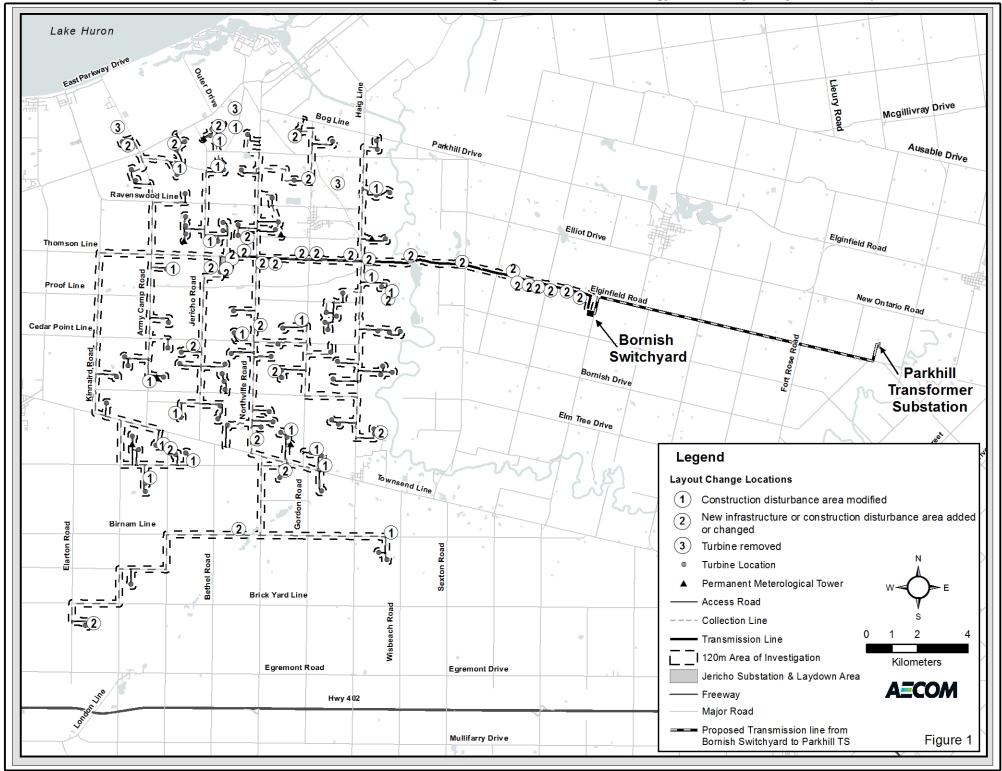
Figure 1: Jericho Wind Energy Centre Project Layout with Proposed Modifications



Welcome!

NextEra Energy Canada welcomes you to tonight's event.

#### We are here to:

- Present modifications to the Jericho Wind Energy Centre
- Present field study findings related to these changes and how we propose to address any effects
- ▲ Receive your comments
- ▲ Answer your questions



### A Leader in Clean Energy

NextEra Energy Canada is a wholly-owned subsidiary of NextEra Energy Resources. NextEra Energy Resources, LLC is the largest generator of wind energy in North America.

### NextEra Energy Canada

NextEra Energy Canada is a leading renewable energy developer in Canada focused on developing electricity derived from clean, renewable sources. Our Canadian operations are headquartered in Toronto, Ontario. We are the owner and operator of six wind energy projects and two solar energy projects in the following provinces:

- ▲ Quebec: Mount Copper and Mount Miller Wind Energy Centres
- Nova Scotia: Pubnico Point Wind Energy Centre
- ▲ Alberta: Ghost Pine Wind Energy Centre
- Ontario: Conestogo and Summerhaven Wind Energy Centres and the Sombra and Moore Solar Energy Centres

NextEra Energy Canada is currently working toward approval of three wind energy centres in Ontario. We currently have five projects that received Renewable Energy Approval (REA), two of which are operational.

### NextEra Energy Resources

We are:

- The operator of over 100 wind projects in 19 states and four provinces with over 10,000 wind turbines providing over 10,000 megawatts of generation
- ▲ The largest generator of both wind and solar power in North America
- ▲ Has been operating wind energy facilities for over 24 years

### Did you know that NextEra Energy Resources...

- → Began developing renewable energy projects in 1989?
- → Has approximately 4,500 employees in North America?
- ▲ Generates approximately 95% of its electricity from clean or renewable sources?









### **Proposed Project Modifications**

Jericho is proposing modifications to the Project. The proposed Project modifications can be categorized into the following three areas:

- Construction disturbance area modified to reduce or eliminate impacts to archaeological resources;
- Infrastructure or construction disturbance area added or changed to optimize project design or constructability;
- ▲ Turbine and associated infrastructure removed.

#### These project modifications do not change the overall conclusions which state that the project can be constructed, installed and operated without any significant adverse residual effects to the environment.

Post-construction monitoring related to effects on wildlife, including birds and bats, will be undertaken to confirm this conclusion.





