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NEXTERA ENERGY CANADA, ULC SUMMERHAVEN WIND ENERGY CENTRE APPLICATION FOR A RENEWABLE ENERGY APPROVAL

Decommissioning Plan Report

Submitted to:
Director, Ministry of Environment
2 St. Clair West, Floor 12A
Toronto, Ontario
M4V 1L5

REPORT

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1.0 INTRODUCTION

This Decommissioning Plan Report (the Report) has been prepared to provide information to the public, Aboriginal communities, municipalities and local authorities regarding the proposed Summerhaven Wind Energy Centre (the Project). The Report is a required component of an Application for a Renewable Energy Approval (REA Application) under Ontario Regulation (O. Reg.) 359/09[1] made under the *Environmental Protection Act (EPA)*.

This Report has been prepared in accordance with O. Reg. 359/09 and Technical Bulletin Four: Guidance for preparing the Decommissioning Plan Report (MOE, 2010). Table 1 summarizes information to be included in the Report based on Table 1 of O. Reg. 359/09 and directs readers to the associated section(s) of this document.

Table 1: Decommissioning Plan Report Requirements under O. Reg. 359/09

Requirement as per O. Reg. 359/09	Report section where information can be found
Procedures for decommissioning during construction (i.e., Project abandonment)	Section 2
Procedures for dismantling or demolishing the facility	Section 3.1
Activities related to the restoration of any land and water negatively affected by the facility	Section 3.2
Procedures for managing excess materials and waste	Section 3.3

Additional information about the Project can currently be found in the Construction Plan Report (Golder, 2011a), Design and Operations Report (Golder, 2011b), and Project Description Report (Golder, 2011c). A description of the Site Plan design is provided in the Design and Operations Report. As it is broadly applicable to all of the REA Reports, and to avoid redundancy, the Site Plan diagram has been provided as a stand-alone document (the Site Plan Report).

Technical studies associated with the REA Applications requirements were initiated in 2007 and extended into 2010. Additional information about the Project and results of technical studies and assessments of negative environmental effects are available in the following reports:

- Wind Turbine Specifications Report (Golder, 2011d);
- Natural Heritage Assessment Report (Golder, 2011e);
- Stage 1 Archaeological Assessment Report (Golder, 2010a);
- Heritage Assessment Report (Golder, 2011j);
- Noise Study Report (Golder, 2011f);
- Water Assessment Report (Golder, 2011g);
- Site Plan Report (Golder, 2011h); and
- Consultation Report (Golder, 2011i).

[1] As amended by O. Reg. 521/10 which came into force on January 1, 2011.

Stage 2, Stage 3 and Stage 4 Archaeological Assessment Reports are not required as part of the REA Application for this Project (Ministry of Energy and Infrastructure, 2010) and are typically not publically available documents due to the confidential nature of the content. Stage 2, Stage 3 and Stage 4 Archaeological Assessment Reports will however be made available to the Ministry of Tourism and Culture (MTC) for review and their issuance of a Comment Letter in advance of construction, and hard copies of this information will be provided to Aboriginal communities with an interest in the Project, as identified by the Director, and as agreed to by individual Aboriginal communities.

The quantities and description of decommissioning activities described in this report are based on estimated means and methods consistent with current practice. As such, the quantities and general decommissioning activities are subject to change upon regulations present at the time of decommissioning.

1.1 Project Summary

The Project consists of the site preparation, construction, operation, and decommissioning of 59 wind turbine generators with a total installed nameplate capacity of 131.04 MW. The Project will be owned and operated by NextEra Energy Canada, ULC (NextEra Energy Canada) and will be located in the vicinity of Nanticoke, Haldimand County, Ontario (Figure 1, end of Report). The Project lifespan from obtaining the REA Approval to the end of Decommissioning is estimated to be 27 years.

