EAST DURHAM WIND ENERGY CENTRE

Project Description Report Summary

OCTOBER 2012

East Durham Wind, Inc., a wholly owned subsidiary of NextEra Energy Canada, ULC (NextEra), is proposing to construct a wind energy project in the Municipality of West Grey, Grey County, Ontario. The Project will be referred to as the East Durham Wind Energy Centre (the "Project") and will be located on private lands east of the Community of Durham and west of the Village of Priceville. The wind turbine technology proposed for this Project is the GE 1.6-100 model wind turbine. With a total maximum nameplate capacity of up to 23 MW, the Project is categorized as a Class 4 facility. The project consists of up to 16 GE model wind turbines with 14 turbines that are 1.6-100 (1.62 MW), Turbine 6 is 1.34-100 (1.34 MW) and Turbine 2 is 1.39-100 (1.39 MW). Although NextEra is seeking a Renewable Energy Approval (REA) for up to 16 wind turbines, only 14 will be constructed for the project.

The purpose of the Project Description Report (PDR) is to summarize the content of the REA reports; it is a key document for consultation.

The PDR was prepared in accordance with the requirements outlined in Ontario Regulation 359/09, the regulation governing renewable energy projects in Ontario.

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Corresponding section references are provided below to assist with reviewing the associated reports.

NEXTERA ENERGY CANADA - SECTION 1

The Project will be owned and operated by East Durham Wind, Inc., a subsidiary of NextEra. NextEra's parent company is NextEra Energy Resources, LLC, a global leader in wind energy generation with a current operating portfolio of over 90 wind energy projects in North America. Wind farms currently owned and operated by NextEra Energy Canada include: Mount Copper and Mount Miller, (both 54 megawatts (MW) located in Murdochville, Quebec; Pubnico Point, (31 MW) located near Yarmouth, Nova Scotia; and Ghost Pine (82 MW), located in Kneehill County, Alberta.

PROJECT INFORMATION - SECTION 2

PROJECT COMPONENTS

The major components of the Project are anticipated to include:

- Up to 16 GE model wind turbines with 14 turbines that are 1.6-100 (1.62 MW), Turbine 6 is 1.34-100 (1.34 MW) and Turbine 2 is 1.39-100 (1.39 MW) wind turbine generator locations and pad mounted step-up transformers are proposed for permitting (a maximum of 14 turbines will ultimately be constructed);
- Turbine laydown and storage areas (including temporary staging areas, crane pads and turnaround areas surrounding each wind turbine);
- Construction laydown area (including staging areas for construction materials, construction trailers and associated facilities and a temporary electrical service line to provide power to the construction trailers);
- Approximately 28.3 km of 34.5 kV underground electrical collection lines and ancillary equipment (e.g., above ground electrical junction boxes) to connect the turbines to the proposed transformer substation;
- Pad mounted 690 V/ 34.5 kV step up transformers located at or near the base of each turbine;
- A transformer substation to connect to the Hydro One distribution system;
- Overhead 44 kV line to connect the transformer substation to the Hydro One electrical grid;
- Approximately 13.8 km of turbine access roads;
- An operations and maintenance building (located outside the project location – shared use of land and building approved for the Conestogo Wind Energy Centre); and
- One to two meteorological towers.

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PROJECT TIMING - SECTION 2.2.1

Construction for the East Durham Wind Energy Centre is expected to begin in October 2013 (dependent on receiving the required approvals), and last for approximately 6 months. The operations phase is anticipated to start in March 2014, and the Project will operate for approximately 20 years, after which point the Project may be decommissioned.

CONSTRUCTION ACTIVITIES - SECTION 2.2.2

SURVEYING AND GEOTECHNICAL STUDIES

- Surveys are required to identify locations of major Project components; this involves surveyors walking around the sites and marking locations using stakes.
- Geotechnical sampling is required to locate turbine foundations; this involves drilling boreholes (i.e. holes about 5 centimetres (cm) wide and 1 metre (m) deep drilled in the ground) to collect information on the type of soil below ground.

LAND CLEARING AND CONSTRUCTION OF ACCESS ROADS

- Access roads and crane paths will be 11 m wide during the construction phase and are required to transport equipment to the turbine location construction sites.
    - First, the land is cleared and the topsoil is removed, stored for later use and replaced with a layer of gravel.
    - Following construction, the gravel will be removed and replaced with topsoil; some access roads will remain in place for maintenance activities.