### Why is Southwestern Ontario considered a great choice for wind energy?

#### Wind developers favour Southwestern Ontario for two main reasons:

- 1. Strong and consistent wind levels, particularly around the Great Lakes
  - Wind data measuring wind speeds at heights of 30 metres (98 feet), 41.5 metres (136 feet) and 48.5 metres (159 feet) has been collected in the Project Study Area since 2007
  - Wind speeds are viable for commercial wind energy generation
- 2. Available and adjacent electricity transmission
  - The region is well served by existing and planned transmission lines (such as Hydro One's Bruce to Milton line) that have available capacity to receive the electricity generated by the project



### **Benefits of Wind Power**

#### **Environmental Compatibility**

- ✓ Creates no air or water pollution
- ▲ Minimal greenhouse gas emissions
- ▲ Efficient and reliable
- ▲ Allows land to remain in agricultural use
- ▲ Does not use water in power generation
- ▲ Low environmental impact
- ▲ Free, renewable energy source

#### **Local Economic Benefits**

- Provides new employment opportunities
- ▲ Adds tax base to the local municipalities
- Supports the economy through purchases of regional goods and services
- Provides 8 to 10 local full time jobs and 200-300 construction jobs
- ▲ Delivers landowner lease payments
- Provides Community Vibrancy Funds to support local initiatives

### Over the next 20 years, we estimate the project will contribute:

- ▲ \$200 million in corporate income tax
- ▲ \$20 million in property tax revenue
- ▲ \$30 million in landowner payments

#### **Price Stability**

- ▲ Decentralizes power production
- No fuel cost
- ✓ Helps stabilize the cost of power
- Electricity produced domestically





### Ontario's Renewable Energy Approval Process

- The Renewable Energy Approval (REA) process, outlined in Ontario Regulation 359/09, is a requirement for large wind power projects under Ontario's Green Energy Act.
- NextEra Energy Canada submitted a REA application to the Ontario Ministry of the Environment (MOE) for this project on February 15, 2013.
- The MOE assessed the application for completeness on July 17, 2013 and is currently undertaking a technical review to determine whether to issue an approval.
- Other agencies, including the Ministry of Natural Resources (MNR), the Ministry of Transportation (MTO), the Ministry of Tourism, Culture and Sport (MTCS) and local conservation authorities and municipalities will provide input.

### REA Reports Submitted February 15, 2013:

- Project Description Report to provide an overview of the project and a summary of all the required REA reports
- Archaeology and Cultural Heritage Assessment Reports to identify potential effects on archaeological and cultural heritage resources
- Natural Heritage Assessment Report to identify potential effects on birds, bats, other wildlife, woodlands, wetlands, areas of natural and scientific interest
- Noise Assessment Report to ensure the project is in compliance with noise regulations
- Water Body and Water Assessment Report to identify potential effects on streams, seepage areas and lakes
- Construction Plan, Design and Operations, Decommissioning Reports to describe these activities and identify mitigation measures to address any potential effects resulting from the various project phases
- Consultation Report to demonstrate how Jericho Wind, Inc. engaged local governments, Aboriginal groups and the community during the project
- Wind Turbine Specifications to describe the turbine technology selected for the project

A Project Modifications Report and revised REA reports, will be submitted to the MOE following this public meeting.



### Renewable Energy in Ontario

#### The Green Energy and Green Economy Act

• Developed to stimulate the "green" economy in Ontario

### Key Components:

- Provincial obligation to purchase green energy
- Priority grid access for renewable energy projects
- Long-term fixed-price power contracts
- Coordinated regulatory and approvals process

# Provincial Green Energy Initiatives and the Feed-in-Tariff Program:

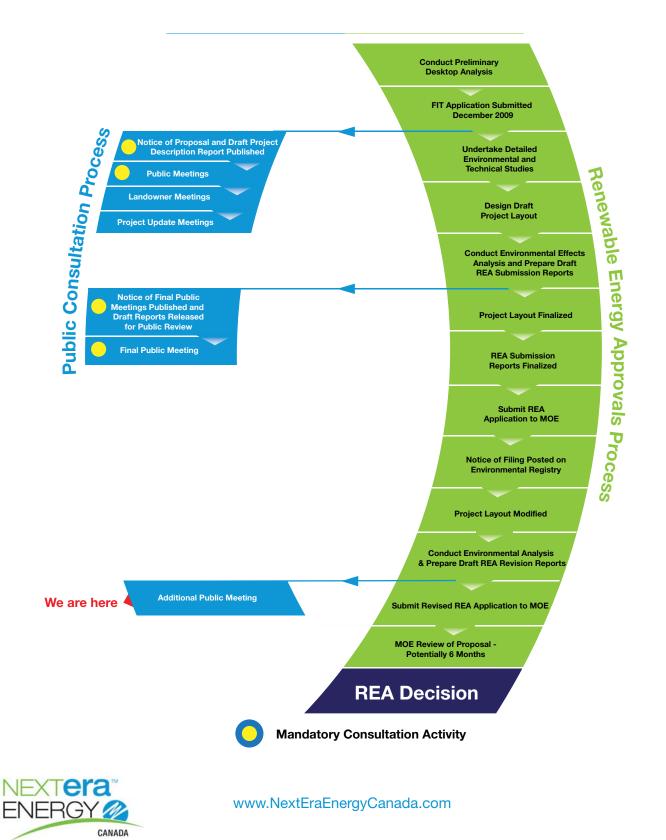


- Feed-in-Tariff (FIT) Program, launched by the Ontario Power Authority, is North America's first comprehensive guaranteed pricing structure for renewable electricity production
- The FIT Program offers stable prices and long-term contracts to green energy projects that encourage investment in renewable energy and economic development across the Province
- NextEra Energy Canada has three projects that were awarded FIT contracts on July 4, 2011:
  - East Durham Wind Energy Centre
  - Goshen Wind Energy Centre
  - ✓ Jericho Wind Energy Centre