Turbine towers will be constructed on a concrete foundation. Underground and overhead cables will interconnect individual turbines and eventually connect to the substation (see Site Plan Report). The operation of the wind turbines will be monitored remotely from a Project operations building located near the substation. Once tested and commissioned, the turbines will require scheduled visits for maintenance during the Operations Phase. Maintenance will include complete inspection of the turbine's components and the tower, functionality testing, replacement of worn parts, bolt tightening and lubrication of moving parts. Routine preventative maintenance activities will be completed as per manufacturer requirements.

The Project Area (Figure 1) encompasses approximately 22,583 ha of privately owned land parcels. Land use is predominantly cash-crop agriculture (i.e., farming for corn, soybeans, wheat), although some areas are pasture (predominantly for cattle) and several wooded areas are present. Selkirk Provincial Park and Haldimand Conservation Area are located along the shore of Lake Erie south of the Project Area. The Grand River runs northeast of the Project Area and an Imperial Oil refinery is directly southwest.

The location of the Project was predicated by interest expressed by local landowners. Haldimand County is also attractive for wind development due to its proximity to Lake Erie, which results in favourable wind conditions for wind power production.

2.0 DECOMMISSIONING DURING CONSTRUCTION (ABANDONMENT OF PROJECT)

In the event that construction of the Project is halted and subsequently not completed for any reason, the following sections describe potential negative effects of Project abandonment and strategy that will be taken to

mitigate those effects. Residual effects monitoring plans are also included in circumstances where follow-up is deemed appropriate or necessary.

Decommissioning during Project construction and installation activities will not involve any equipment that would differ from normal decommissioning activities.

2.1 Potential Effects

If the Project was abandoned during construction and installation activities, there may be piles of exposed subsoil and topsoil, as well as exposed excavations ranging from 1 – 5 m depth resulting from the preparation for or installation of turbine foundations, access roads, cables and transmission line poles. Exposed soil may result in negative effects to the surrounding environment from stormwater run-off and fugitive dust emissions. Run-off may result in sedimentation of nearby lands and watercourses. Soil compaction from construction equipment, especially in temporary storage/laydown areas, on crane pads and access roads, could marginally reduce water infiltration and result in slight increases in the movement of water by overland flow. Sediment transport to surface water bodies could result in the direct or indirect harmful alteration, disruption or destruction of aquatic habitat, sedimentation or cause negative biological responses in aquatic species. Fugitive dust emissions as a result of abandonment activities have the potential to coat vegetation and alter wildlife habitat function.

Potential negative effects will not differ from those during construction and installation activities. For a more detailed discussion of these effects, refer to the Natural Heritage Assessment Report, Water Assessment Report and the Construction Plan Report.

2.2 Mitigation Strategy

Following construction best management practices, stockpiles of soil will be covered with tarps or plastic sheeting during prolonged stoppages in work to prevent erosion, run-off and fugitive dust emissions. Vegetation removal adjacent to water bodies will be minimized to the extent agreed to by the MNR or Long Point Region Conservation Authority (LPRCA), and will be avoided wherever possible to reduce potential sedimentation of watercourses. Silt fencing will also be constructed on the closest edge of the construction area from watercourses and wetlands where works are performed in the Regulation Limit. If the Project is abandoned during construction, the land will be recontoured to the original or otherwise effective grade to allow for surface drainage.

Once construction and installation activities cease, excavated soil will be replaced to restore the original soil horizons and land uses. Heavily compacted subsoil will be ripped or moderately compacted soils will be ploughed. Areas with disturbed soil (e.g., trenches and plough seams) or areas that are re-graded with topsoil will be re-seeded with an annual seed mix to help temporarily stabilize the soil and prevent erosion. Any disturbed field drains or tiling that was present at the commencement of construction will be repaired or replaced to restore field drainage and return the area to the previous land use (typically agriculture). The condition of the disturbed areas will be discussed with the parcel owner to address potential concerns.