CONSTRUCTION OF LAYDOWN AREAS

- Construction laydown areas are approximately 6 hectares (ha) in size and are used to temporarily store construction equipment.
    - First, the land is cleared and topsoil is removed, stored for later use and replaced with a layer of gravel.
    - Following construction, the gravel will be removed and the topsoil returned.

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CONSTRUCTION OF TURBINE SITES AND CRANE PADS

- Turbine laydown areas are approximately 122 m by 122 m and are used to store wind turbine components during construction.
    - First, the turbine site is cleared and levelled and topsoil is removed and stored for later use.
- Crane pads are approximately 15 m by 35 m and are used to support the large cranes during construction, particularly when they lift the nacelle into place.
    - First, the topsoil is removed, stored for later use and replaced with a layer of gravel.
    - Following construction, the crane pad will be restored to its pre-construction condition.

CONSTRUCTION OF TURBINE FOUNDATIONS

- Turbine foundations are approximately 400 $m^{2.}$
    - First, an area approximately 3 m deep x 20 m x 20 m is dug and the earth is stored for later use.
    - The foundations are shaped like an upside-down mushroom and made of a wooden frame, poured concrete and steel rebar to provide strength, with only a small portion of the ‘stem’ visible once construction is complete.
- After construction, the subsoil and topsoil will be returned and the area can be farmed to within a few metres of the turbine.

WIND TURBINE ASSEMBLY AND INSTALLATION

- Once turbine foundations are complete and the concrete has set, the turbines will be constructed, usually in five lifts (three for the towers, one for the nacelle - which houses the main components of the wind turbine such as the rotor shaft, control panel, generator, etc. - and one for the rotor with the blades already mounted).

CONSTRUCTION OF ELECTRICAL COLLECTOR SYSTEM (INCLUDING PAD MOUNTED TRANSFORMERS AND UNDERGROUND COLLECTION LINES)

- Pad Mounted Transformers are approximately 2.2 m by 2.5 m in size and are used to "step-up" the electricity generated by the turbine to 34.5 kV.
    - First, soil in the area is removed and stored for later use.
    - Once the grounding equipment, concrete pad and transformer are in place, the electrical connectors are installed.
- Collection lines are electrical cables that are used to connect each turbine to the transformer substation. First, soil in the area is removed and stored for later use.
    - Collection lines will be tunnelled below woodlots or watercourses to avoid effects to natural areas.
    - In these cases, entrance/exit points will be created on each side of the natural area to be crossed, the tunnel between the two points will be excavated, and the electrical cable will be fed from the entrance to the exit point.

CONSTRUCTION OF TRANSFORMER SUBSTATION

- The transformer substation will "step up" the electricity collected from the 34.5 kV underground collection lines to 44 kV for transmission to the point of connection with the existing Hydro One 44 kV line.
    - First, soil in the area is removed, stored for later use and replaced with a layer of gravel, if needed.
    - Stripped topsoil and subsoil will be placed in the temporary storage facility area and topsoil stripped from the substation area will be distributed on other Project properties.

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CONSTRUCTION OF ELECTRICAL SYSTEM

- A 44 kV electrical line from the step-up transformer substation to the connection point with the Provincial electricity grid is proposed to be located on private property and within existing road right-of-way.
- New poles will be made of wood, concrete or steel and will be 18 – 30 m tall with the poles buried 2 to 3 m below ground.
- The poles are typically “dressed” (made ready to accept conductors) on the ground prior to installation.

CONSTRUCTION OF OPERATION AND MAINTENANCE BUILDING

- An operations building will be built outside of the project study area on privately held lands or an existing suitable structure will be purchased/leased for the purpose of monitoring the daily operations of the wind energy centre.
- The East Durham Wind Energy Centre plans to use the land and building for the Operations and Maintenance building that has already been permitted under a separate REA for the Conestogo Wind Energy Centre.

CONSTRUCTION OF PERMANENT METEOROLOGICAL TOWERS

- Three meteorological towers proposed for the project and are approximately 80 m high and used to monitor wind conditions at the Project site.
- The towers will be erected using winches and secured with guy wires tied off to anchors or a monopole foundation.