We have five additional projects (Conestogo, Summerhaven, Bluewater, Bornish and Adelaide Wind Energy Centres) which have been awarded a FIT contract by the Ontario Power Authority and have received the Renewable Energy Approval. The Conestogo Wind Energy Centre began commercial operation in December 2012 and the Summerhaven Wind Energy Centre began operation in September 2013.



### Renewable Energy Approval Process

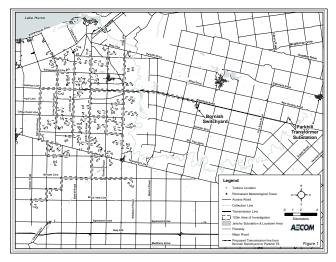


### The Jericho Project

- The proposed Jericho Wind Energy Centre is located in the Municipality of Lambton Shores and the Township of Warwick in Lambton County and the Municipality of North Middlesex in Middlesex County
- The Wind Energy Centre will be able to generate up to 150 megawatts of electricity
- Although Jericho Wind, Inc. is seeking an REA for up to 99 turbine locations, approximately 92 turbines are proposed to be constructed for the Project

#### Facility components for the Jericho Wind Energy Centre will include:

- Turbine laydown and storage areas (including temporary staging areas, crane pads and turnaround areas surrounding each wind turbine);
- Construction laydown to provide temporary storage of construction materials, and temporary construction offices and ancillary equipment such as electrical service from the local electrical distribution line;
- ▲ A transformer substation and ancillary equipment;
- 34.5 kV underground electrical collection lines to connect the turbines to the proposed transformer substation and other ancillary equipment such as aboveground junction boxes;
- A 115 kV above ground transmission line to run from the proposed Project transformer substation to the proposed Bornish switchyard. A common 115 kV transmission line will carry electricity from the proposed Adelaide, Bornish and Jericho Wind Energy Centres to Hydro One's 500 kV transmission line;
- ▲ Turbine access roads;
- ▲ Permanent meteorological towers; and
- An operations and maintenance building and ancillary equipment such as an electrical service line connected to the local distribution service.





### Your Concerns... Our Response

#### **Q: How loud are wind turbines?**

A: With the evolution of modern wind turbine technology, the mechanical noise from the turbine is almost undetectable. Turbines only run when the wind is blowing and the sound of the wind masks most of the noise. What's more, wind projects in Ontario are under strict sound guidelines, as prescribed by the Ministry of the Environment. For residences in the area, the Jericho Wind Energy Centre will be quieter than many common sounds – such as a quiet room.

NextEra is committed to meeting the sound limit requirements set by the Ministry of the Environment. If concerns regarding sound level arise, we will investigate and, if necessary, remedy the situation as soon as possible.

### Q: This area is a stopping point for migrating Tundra Swans. Will you consider this when deciding where to put a wind turbine?

*A:* Yes, we continue to consult with local organizations to understand the swans' migration route and stopover areas. This information was considered, along with environmental, local infrastructure and socio-economic information, when determining where best to place a wind turbine.

#### Q: Do turbines pose a danger to area wildlife (e.g., birds or bats)?

A: When properly sited, wind turbines present less of a danger to wildlife than other structures such as buildings and roads. Turbines have been located as carefully as possible to minimize any effects on wildlife. Jericho Wind, Inc. has worked closely with the relevant experts to assess any potential effects on wildlife, including birds and bats.

#### Q: What impact do wind turbines have on our health?

A: We take concerns about human heath very seriously. Although much has been written about health effects associated with wind turbines, we have found no credible, scientifically peerreviewed study that demonstrates a link between wind turbines and negative health effects. For more information, please review the Health and Wind Turbines information board.



### Your Concerns... Our Response

#### Q: What effect will a wind farm have on the value of my property?

A: Based on available research, we are not aware of any credible evidence to indicate a decline in property values from the siting of a wind farm. Independent studies have been conducted by Ontario municipalities, leading universities, and other entities which have concluded that the construction of a wind facility does not detract from property values.

#### Q: Do wind turbines cause stray voltage?

A: Stray voltage is a low-level current or shock (typically under 10 volts) that can be caused by improper grounding or, in some cases, an ungrounded electrical system. Stray voltage is not a consequence of wind energy. It may be present in any electrical distribution system regardless of source and may be especially prevalent on working farms because of the nature of these operations.