The mitigation strategy will not differ from the mitigation strategies used during construction and installation activities. Clean-up and reclamation of the Project Area would follow procedures laid during the Post-Installation Activities of the Project if construction were to be completed (see Construction Plan Report).

2.3 Monitoring Plan and Contingency Measures

The proposed mitigation strategy is deemed sufficient to control potential negative environmental effects from decommissioning activities in the case of Project abandonment. Therefore, no residual effects monitoring plans are proposed following the conclusion of clean-up and reclamation activities. As some conditions may not be apparent for weeks to months following abandonment, NextEra Energy Canada will maintain the Project public contact number for a minimum of one year following abandonment and will respond to landowner concerns via this method or by an on-site visit.

3.0 DECOMMISSIONING AFTER CEASING OPERATION

This section describes the activities that will be completed during decommissioning of the Project. Many of the activities completed during decommissioning are similar to those completed during construction and installation activities, but would likely occur in reverse chronological sequence. Early decommissioning activities will involve the same activities as during the Site Preparation Phase (apart from surveying and wind turbine siting), including equipment delivery, land clearing (topsoil removal and storage) and creation of temporary storage/laydown areas (including field offices and all temporary workspaces). For a description of these activities, refer to the Construction Plan Report. Decommissioning activities described in the following sections do not include site preparation activities already discussed in the Construction Plan Report.

A summary of the general timing of Project decommissioning is provided in Table 2, which is based on the assumption that the operational lifespan of the Project is 25 years. Decommissioning is expected to span approximately five months. The decommissioning schedule was designed to account for minor delays that could result from an extended regulatory process, delayed equipment arrival and adverse weather.

Table 2: Timing of Project Decommissioning Activities

Project Phase and Activity	Duration*
Decommissioning Planning and Permitting	
Planning and permitting	■ 1 year
Aboveground Structure Decommissioning	
Turbines including dismantling and removal	■ 5 months
Overhead collector system and transmission lines including dismantling and removal	■ 2 months
Transforming substation and switchyard area including dismantling and removal	■ 2 months
Operations building, including dismantling and removal	■ 2 months
Access roads including deactivation, road bed removal and land reclamation	■ 2 – 3 months
Meteorological towers including dismantling and removal	■ 3 weeks per tower
Watercourse crossings including removal and aquatic and riparian habitat reclamation	■ 1 – 2 weeks per crossing
Belowground Structure Decommissioning	
Turbine foundation removal (including concrete removal to operable depth for agriculture), transport and disposal of materials to suitable facility	■ 4 months
Underground collector lines will be terminated at connection points and removed to 1 m below surface	■ 2 months

*Note: Some decommissioning activities will be completed concurrently. Durations are approximate.

3.1 Project Component Dismantling and Removal

The primary access used for equipment delivery and transport of dismantled components off-site will be a combination of highways, arterial roads and municipal right-of-ways. As access road availability, ownership and use may have changed during the Operations Phase, NextEra Energy Canada will contact the access owner during the decommissioning planning to obtain road use permits and negotiate any conditions of use. A Traffic Management Plan will be prepared and provided to the County to mitigate traffic disturbance and ensure safe conditions are maintained, particularly on school bus routes, and on public roads as described in the Construction Plan Report.

3.1.1 Aboveground Structure Decommissioning

Table 3 summarizes the activities that will be completed during decommissioning of aboveground structures. A more detailed description of these activities is described in the following sections.