CLEAN UP AND SITE RECLAMATION

- Site clean-up will occur throughout the construction phase and site reclamation will occur after construction has been completed.
- Materials will be recycled as much as possible and waste will be removed from the site and disposed of at an appropriate facility.

- All disturbed areas will be restored with the stockpiled soil and reseeded, as appropriate.

OPERATION AND MAINTENANCE - SECTION 2.2.3

WIND TURBINE OPERATION

- 2-3 workers will carry out day to day activities associated with turbine operation.
- A communication line connects each turbine to the Operations Centre, which closely monitors and can control the operation of each turbine.

MAINTENANCE

- Approximately every 6 months, routine maintenance will be carried out by 2-3 workers over a full day at each turbine.
- The substation will receive periodic protective relay maintenance and the collection lines will receive periodic assessments of their condition.
- Unplanned maintenance can include failure of small components and may be addressed by a technician over several hours.
- Events involving the replacement of major components such as gearboxes are not typical; however, this could require the use of large equipment.

WASTE MANAGEMENT

- Waste generated during operations will be removed from the operations and maintenance building by a licensed operator and disposed of at an approved facility. Recycling services will be used to the extent available.

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DECOMMISSIONING - SECTION 2.2.4

At the end of the Project life, the wind turbines may be 're-powered', meaning turbine components could be replaced to extend the life of the Project and delay any decommissioning activities. Alternatively, the wind turbines may be decommissioned. Project decommissioning will follow the Ontario Occupational Health and Safety Act along with 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.

POTENTIAL ENVIRONMENTAL EFFECTS - SECTION 3

An assessment for the construction, operation and decommissioning phases of the Project was completed to identify potential effects. This is done so that mitigation or corrective actions can be proposed to eliminate or minimize potential effects.

This section provides examples of some potential effects and mitigation measures of each phase for specific environmental components. For further details on mitigation measures and monitoring plans, please refer to the Construction Plan Report and the Design and Operations Report. Note that effects from construction are anticipated to be similar to those from decommissioning, as such, they are shown together below.

CULTURAL HERITAGE

- Construction and decommissioning: Construction activities could disturb 3 archaeological resources identified through the archaeological assessments.
- Mitigation measures: Protective fencing will be installed around the archaeological site boundary or further archaeological studies will be conducted.
- Operation: No effects anticipated.

NATURAL HERITAGE RESOURCES (SUCH AS WETLANDS AND FORESTS)

- Construction and decommissioning: Vegetation removal could disturb wildlife and affect wildlife movement in the area.
- Mitigation measures: All temporary construction areas will be reseeded, as appropriate, and construction will be avoided to the extent possible when sensitive wildlife are breeding to reduce the potential for disturbance.
- Operation: Disturbance or mortality to wildlife (e.g. birds and bats) may occur due to collisions with turbines.
- Mitigation measures: Operational mitigation techniques may be implemented, such as a periodic shut-down of turbines during times when there is a greater change for bird and bat collisions. Monitoring will consist of three years of post-construction mortality surveys for birds and bats which will be submitted to the Ministry of Natural Resources.

SURFACE WATER AND GROUNDWATER

- Construction and decommissioning: Construction activities close to streams could cause erosion and result in soil entering the watercourses.
- Mitigation measures: An erosion and sediment control plan will be developed and implemented to control potential erosion and protect the watercourses. In addition, areas where vegetation was removed will be replanted.
- Operation: Water contamination is possible, although unlikely, due to accidental spills associated with maintenance activities.
- Mitigation measures: A spill response plan will be developed and an emergency spill kit will be kept on site. In addition, the Ministry of the Environment and the local municipalities will be notified of any spills.