Industry best practices will be adopted at all times to minimize the risk of stray voltage and ensure our Wind Energy Centres are built and maintained within acceptable levels, as prescribed by the local safety code. While we do not intend to connect the Jericho Wind Energy Centre to the local distribution system that serves barns and houses in the area, we are aware that transmission lines – when not properly designed – can induce current on nearby distribution lines. To address this and to minimize the impact on local distribution customers, we are already working closely with Hydro One.

#### Q: Who pays to decommission the turbines?

A: Jericho Wind, Inc. is responsible for any decommissioning costs. The process to decommission the turbines has been established through the Renewable Energy Approval process, which specifies the need for a Decommissioning Plan. The community has an opportunity to provide input and comment on the plan that will be part of the application filed with the Ministry of the Environment.

For a complete list of comments and questions from the public, please visit the Frequently Asked Questions sections on our website. We will also publish concerns and inquiries in the Consultation Report, which will be filed with the REA documents and posted on our website.





### Aboriginal Consultation

- Canada's Constitution Act, 1982, recognizes the rights of Aboriginal peoples (First Nation, Inuit and Métis)
- Ontario Regulation 359/09 has specific requirements for Aboriginal consultation
- Ontario Power Authority's Feed in Tariff program reinforces the importance of Aboriginal consultation
- Project proponents are delegated the "procedural aspects" of Aboriginal consultation
- Aboriginal consultation may include environmental, archaeological, cultural and spiritual issues
- Jericho Wind, Inc. is working closely with Aboriginal communities and leadership as required by law and good practice to:
  - Offer meaningful information about its projects
  - Seek information that helps ensure good planning to avoid or minimize impacts
  - Openly discuss issues, interests and concerns
  - Seek workable and mutually acceptable solutions
  - Foster relationships of mutual respect



### **Turbine Siting Process**

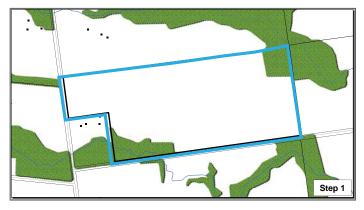
#### **Steps for Developing a Site Plan**

- 1. Identify a sufficient wind resource and study the wind regime for several consecutive years
- 2. Work with local landowners to option land for wind turbines and ancillary facilities (i.e., collection lines and access roads)
- 3. Identify technical and environmental constraints based on input from project engineers, ecologists and aquatic biologists, cultural experts, local landowners, Aboriginal groups, and government agencies
- 4. Identify locations to site project infrastructure by balancing these technical and environmental constraints while adhering to the setback distances prescribed by the Province (i.e., Ontario Regulation 359/09)
  - Project components can be sited within the setbacks for some terrestrial features provided that an Environmental Impact Study is completed and mitigation measures identified





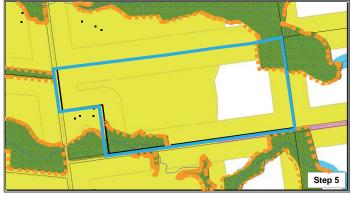
### **Turbine Siting Process**



Step 1: Work with local landowners to option land



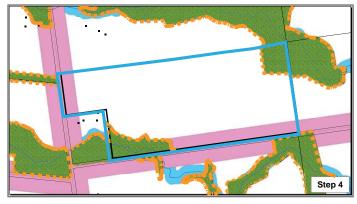
Step 3: Identify aquatic constraints



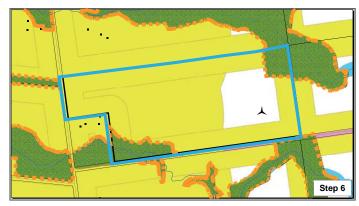
▲ Step 5: Identify socio-economic constraints



Step 2: Identify natural constraints



▲ Step 4: Identify local infrastructure constraints



✓ Step 6: Site turbine within remaining land available

#### These steps have been followed when making changes to the project layout



Turbine Location
 Socio-Economic
Terrestrial Features
 Woodlots
 Local Infrastructure

Aquatic Features

Legend



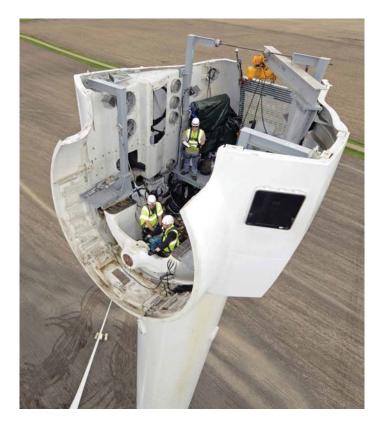
### **Construction Plan**

#### **Turbine siting and surveys**

- ✓ Site preparation will include final turbine siting and surveys
- During these surveys, boundaries of turbine sites will be staked and existing buried infrastructure will be located and marked

#### Access roads

- Municipal and Provincial roads will be used to transport equipment to the construction sites
- Minor modifications may be required to some of the existing roads (e.g., widening the turning radius) to transport equipment
- New access roads will typically be between 10m (33 feet) and 20m (66 feet) wide during the construction phase
- ▲ No permanent paved roads will need to be constructed for the turbines
- Equipment will be delivered by truck and trailer as needed throughout the construction phase and stored at temporary laydown sites surrounding each turbine