Table 3: Project Decommissioning Activities for Aboveground Structures

Activity	Description
Turbine dismantling and removal	■ Turbines (hubs, nacelles, blades, towers and pad-mounted transformers) will be dismantled using a track-mounted/crawler crane in the reverse chronology to the procedures for turbine assembly and installation (see Construction Plan Report). ■ Turbine components will be sorted by type and destination and may be stored in temporary storage/laydown areas prior to removal from the Project Area. ■ Before directing components to disposal or recycling facilities, efforts will be made to reuse equipment and salvage parts for existing wind farms with similar turbine technology. ■ Turbine components will be delivered to the appropriate landfill, scrap metal yard or industrial recycling areas by large truck and trailer combinations, requiring up to approximately 600 – 720 total loads for the Project (approximately 10 – 12 loads per turbine). The total number of loads may decrease substantially if the materials are considered to be scrap and can be reduced to a smaller than original size (e.g., cutting turbine blades into pieces).
Overhead collector system and transmission lines	■ Overhead cables and transmission poles that are not shared with Hydro One, other utilities, or Haldimand Hydro, will be removed.
Transforming substation and switchyard area	■ Unless it can be rezoned and used for another application acceptable to the County, the substation and switchyard area facilities will be dismantled and removed in accordance with Provincial regulatory requirements at the time of decommissioning.

Table 3: Project Decommissioning Activities for Aboveground Structures (continued)

Activity	Description
Operations building	■ Unless it can be rezoned and used for another application acceptable to the County, the operations building will be demolished in accordance with Provincial regulatory requirements at the time of decommissioning.
Meteorological towers	■ Unless otherwise requested by Haldimand County or local aviation groups (and agreed to by NextEra Energy Canada) to have them remain in place, the towers will be removed. ■ Once removed, they will be dismantled and components will be reused, recycled, or disposed of in the appropriate facilities. The concrete foundations will be removed completely or to a suitable depth for the desired end land use, with soil and soil horizons replaced and reinstated. An annual seed mixture will be used to mitigate soil erosion.
Access roads and watercourse crossings	■ After turbines, the transforming substation, operations building, switchyard area and collector system components have been removed, access roads will be removed and land will be restored to the pre-construction end land use as agreed to with individual landowners. ■ Road bedding material will be removed. Land will be ploughed to mitigate compaction, excavated areas requiring additional fill will be restored with clean subsoil and topsoil. An annual seed mixture will be planted on exposed soils to mitigate soil erosion until the end land use is restored (typically until first agricultural crop can be planted). ■ Watercourse road crossings will be removed where required by approval agencies or at the landowners' request. ■ Removal, including any work in the Regulation Limit area, is subject to approval by the Long Point Region Conservation Authority (LPRCA) and the Ministry of Natural Resources (MNR). If culverts are removed, the land will be contoured to maintain current drainage patterns. ■ Surface drainage patterns will be restored by regrading, furrowing, ditching and replacement or repair of subsurface tiles or drains.

3.1.1.1 Turbine Dismantling and Removal

The expected lifespan of the turbines is approximately 25 years. During or after this time they may be replaced, reconditioned, or decommissioned. If the turbines are decommissioned, the turbine components will be disassembled, including the hub, nacelle, blades, tower and pad-mounted transformers according to Provincial regulations present at the time of decommissioning. Disassembly of turbines will be the reverse of assembly procedures (with use of the same equipment) outlined in the Construction Plan Report.

Once turbine sections have been lowered to ground level, large pieces (e.g., tower sections) will be cut into transportable sections for delivery to a recycling facility or scrap metal company. Turbine pad-mounted transformers will be unbolted from their foundations and removed from the site.

Turbine components will be stored in temporary storage/laydown area prior to removal unless an industrial scrap materials company can transport these materials directly from the site, or if there are delays attributed to bad weather or other unforeseen circumstances.

3.1.1.2 Overhead Collector System and Transmission Lines

Overhead cables and transmission poles that are not shared with Hydro One or Haldimand Hydro will be removed. Transmission pole holes will be filled with clean fill, and disturbed areas will be reseeded with native vegetation, if required. Overhead lines will be removed from the site and recycled, reused or disposed of in accordance with regulatory requirements at the time of decommissioning.

