BLUEWATER WIND ENERGY CENTRE

Project Description Report Summary

MARCH 2012

Varna Wind Inc., a wholly owned subsidiary of NextEra Energy Canada, ULC (NextEra) is proposing to construct a wind energy project in the Municipalities of Bluewater and Huron East in Huron County, Ontario (Figure 1.1).The project will be referred to as the Bluewater Wind Energy Centre (the "Project") and will be located on private lands in the vicinity of the shoreline of Lake Huron. While NextEra is seeking a Renewable Energy Approval (REA) for 41 wind turbines, only 37 are proposed to 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 is prepared early in the planning process and is provided to the public, municipalities and Aboriginal communities and it is updated as the Project develops.

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NEXTERA ENERGY CANADA

The Project will be owned and operated by Varna Wind Inc., a wholly owned subsidary of NextEra Energy Canada, as previously noted. NextEra's parent company is NextEra Energy Resources, LLC, a global leader in wind energy generation with a current operating portfolio of over 85 wind energy projects in North America. In Canada, wind energy centres currently owned and operated by NextEra 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

PROJECT COMPONENTS

The major components of the Project are anticipated to include:

- Up to 41 1.6 MW GE model wind turbine generator locations and pad mounted step-up transformers (a maximum of 37 turbines will ultimately be constructed);
- Laydown and storage areas (including temporary staging areas, crane pads and turnaround areas surrounding each wind turbine);
- Approximately 52 kilometres (km) of 34.5 kilovolt (kV) underground electrical collection lines to connect the turbines to the proposed transformer substation;
- A transformer substation to increase the voltage of electricity from the electrical collection lines (34.5 kV) to 115 kV;
- Approximately 24 km of 115 kV overhead transmission line proposed along Centennial Road and Hensall Road from the proposed transformer substation to the existing Hydro One Seaforth Transformer Station;
- Approximately 40 km of turbine access roads; and,
- An operations and maintenance building.

PROJECT TIMING

Construction for the Bluewater Wind Energy Centre is expected to begin in May 2013 (dependent on receiving the required approvals), and last for approximately 6 months. The operations phase is anticipated to start in November 2013, and the Project will operate for approximately 30 years, after which point the Project may be decommissioned.

CONSTRUCTION ACTIVITIES

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 4 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.

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, 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 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.
  - The collection lines are generally buried 0.9 m below ground.
  - Some collection lines will be tunnelled below woodlots or watercourses to avoid effects to natural areas.
  - In these cases, entrance and 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 is approximately 5 m in length, by 7 m in width, by 4 m in height and is used to "step-up" electricity from the collection lines (34.5 kV) to 115 kV for transmission to the Seaforth Transformer Station.
  - First, soil in the area is removed, stored for later use and replaced with a layer of gravel, if needed.
  - A containment system will be constructed around the transformer to prevent soil contamination in the event there is an oil leak.

CONSTRUCTION OF ELECTRICAL TRANSMISSION LINE

- The 115 kV electrical transmission line will connect the electricity generated by the wind Project from the transformer substation to the Seaforth Transformer Station where it will be fed into the Provincial electricity grid.

- The transmission line will be mounted on existing poles or on new poles, to be determined during the engineering and design phase and with Hydro One Networks Inc.
- New poles will be constructed of wood, concrete or steel and will be 18 – 30 m tall with the poles buried 1 to 2 m below ground.
- Once poles are in place, the cables will be strung between the poles.

CONSTRUCTION OF OPERATION AND MAINTENANCE BUILDING

- An operations building will be built for the Project or an existing building will be purchased or leased. The operations building is approximately 30 m by 15 m in size and is used to monitor the daily operations of the wind energy centre.
- Drinking water will be supplied by a well or through the municipal water system and if required, a septic bed will be constructed for the disposal of sewage.

CONSTRUCTION OF PERMANENT METEOROLOGICAL TOWER(S)

- The meteorological tower(s) are approximately 80 m high and used to monitor wind conditions at the Project site.
- They will either be monopole (a single pole) or lattice structure (a framework tower) and will be secured with three guy wires.