### **Construction Plan**

#### **Electrical Collector System:**

- This system consists of a mixture of underground cables, pad mounted transformers and a substation
- Ploughing and trenching will be used to install the underground cables
- The cabling will be buried at a depth that will not interfere with normal agricultural practices and maps of cable locations will be provided to landowners

#### Wind Turbines:

- Foundations will be made of poured concrete, reinforced with steel rebar to provide strength
- Each foundation will require an excavation of approximately 3 metres (10 feet) deep, and 20 metres (66 feet) by 20 metres (66 feet) square
- A Only the tower base portion of the foundation will be left above ground
- The turbine will then be anchored to the foundation by large bolts set in the concrete foundation
- ▲ Turbine assembly and installation will typically require 4 5 days per turbine
- Following commissioning, the area surrounding the turbine will be returned to its pre-construction state





### **Operations and Maintenance**

We continually assess turbine performance and component conditions. We believe in a "prevention" versus "event response" approach.

#### All of NextEra's Wind Energy Centres have:

- ▲ Experienced operations and maintenance managers
- ▲ On-going training and mentoring programs to maintain safe and efficient operation
- ▲ Local staff supported by centralized maintenance and environmental staff
- ▲ Supported by 24/7 Fleet Performance and Diagnostic Centre
- ▲ Local operations team available to answer questions and address concerns





### 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 (2012) has stated:

"Health Canada does not consider that any precautionary measures are needed regarding daily exposures to EMFs at ELFs [extremely low frequency]. 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\*.
- 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, Intrinsik, Jericho Wind, Inc. is committed to keeping informed on this issue.

\*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.

\*\*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.





### Archaeological Studies - Jericho Project

#### **Original REA Archaeological Assessment**

A Stage 1 Archaeological Assessment was conducted to establish if any known archaeological sites exist in or near the Project Location. Where the Stage 1 findings showed a potential for these, a Stage 2 Archaeological Assessment was completed to identify any archaeological resources and confirm if further studies were required.

Stage 3 Archaeological Assessments were conducted if a location had cultural heritage value or interest that required further study or additional mitigation measures to protect resources.

#### Stage 1 Key Findings:

- The potential for discovering Aboriginal and Euro-Canadian archaeological resources was moderate to high. Evidence exists for both Aboriginal and Euro-Canadian use of the area over time.
- Important features included: drinking water sources, areas of flat landscape, soils for agricultural purposes, known archaeological sites and Euro-Canadian historic documents.

#### Stage 2 Key Findings:

- 223 archaeological sites were identified, including: 188 pre-contact Aboriginal sites, 34 historic Euro-Canadian sites and 1 multi-component site.
- Stage 3 and 4 Archaeological Assessments were recommended for approximately 75 sites, meaning that the locations have cultural heritage value or interest that require further investigation. This work will be completed prior to the construction of the project. No further investigation was deemed necessary at any of the other sites.

#### **Project Modification Archaeological Assessment**

- Since the original REA submission (February 15, 2013), 58 modifications have been made to the location of project infrastructure, including 20 modifications to reduce or avoid impacts to Archaeological features.
- Stage 2 Archaeological Assessments conducted for these modifications resulted in the identification of 4 sites with cultural heritage value or interest that require a Stage 3 Assessment.













### Cultural Heritage – Jericho Project

- A Cultural Heritage Assessment was conducted using historic research, mapping, field surveys and consultation with local historians
- No protected properties or protected cultural heritage landscapes were found in the Project Location

#### **Updated Key Findings with Project Modifications**

- A total of 91 participating properties were identified as containing structures older than 40 years. In the February 15, 2013 REA report, 81 properties were identified.
- These properties contained a total of 127 potential built heritage resources; 71 residences, 51 barns and one institutional structure. In the February 15, 2013 REA, of the 118 potential built heritage resources identified consisted of 66 residences, 51 barns and one institutional structure were identified.
- Of these potential resources, 98 (47 residences, 50 barns and one institutional structure) were identified as having cultural heritage value or interest according to O. Reg. 09/06. In the February 15, 2013 REA, of the 89 potential resources, 42 residences, 46 barns and one institutional structure were identified as having cultural heritage value or interest according to O. Reg. 09/06.
- No further mitigation is recommended as it was determined that there are no anticipated direct or indirect impacts as a result of the undertaking







### Water – Jericho Project

- A Water Assessment was conducted to identify water bodies within 120m of the Project Location. A water body includes a lake, permanent stream, intermittent stream and seepage area, defined under O.Reg. 359/09.
- Considering project modifications, 119 water bodies were identified within 120m of the Project Location through desktop research and field investigations; 116 water bodies were identified in the February 15, 2013 REA submission.

#### **Updated Key Findings with Project Modifications**

- 27 water bodies are located within 120m of turbines. In the February 15, 2013 REA, 25 water bodies were located within 120m of turbines.
- 64 water bodies are crossed by a collection line, with an additional 28 located within 120m of a collection line. In the February 15, 2013 REA, 62 water bodies were crossed by a collection line and 25 were located within 120m of a collection line.
- 21 are crossed by an access road, with an additional 28 located within 120m of an access road. In the February 15, 2013 REA, 19 water bodies were crossed by an access road with 24 being located within 120m of an access road.
- 17 are crossed by overhead wires for a transmission line and 10 are located within 120m of the transmission line. This is consistent with February 15, 2013 REA findings.
- 2 are located within 120m of the substation and laydown area. This is consistent with February 15, 2013 REA findings.
- 2 are located within 120m of meteorological towers. This is consistent with Februrary 15, 2013 REA findings.