3.1.1.3 Transforming Substation & Switchyard Area

Unless it can be rezoned and used for another application acceptable to the County, the substation and switchyard area structures and buildings will be demolished. The electrical components and buildings will be decommissioned in a manner appropriate to and in accordance with Provincial regulatory standards at the time of decommissioning.

All disturbed areas will be graded and contoured for reuse by the landowner for agricultural purposes and will be reseeded with crops or other vegetation, if requested.

3.1.1.4 Operations Building

Unless it can be rezoned and used for another application acceptable to the County, the operations building will be demolished. The operations building will be decommissioned in a manner appropriate to and in accordance with Provincial regulatory standards at the time of decommissioning.

All disturbed areas will be graded and contoured for reuse by the landowner for agricultural purposes and will be reseeded with crops or other vegetation, if requested.

3.1.1.5 Meteorological Towers

Meteorological towers used for monitoring during Project Operations will be left in place to be used by the Haldimand County or local aviation groups, if agreeable by NextEra Energy Canada. If the towers must be removed, they will be dismantled in sections using a crane, and recyclable metal components will be sold or delivered to the appropriate scrap yards.

3.1.1.6 Access Roads

To accommodate track-mounted/crawler cranes necessary for dismantling the turbines, access roads will be 11 m wide instead of 7.3 m wide, with additional widening along public roads to accommodate the turning radius of the largest truck and tractor combination to be used. Any stripped topsoil will be stored in temporary storage/laydown areas and covered with plastic sheeting to prevent erosion and fugitive dust emissions.

Following decommissioning, roads will be removed and land restored to the pre-construction end land use as agreed to with individual landowners and in compliance with their REA and other permits. Road bedding material will be stripped and areas of compaction will have the subsoil ripped. Any removed/stored topsoil will be replaced and additional clean topsoil will be used to fill remaining areas. All disturbed areas will be graded and contoured for reuse by the landowner for agricultural purposes and will be reseeded with crops or other vegetation, if requested.

Culverts installed during construction and installation activities will also be removed, unless the landowner requests that they stay in place. If landowners request that culverts be removed, approval from the Department of Fisheries and Oceans Canada (DFO), LPRCA or the MNR would have to be obtained, where required. Following removal of the culverts, the land will be contoured to maintain current drainage patterns and riparian vegetation will be replanted with a mixture of species acceptable to LPRCA.

3.1.2 Belowground Structure Decommissioning

Table 4 summarizes the activities that will be completed during decommissioning of belowground structures. In general, all belowground structures will be removed to 1 m below grade. A more detailed description of belowground structure decommissioning is described in the following sections. Any activities associated with decommissioning will be carried out in accordance with the regulations at the time of decommissioning and/or obtain the appropriate permits as necessary.

Table 4: Project Decommissioning Activities for Belowground Structures

Activity	Description
Turbine foundations	■ The top 1 m of turbine foundations will be crushed and removed, and the excavated areas will be replaced with clean subsoil and topsoil to match the natural grade. ■ The remaining foundations from 1 m – 3 m depth will be left intact and in place.
Transforming substation, switchyard area & operations building foundations	■ Foundations will be excavated, crushed and removed, and the gravelled parking area surrounding the facilities will be removed and replaced with clean fill. Soil and soil horizons will be reinstated. An annual seed mixture will be used to mitigate soil erosion.
Meteorological tower foundations	■ If the meteorological towers must be removed, the tower foundations will be excavated, crushed and removed, and replaced with clean fill.

Activity	Description
Underground collector system	■ Underground cables will be cut at connection points and the ends will be cut off at a point >1.0m below grade and left in place. ■ To access the underground cables for cutting, a small excavator or backhoe will be used.