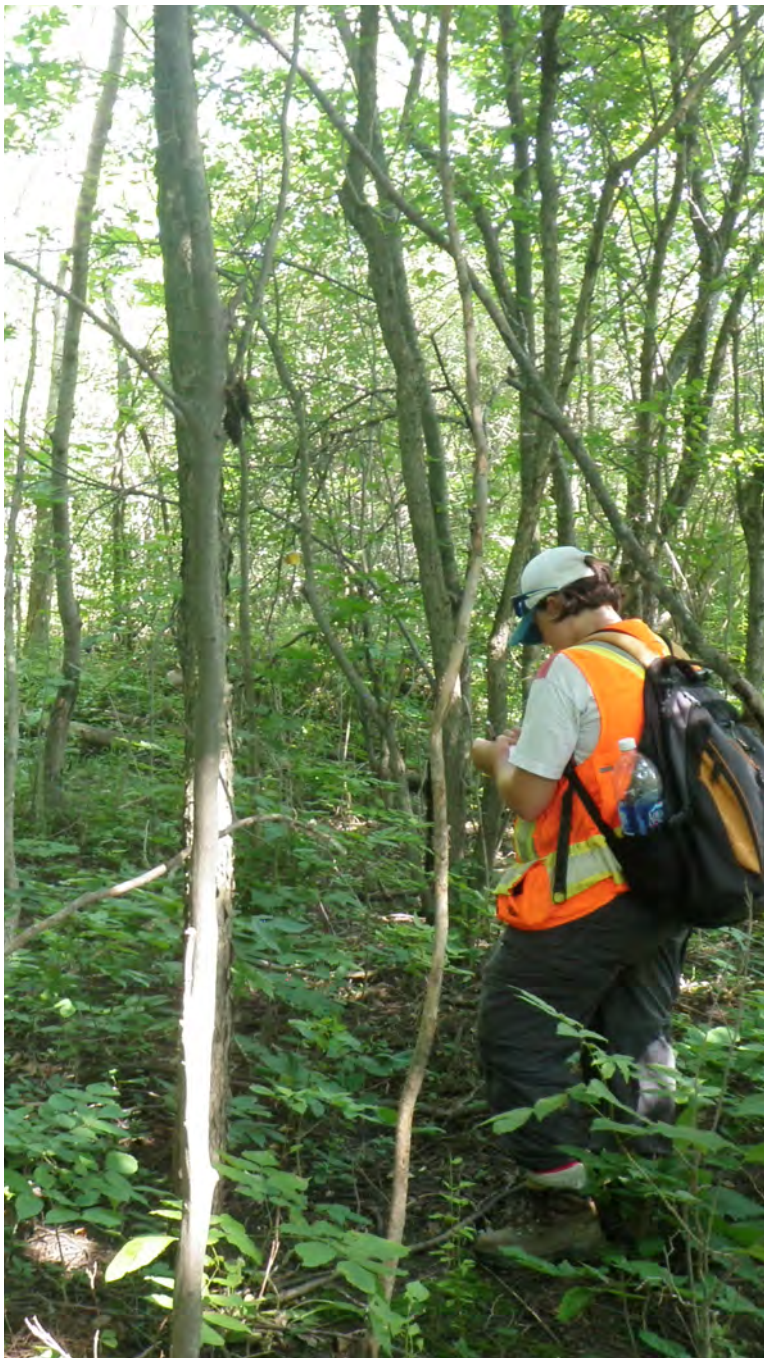
EMISSIONS TO AIR

- Construction and decommissioning: The increase of heavy truck traffic on local roads during construction could create dust and increase emissions to air.
- Mitigation measures: Road surfaces will be sprayed with water or an environmentally friendly dust suppressant to reduce the amount of dust created.
- Operation: Maintenance vehicles may create dust and increase emissions to air.

- Mitigation measures: To reduce the amount of dust generated, the speed of maintenance vehicles will be limited. All construction vehicles will meet provincial emissions regulations.

NOISE

- Construction and decommissioning: Construction activities will increase noise levels in the Project area.
- Mitigation measures: All construction equipment will be maintained in good working condition and construction activities will abide by local by-laws regarding hours of operation.
- Operation: The operating turbines and substation may increase noise levels experienced by some residents.
- Mitigation measures: Turbines will be set back at least 550 m from all residents who are not leasing their land for the Project to avoid or lessen the effects. Noise modelling was also conducted to predict and ensure that noise levels from the operating turbines and substation will not be greater than limits set by the Ministry of Environment. Any noise-related complaints will be tracked and follow-up monitoring will occur as required.



LOCAL INTERESTS, LAND USE AND INFRASTRUCTURE

- Construction and decommissioning: The increase in construction traffic could cause traffic congestion or damage to local roads.
- Mitigation measures: A Traffic Management Plan will be prepared prior to beginning construction activities. Finally, any damage to local infrastructure caused by construction activities will be repaired to original (or better) condition.
- Operation: Turbines, access roads, and the substation will result in a minor reduction in usable agricultural land.
- Mitigation measures: The length of access roads will be minimized where possible.