#### **Potential Effects and Mitigation**

The table below presents a summary of the potential effects on water bodies and proposed mitigation measures:

Project Phase	Potential Effects	Mitigation Measures
Construction/ Decommissioning	Erosion and sedimentation from clearing vegetation	Erosion blankets, erosion control fencing and straw bales will be used to control erosion and prevent soil from entering watercourse.
	Degradation of fish habitat from access roads crossing water courses	Culverts will be designed and installed in a way to prevent barriers to fish movement.
	Soil compaction which could increase water runoff into watercourses	Changes in land contours and natural drainage will be minimized. Temporary storage basins will be installed to allow water infiltration, or permanent stormwater management facilities will be established as necessary.
Operations	Water contamination from accidental spills associated with maintenance activity (unlikely to occur).	A Spill response plan will be developed and an emergency spill kit kept on site. Any spills will be reported to the Ministry of the Environment and local municipalities.



### Natural Heritage - Jericho Project

- Information was gathered to identify and investigate natural features such as provincial parks, wetlands, woodlands or wildlife (e.g., bird or bat) habitats within 120m of the Project Location. Features were evaluated for significance, according to provincial criteria. Where significance was established an Environmental Impact Study (EIS) was conducted.
- The EIS identified negative effects on the environment, proposed mitigation measures, identified residual effects and their significance, and described how the Environmental Effects Monitoring Plan and the Construction Plan will address any negative environmental effects.

#### **Updated Key Findings with Project Modifications**

- ▲ 28 wetlands (29 wetlands were identified in the February 15, 2013 REA)
- ▲ 73 woodlands; and
- 24 types of significant wildlife habitat (e.g., amphibian breeding habitats, rare forest types, bat maternity colonies, waterfowl stopover and staging habitat, deer wintering areas, woodland raptor nesting habitat.)
- For each natural heritage feature identified as significant, potential effects were assessed and mitigation measures and or monitoring commitments were proposed. The table below presents a summary of the potential effects and mitigation assocaited with the proposed modifications.

#### **Potential Effects and Mitigation**

Project Phase	Potential Effect	Mitigation Measures
Construction/ Decommissioning	Disturbance to wildlife from construction activities	Schedule construction activities near significant wildlife habitat to take place outside sensitive timing windows for wildlife (e.g., breeding season, migration period).
	Damage to vegetation	Protective fencing installed to ensure work is kept within identified zones. Periodic monitoring will take place during construction to ensure compliance.
	Damage to wetland vegetation from changes in drainage patterns	Minimize paved surfaces and limit changes in land contours to maintain current drainage patterns. Conduct site inspection following grading activities near significant wetlands and wildlife habitat to ensure compliance.
	Disturbance to wetlands during installation of the transmission line within the road right-of-way	Schedule dewatering activities to avoid the sensitive timing windows for wetland vegetation and wildlife. Conduct daily monitoring during dewatering. Site- specific mitigation will be implemented if required.
Operations	Disturbance or mortality to wildlife (e.g., birds and bats) from turbine collisions	Remove trees using hand-held equipment (e.g. chainsaw) outside sensitive timing windows for wildlife. Install poles outside the wetland boundaries. Ensure all equipment is clean to prevent the spread of invasive plants.



### Noise Studies - Jericho Project

Noise studies were conducted to help determine the final turbine layout as well as the most recent modifications. The noise studies follow the steps outlined below:

- **Step 1:** Identify points of reception dwellings (typically houses) that are within 2km 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

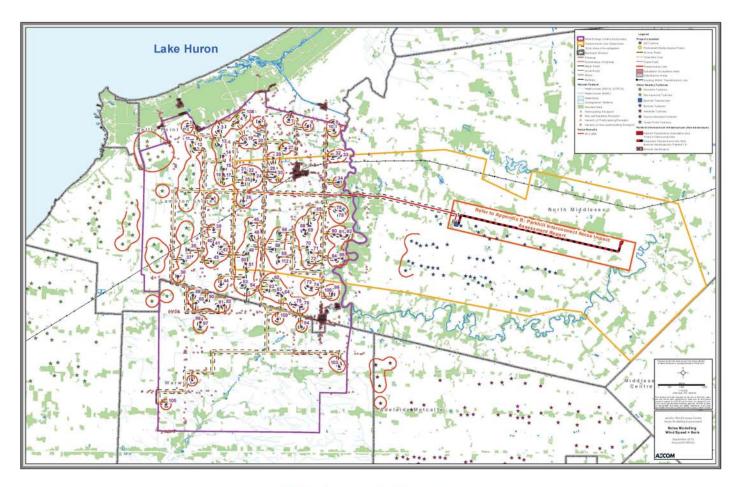
#### Noise requirements under Renewable Energy Approval Regulation (O.Reg. 359/09)