3.1.2.1 Turbine Foundations

The majority of the turbine foundations will be left in place, but the top 1 m will be removed so as to not affect productivity of those areas, including any future agricultural activities. Excavators mounted with hydraulic hammers will be used to break up and remove sections of the foundation, and removed concrete will be crushed using a mobile crushing unit before being loaded in dump trucks for removal from the site. Rebar/metal framework, conduits, anchor bolts and piles above 1 m depth will also be cut using a hydraulic cutter on the excavator and removed. Excavated areas will be backfilled with subsoil and topsoil to match the original soil horizons and elevation, and the area will be graded and contoured.

3.1.2.2 Transforming Substation, Switchyard Area & Operations Building Foundations

Following removal of aboveground structures, the transforming substation, switchyard area and operations building foundations will be demolished in a manner similar to the turbine foundations. Excavators mounted with hydraulic hammers will be used to break up and remove sections of the foundation, and removed concrete will be crushed using a mobile crushing unit before being loaded in dump trucks for removal from the site. All concrete material will be recycled, where possible, or disposed off-site at an approved and appropriate facility. The gravelled parking area surrounding the operations building will be removed and the gravel will be sold or delivered to the local waste management facility.

The entire area will have the subsoil ripped to alleviate compaction, and topsoil will be replaced with clean fill. Soil management will include soil testing for contaminants in accordance with regulatory requirements at the time of decommissioning. The area will be recontoured and reseeded with an annual cover crop species or with vegetation approved by the landowner and returned and subsequently returned to pre-construction land use.

3.1.2.3 Meteorological Tower Foundations

Assuming the meteorological towers will be removed, the foundations will be excavated, crushed and removed, using the same equipment and methods as the turbine and substation foundation removal. The excavated area will be replaced with clean fill and will be graded and reseeded to match the previous land use.

3.1.2.4 Underground Collector System

Decommissioning of belowground cables will involve excavation of cables at all connection points using a small excavator or backhoe. Soil management will follow those procedures detailed in the Construction Plan Report for the installation of the cables. The cables at each connection point will be cut, and the ends will be buried at >1 m below grade and left in place. This will avoid disturbing large areas of agricultural land, in comparison to the areas that would be disturbed, and potential environmental effects, if the cables were removed completely. Cables at directionally drilled watercourse crossings will remain in place though the connection point will be severed at a point situated outside of the LPRCA Regulation Limit. It is anticipated that the cut underground cables will have no negative effects on the soil, environment or cultivation practices since the cut cables will be inert, contain no materials known to be harmful to the environment and will be well below the cultivatable depth for agricultural activities (in the subsoil zone) (see Section 3.2).

3.2 Restoration of Lands Negatively Affected by the Facility

The proposed Project Area encompasses nearly 22,583 ha of land. The pre-construction state of this land is privately owned, predominantly cash-crop (i.e., corn, soy beans, wheat) agricultural land, although some lands are also under pasture (predominantly cattle) and there are pockets of wooded areas which generally will not be disturbed. For a more detailed description of the Project Area pre-construction state, refer to the Natural Heritage Assessment Report.

To the extent possible, site restoration activities will occur immediately following the removal of surface and subsurface Project components. The main objective will be to restore ecosystem attributes and associated vegetation communities to pre-disturbance conditions to the extent meaningful and possible using accepted industry standards. Since the majority of the Project Area is agricultural land, the following site restoration activities will consider:

- Potential for soil contamination occurring during the Project and need for soil contaminant testing;
- Original soil horizons, soil types and nutrient content;
- Size and type of infrastructure being removed (magnitude of environmental effects); and
- Erosion and sedimentation control strategy, and other Best Management Practices.

Agricultural land uses will be restored by replacing subsoil and topsoil in areas where soil was removed for access road construction and creation of temporary storage/laydown areas (including crane pads) during decommissioning activities. The subsoil in these areas will be ripped to alleviate soil compaction prior to adding topsoil. These areas will be graded and contoured to maintain previous drainage patterns. Where additional subsoil and topsoil is required (e.g., turbine foundations), certified clean fill will be acquired that matches the existing soil types as closely as possible.