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

Wind Turbine Operation:

- 5-10 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

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 decommissioning activities. Alternatively, the wind turbines may be decommissioned. Decommissioning procedures will be similar to the construction phase, but in reverse order. The decommissioning process is described in the Decommissioning Plan Report Plain Language Summary and will follow the Ontario 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

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 4 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 chance 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 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.

OTHER RESOURCES (SUCH AS AGGREGATE AND PETROLEUM RESOURCES)

- No effects anticipated.

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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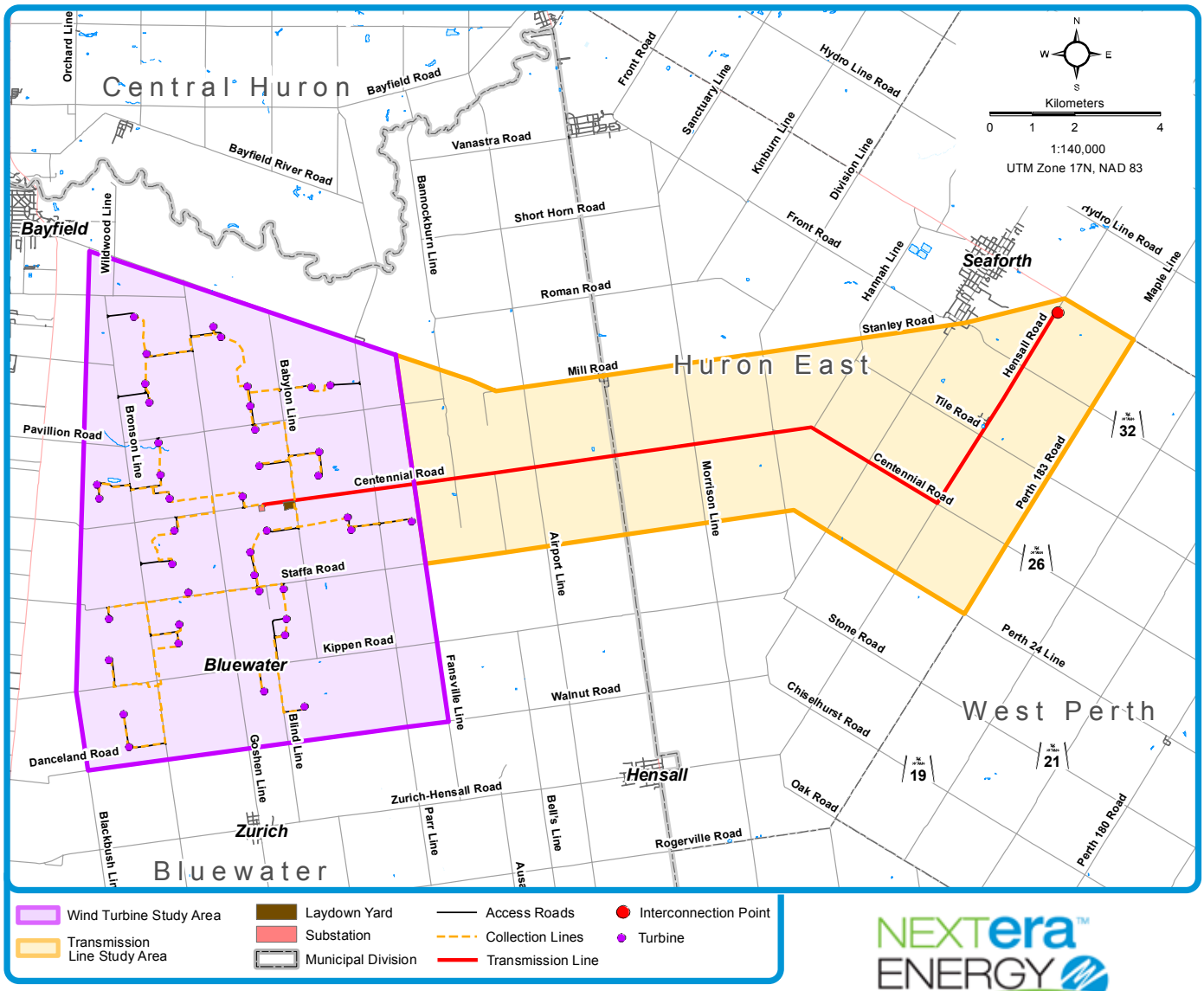

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Have A Question?

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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