- Wind turbines will be set back from dwelling units that are not part of the project by at least 550m (1804ft) and must be at or below 40dBA at 6m/s.
- Noise from turbines must meet provincial noise limits as outlined in MOE publication 4709e "Noise Guidelines for Wind Farms"





### Noise Studies - Jericho Project



#### Wind speed of 6 m/s

#### **Noise Assessment Results**

- The predicted noise level from the proposed turbines, transformer substation, the existing Ravenswood Wind Farm, and the proposed Cedar Point Wind Power Project, and the Bornish Wind Energy Centre were modelled. The results were as follows:
  - All non-participating residences (vacant or occupied) comply with MOE guidelines for wind turbines – they are predicted to be below the MOE noise criteria and are greater than 550m from the nearest wind turbine;
  - A noise barrier will ensure that the transformer substation is in compliance with MOE noise limits.



### Shadow Flicker - Jericho Project

- Shadow flicker analysis is not required under O.Reg. 359/09; however, it has been undertaken to complement the REA application for the Project.
- Shadow flicker is a temporary condition resulting from the sun casting intermittent shadows from the rotating blades of a wind turbine onto a sensitive receptor such as a window.

For shadow flicker to occur, the following criteria must be met:

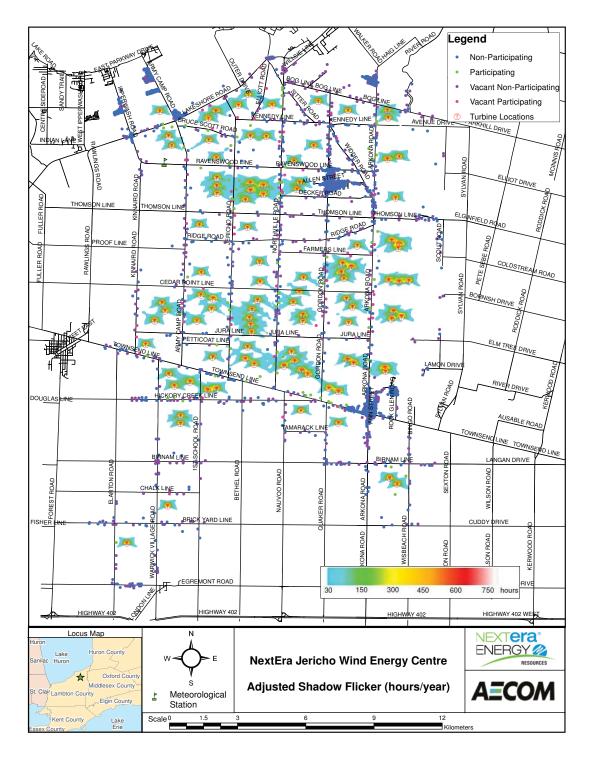
- 1. The sun must be shining and not obscured by any cloud cover.
- 2. The wind turbine must be between the sun and the shadow receptor.
- 3. The wind turbine must be facing directly towards (or away from) the sun.
- 4. The line of sight between the turbine and the shadow receptor must be clear. Obstacles, such as trees, buildings or other structures, will prevent or reduce shadow flicker from occurring at the receptor.
- 5. The receptor has to be close enough to the turbine to be in the shadow.
- 6. The turbine is operational and not stationary due to a lack of wind or maintenance activities.

#### **Shadow Flicker Assessment and Results**

- To assess the effects of shadow flicker, hourly meteorological data, terrain features, receptor, and turbine locations were considered to show the predicted amount of hours when shadow flicker could occur.
- The worst case maximum shadow flicker per day is 1.37 hours and the worst case maximum shadow flicker per year is 41.4 hours.
- This is a conservative analysis that does not account for maintenance time, winds less than 3 m/s when the turbines will not operate, or that the turbine will rarely be directly facing the sun which will shorten the shadow from the turbine blades.



### Shadow Flicker Contour Map - Jericho Project





### Decommissioning

- The anticipated life of the project is approximately 30 years. Decommissioning of the turbines will occur following the operations phase. A plan has been developed to dismantle or decommission the Project and to restore the land and manage excess water or waste.
- Decommissioning will be done in accordance with the Ontario Health and Safety Act and any applicable municipal, provincial and federal regulations and standards.
- The following components will be removed during dismantling:
  - 1. Turbines;
  - 2. Overhead lines and poles; and
  - 3. Transformer substation.

#### **Restoration of land and water**

- All areas, including the access roads, transformer pads and crane pads will be restored as much as practical to their original condition with native soils and seeding.
- There is the option for turbines to be "re-powered", meaning that components could be replaced to extend the life of the Project and delay decommissioning. This is optional and turbines may still be decommissioned







### Construction of a Transmission System

- Transmission structures will typically be single poles made of metal, wood, or concrete.
- Poles will be approximately 18 to 27 metres (60 to 90 feet) in height.
- A typical span between poles will be 91 to 182 metres (300 to 600 feet).
- Transmission lines must be constructed to standards outlined by the Province and/or electrical codes.