Any damaged tile drains will be replaced to ensure appropriate drainage of the farmland. It is assumed that each landowner will continue their desired agricultural management practices and plant their desired crop during the next planting season post-decommissioning.

In areas disrupted by decommissioning activities that are not agricultural, re-vegetation will occur using native plant species or agronomic mixes acceptable to LPRCA or MNR. Re-vegetation success and potential for soil erosion may be affected by the timing (season) of planting; therefore, a cover crop or sheeting may be used temporarily to minimize the risk of erosion until appropriate weather conditions permit re-vegetation. In the case of restoration to watercourses (i.e., planting vegetation, removing watercourse crossings), the DFO, LPRCA and MNR will be consulted to obtain approval in accordance with standards and regulations at the time of decommissioning.

The removal of culverts (at the landowner's request) will require authorization from DFO via the LPRCA and works will be conducted during seasonal timing windows (see Table 5) (DFO, 2010). After culverts have been removed, the banks and channel bed will be contoured to match the upstream and downstream grade. Native riparian vegetation will be planted to prevent erosion and promote proper riparian function. Underground watercourse crossings (for collector system cables) will remain in place after decommissioning to avoid disturbance to watercourses that would otherwise be predicted if removal of cables was required.

The only materials from the Project that will remain on the site after decommissioning will be the portion of turbine foundations below 1 m depth (concrete and rebar below 1 m depth), and cut underground cabling below 1 m depth. Neither of these remaining infrastructure components are anticipated to have any significant negative environmental effects because they will be inert, contain no materials known to be harmful to the environment and will be below the cultivatable depth for agricultural activities (in the subsoil zone). Cable markers placed during their installation would remain to warn anyone who may dig in the area after the Project has been fully decommissioned.

3.3 Managing Excess Materials and Waste

The majority of materials, including turbine parts, may be reused; therefore limiting the amount of waste expected as an outcome of decommissioning. Methods for disposal of excess materials and waste will follow Provincial regulatory requirements at the time of decommissioning. Materials that are able to be reused by NextEra Energy Canada at other locations, or that can be sold as is, will be stored temporarily on-site prior to delivery to their final destination.

3.3.1 Toxic/Hazardous Materials

Oils, fuels and lubricants will be required for machinery and equipment used to dismantle and remove Project components. These materials will be disposed of through conventional waste-oil and hazardous waste disposal streams in a manner outlined by Haldimand County at the time of decommissioning.

Lubricants recovered from dismantled substation transformers, turbine gearboxes and yaw mechanisms will be disposed of using the same waste streams as those used for construction equipment lubricants, since they do not contain any PCBs or other unconventional, hazardous materials.

Wooden transmission poles may be recycled for other uses, if possible, or delivered to the local landfill. NextEra Energy Canada may discuss recycling of poles with a licensed facility, which would include stripping the

chemical-treated exterior, disposing of this chemical-infused wood in a landfill, and re-milling the remaining wood core for various end uses. Arrangements may be made with a licensed facility to receive the poles in their entirety, or to receive chemical-containing chips from the recycling facility, as liners might need to be installed to prevent leaching of preservative chemicals (e.g., creosote, CCA, Penta).

3.3.2 Non-hazardous Waste

Non-hazardous waste, such as plastics, building materials, demolition debris and road gravel may be crushed (as required) and sold to private companies or recycling facilities for reuse where possible, or may be disposed of at the nearest local landfill licensed to receive these materials.

Metals and other structural components from demolished buildings and foundations, turbine towers, nacelles, hubs, turbine tower wiring, and collector system conductors may be sold to a licensed scrap metal facility. Currently, dismantled wind turbines have a high salvage value, as steel and copper components are easily recycled and there is a ready market for these scrap metals. Transformers (pad-mounted and substation), transmission line and cables are designed for at least a 50-year lifespan, so there may be a significant amount of components and material that could be refurbished at a licensed facility and sold for reuse.