PUBLIC HEALTH AND SAFETY

- Construction and decommissioning: Similar effects to those identified under Emissions to Air, Noise and Local Interest, Land Use and Infrastructure.
- Operation: Effects on human health and safety could occur from ice shed and/or shadow flicker.
- Mitigation measures: All setback distances will be adhered to. Any safety complaints will be tracked and follow-up monitoring will occur as required.

After applying the mitigation measures presented in the Construction Plan and Design and Operations Reports, the overall conclusion is that this Project can be constructed, installed and operated without any remaining effects that could harm the environment. Post-construction monitoring related to effects on wildlife, including birds and bats, will be undertaken to confirm this conclusion.

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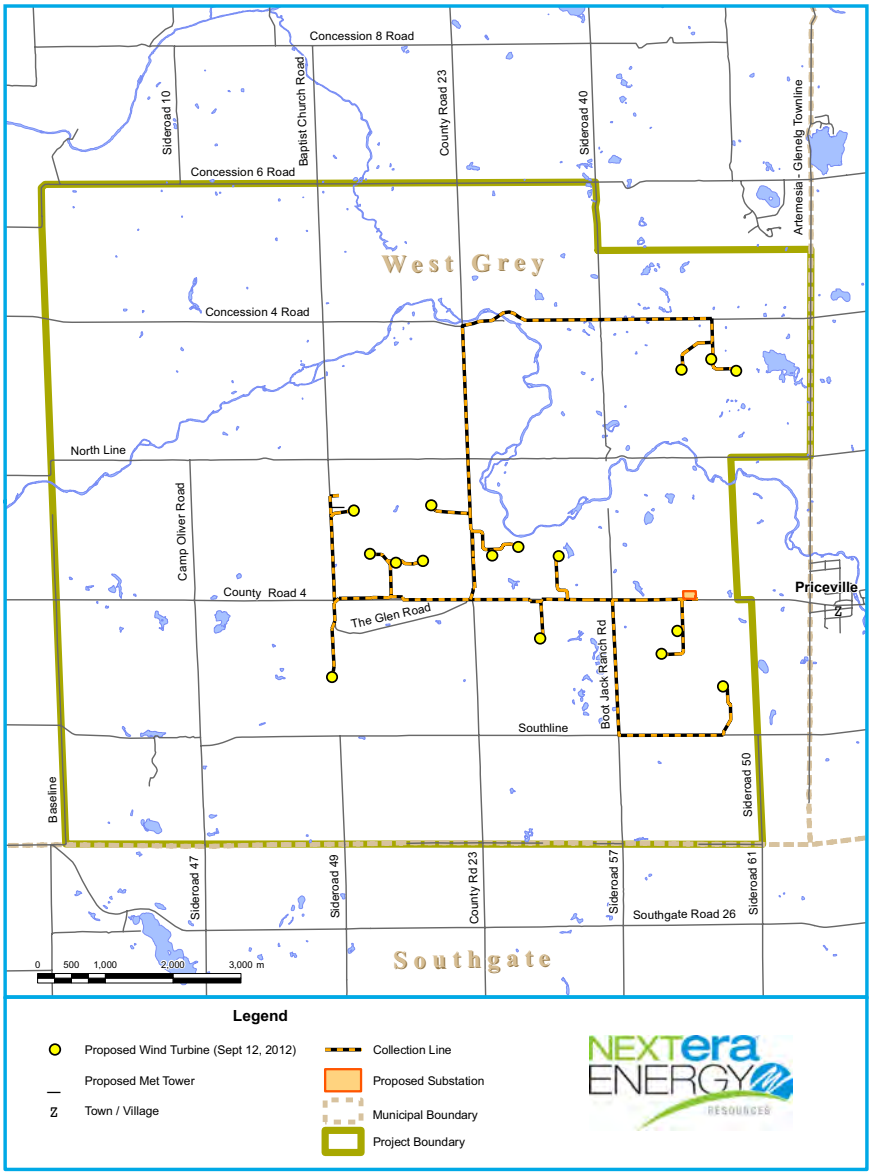

Have A Question?

We hope you find this Plain Language Summary helpful. In case you would like additional information or have any questions, please contact us directly:

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