#### **Transmission Approvals Process**

- Transmission lines (lines with voltages higher than 50 kV) that are longer than 2km require a Leave to Construct from the Ontario Energy Board.
- This process examines the need for the line and the proposed routing to ensure that the priorities given to the Ontario Energy Board by the government are met.
- The line is also permitted as part of the Renewable Energy Approval (REA) process.
- Natural heritage and archaeological studies have been conducted along the proposed transmission line route including:
  - ✓ Vegetation studies;
  - ▲ Aquatic habitat assessments; and
  - ▲ Birds, bat and wildlife studies.



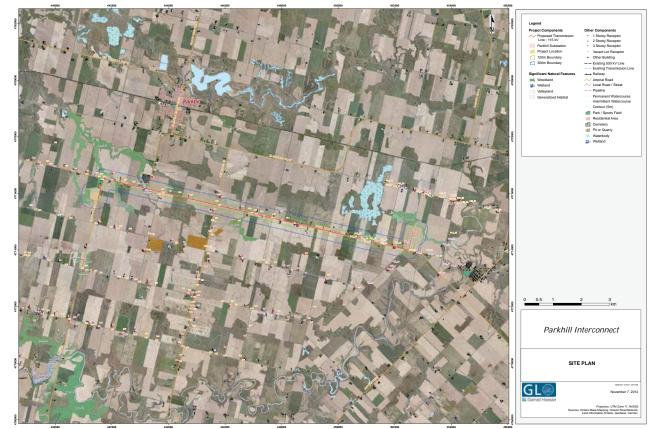
### Integration with the Parkhill Interconnect Project

- The proposed Jericho Wind Energy Centre includes a 115 kV transmission line to run from the proposed Jericho transformer substation to the approved Bornish switchyard
- From the Bornish switchyard the proposed Jericho Project will then make use of the facility components known as the Parkhill Interconnect Project

#### **The Parkhill Interconnect Project**

- The Parkhill Interconnect Project will consist of the following facility components:
  - A switchyard known as the Bornish switchyard
  - ▲ A substation known as the Parkhill Substation
  - A 115 kV transmission line to run from the Bornish switchyard to the Parkhill Substation
  - A connection from the Parkhill Substation to Hydro One's Evergreen switchyard and on to the existing Hydro One 500 kV transmission line

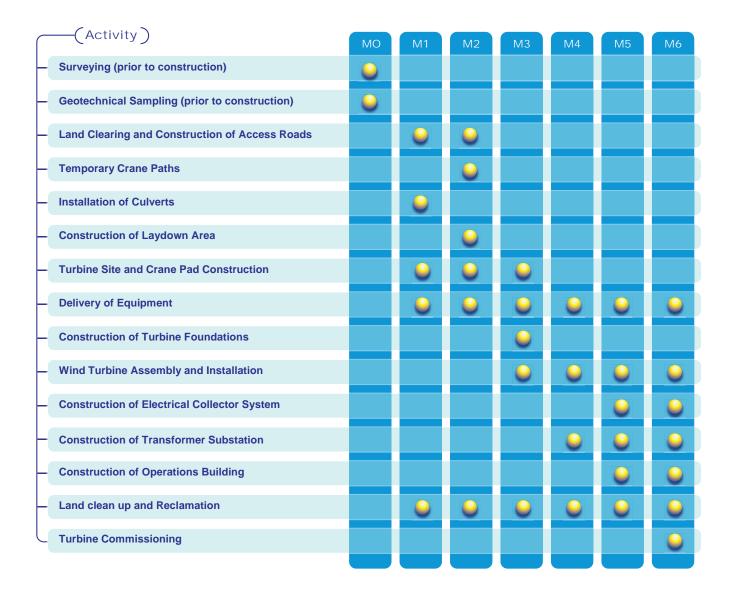
The figure below shows the proposed Parkhill Interconnect Project:





### **Construction Plan**

- A construction plan has been developed to detail all the activities that are part of the Project's construction phase. This plan includes details of any potential effects, the appropriate mitigation measures and ongoing monitoring commitments.
- The schedule below shows the anticipated construction schedule for the Project. Construction is expected to start in spring 2014 and last between 6 and 12 months.





### Next Steps

#### **REA Process**

• The revised REA reports will be submitted following the public open houses at which point the MOE will continue its technical review of the application.

#### **Other Approvals Required Before Construction**

- In addition to the REA, permits may be required from approval agencies before construction can begin. These may include:
  - Archaeological Clearance and from the Ontario Ministry of Tourism, Culture and Sport;
  - ✓ Fisheries Act Authorizations from the Federal Department of Fisheries and Oceans;
  - Aeronautical Obstruction Clearance and Navigable Waters Permits from Transport Canada;
  - Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Permit from the conservation authorities; and
  - Other permits or authorizations from the Ontario Ministry of Natural Resources and local municipalities.

Please visit <u>www.NextEraEnergyCanada.com</u> for more details on the progress of the project



Thank you for Attending!

- ✓ Thank you for attending this evening's Final Public Meeting
- Your input is important to us: please fill out an exit questionnaire and either leave it with us tonight or mail it to us using the contact information below

Should you have any further questions or comments, please do not hesitate to contact us:

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