates that there is no direct link between wind turbines and health effects in humans. Wind energy has been utilized for over 25 years in a host of different countries and health effects have been studied extensively.

Responsible siting of turbines is an important consideration and Ontario has one of the most stringent regulations in Canada with its requirements that turbines be at least 550 m from dwellings (non-participating).

One of the most recent health studies in Ontario was published in May 2010 by the Chief Medical Officer of Health (CMOH) of Ontario in response to public health concerns about wind turbines, particularly noise. This study considered submissions by Wind Concerns and many other scientific and peer reviewed reports. The following is a quote from the study, *“This report presents a synopsis of existing scientific evidence on the potential health impact of noise generated by wind turbines. 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”,*

On July 18, 2011, the Ontario Environmental Review Tribunal (ERT) issued its decision in the appeal brought by residents in Chatham, Ontario (the Appellants) relating to the issuance of a Renewable Energy Approval (REA) by the Ministry of the Environment for the 20 MW Kent Breeze wind farm (the Project), owned by Suncor Energy Services Inc. The decision follows 17 days of hearings that began in February 2011. The central issue raised by the Appellants was whether engaging in the Project in accordance with the REA will cause serious harm to human health. In short, the ERT dismissed the appeal and concluded that the Appellants failed to convince the ERT that the Project will cause serious harm to human health.

**Natural Environment** - There are many natural environment studies currently underway to accurately characterize the existing natural environment within the study area. Our team is working closely with the Ministry of Natural Resources (MNR) and the Ausable Bayfield Conservation Authority (ABCA), with the ultimate aim of ensuring minimal impacts to the natural environment as a result of the Project.

In addition, we will be working with Environment Canada (EC)/Canadian Wildlife Service (CWS) to address any federally designated species. We will also be undertaking meetings with Dr Scott Petrie (recommended to us by local residents) to obtain some additional information with regard to Tundra Swans. The following documents will be produced as part of the Approval process:

- Natural Heritage Assessment, including:
  - Records Review
  - Site Investigation
  - Evaluation of Significance
  - Environmental Impact Study
  - Environmental Effects and Monitoring Report and Approval and Permitting Requirements Document (Endangered Species Act).

As part of this work, the following field studies and ecological inventories are being undertaken:

- Vegetation surveys and vegetation community classification (Ecological Land Classification),
- Bird migration, breeding and over-wintering surveys,
- Amphibian breeding surveys,
- Aquatic habitat mapping,
- Reptile hibernacula surveys, turtle surveys,
- Bat habitat mapping,
- Wetland assessments and surveys to identify specific endangered, threatened, special concern and rare species.

**Noise** - The Project will be sited to comply with the requirements of O.Reg 359/09. The contribution of the turbines to the noise levels at all residences is required to be below 40 dBA, which is comparable to the background noise in a home.

A comprehensive Noise Assessment has been completed for the preliminary layout. The Noise Assessment has been conducted in compliance with the Ontario Ministry of Environment requirements published in the "Noise Guidelines for Wind Farms (October 2008)" and the requirements of the Renewable Energy Approval regulation. A final assessment will be included as part of the Approval process.

**Property Values** – Multiple studies have consistently found no evidence that wind energy projects are negatively impacting property values:

- 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 value, (Effect on Real Estate Values in the Municipality of Chatham-Kent – Canning Consultants Inc and John Simmons Realty Services Ltd., Feb 2010).
- 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 effect on the value of nearby homes, the study covered a time span from before the wind farms were announced to well after construction and operation, (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, Dec 2009).
- A 2010 study looking at property values near the 396MW Twin Groves Wind Farm in Illinois found prices were negatively affected before the wind farm was built, but rebounded after it was in place, (Wind Farm Proximity and Property Values: Pooled Hedonistic Regression Analysis of Property Values in Central Illinois – Jennifer L Hinman, May 2010).

**Telecommunication** – Northland Power will undertake a telecommunications impact assessment to determine the effect on local telecommunications. The criteria for this assessment have been developed through consultation of the wind development industry and the Radio Advisory Board of Canada. In the event that disruption occurs, mitigation measures may include replacing the receiving antenna with one that has a better discrimination, relocating either the transmitter or receiver or switching to an alternate means of receiving information (e.g. satellite).

**Tourism** – Wind farms can generate tourism for the local community. Some wind farms get upwards of 60,000 visits a year.

- A study conducted for Prince Edward Island concluded that 72% of islanders and 75% of visitors agreed or strongly agreed that the government should encourage more wind farms.
- Glasgow Caledonian University was commissioned by the Scottish Government in June 2007 to assess whether the Government priorities for wind farms in Scotland are likely to have an economic impact on Scottish Tourism. Key findings confirmed that three-quarters of tourists felt wind farms had a positive or neutral impact on the landscape. The vast majority of tourists that had seen a wind farm suggested that the experience would not have any effect on their decision to return to that area. Some people indicated that the experience actually increased the likelihood of returning. The impact of wind farms on tourism revenues that may arise through changes in the price of accommodation, even in the short run, was found to be small.

**Turbine Location** - There will be approximately 45-48 turbines located within our study area. In general our turbines are clustered together; the average distance between turbines is approximately 430 m. All of the turbines are located to the east of Highway 21. The closest turbine to the Highway is approximately 650 m away (the majority of turbines are located between 1,000 - 4,000 m away).

**Visual** - We will be undertaking visual assessments with the aim of informing the Project layout and mitigation, if appropriate (photomontages will be available at PIC #2). Ultimately, we understand that the effect of wind turbines in the viewscape is a subjective negative or positive judgment by observers.

**Who Is Northland Power** – Northland Power is an Ontario-based company with over 20 years experience developing, building, owning and operating clean and green power generation projects.

Our facilities generate over 1,000 MW of electricity. Our head office is located in Toronto. Our units and shares have been publicly traded since 1997.

Northland has 2 operational wind facilities in QC (Jardin d'Éole and Mont Louis) and one in Germany. Northland has 5 operating thermal plants in ON (Cochrane, Iroquois Falls, Kingston, Kirkland Lake and Thorold), 2 plants in Saskatchewan and one in the US. Project sizes range from 21 MW to 265 MW. Northland also has a number of wind and solar facilities in the development stages in ON.

We pride ourselves on our commitment to meeting both power demands and community expectations. Sustainability is a core value at Northland Power. All of our development efforts and operational practices focus on ensuring Northland will continue to provide long-term benefits to our customers, investors, employees, communities and partners.