Wind turbines that are able to remain operational after decommissioning of the Project (and would therefore have market value) will be carefully disassembled and delivered to the purchasing group. A market for good, used wind turbines has developed in North America. For example, a number of wind turbines installed in Alberta in the early 1990s originated from the U.S. used wind turbine market (TransAlta Wind, 2009).

The remaining non-metal components of wind turbines are primarily fibreglass and plastic that will be sold to recycling facilities or crushed and disposed of in the local landfill. By the time of decommissioning, local recycling facilities may have the ability to mechanically or thermally recycle turbine blades.

The local landfill in Hagersville (Tom Howe Landfill Site) has a design capacity of 2,300,000 m^3. If this landfill is unable to handle the quantities of waste generated by the Project, another facility or facilities will need to be identified. Identification of the status of these and alternative facilities will be determined during Decommission planning and will be discussed with applicable agencies. The extent to which turbine parts and components may be sold or recycled will also be monitored by NextEra Energy Canada to establish re-sale market conditions.

4.0 EMERGENCY RESPONSE AND COMMUNICATIONS PLANS

A detailed description of the emergency response procedures and communication plans to address concerns from the public and stakeholders that may be received during Decommissioning can be found in Section 6 of the Design and Operations Report. As agreed to between NextEra Energy Canada, the emergency response plan will be discussed with and subsequently approved by Haldimand County emergency services once it is amenable to both parties.

5.0 DECOMMISSIONING NOTIFICATION

The process for notification is detailed in Section 6 of the Design and Operations Report. The notification process will extend beyond the completion of decommissioning of the Project to address potential issues that may emerge after the completion of the decommissioning activities.

6.0 OTHER DECOMMISSIONING RELATED APPROVALS

Approvals other than REA may be required specifically for decommissioning activities. Decommissioning plans may also require permits from DFO, MNR, MOE and the LPRCA. Table 5 indicates some of the permitting or authorizations that may be required at the time of decommissioning based on current regulatory expectation for disposal or recycling of the component materials. Although Table 5 may not include all possible regulatory requirements for decommissioning of the Project, all permitting and authorizations will be obtained in accordance with regulatory requirements at the time of decommissioning.

A Record of Site Condition (RSC) under O. Reg. 153/04 may be required following decommissioning activities as stated in Section 7 of Technical Bulletin Four: Guidance for preparing the Decommissioning Plan Report. A RSC is required for certain types of land changes, such as a change from industrial/commercial to agricultural use. The type of information that must be contained in the RSC includes a site description, property ownership and property use, site assessment information, the standards that were applied to the site, certification statements and a description of any site remediation/cleanup activities. Under O. Reg. 153/04, a copy of the deed for the property is also required. A Phase I Environmental Site Assessment (ESA) may have to be completed at each turbine site and at the transformer substation prior to dismantling and decommissioning activities. The Phase I ESA would determine if a Phase II ESA is necessary.

Table 5: Summary of Approvals and Permits Required

Permit/Authorization	Administering Agency	Rationale
Record of Site Condition (O. Reg.153/04)	Ministry of the Environment (MOE)	■ Predicted change in land use from industrial/commercial to agricultural.
Fisheries Act Letter of Advice or Authorization	LPRCA under Level 2 Agreement with DFO	■ Potential direct or indirect effects to fish habitat as defined under the *Fisheries Act*.
O. Reg. 178/06, Long Point Region Conservation Authority: Regulation of development, interference with wetlands and alterations to shorelines and watercourses.	LPRCA	■ Permission to alter an area within the Regulation Limit.
Endangered Species Act	MNR	■ Potential disturbance to regulated species or habitats within Project Location.

7.0 REFERENCES

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Report Signature Page

Jeff Wright, R.P. Bio., A.Sc.T.
Project Manager

Anthony Ciccone, Ph.D., P.Eng.
Project Director

JR/JW AC/

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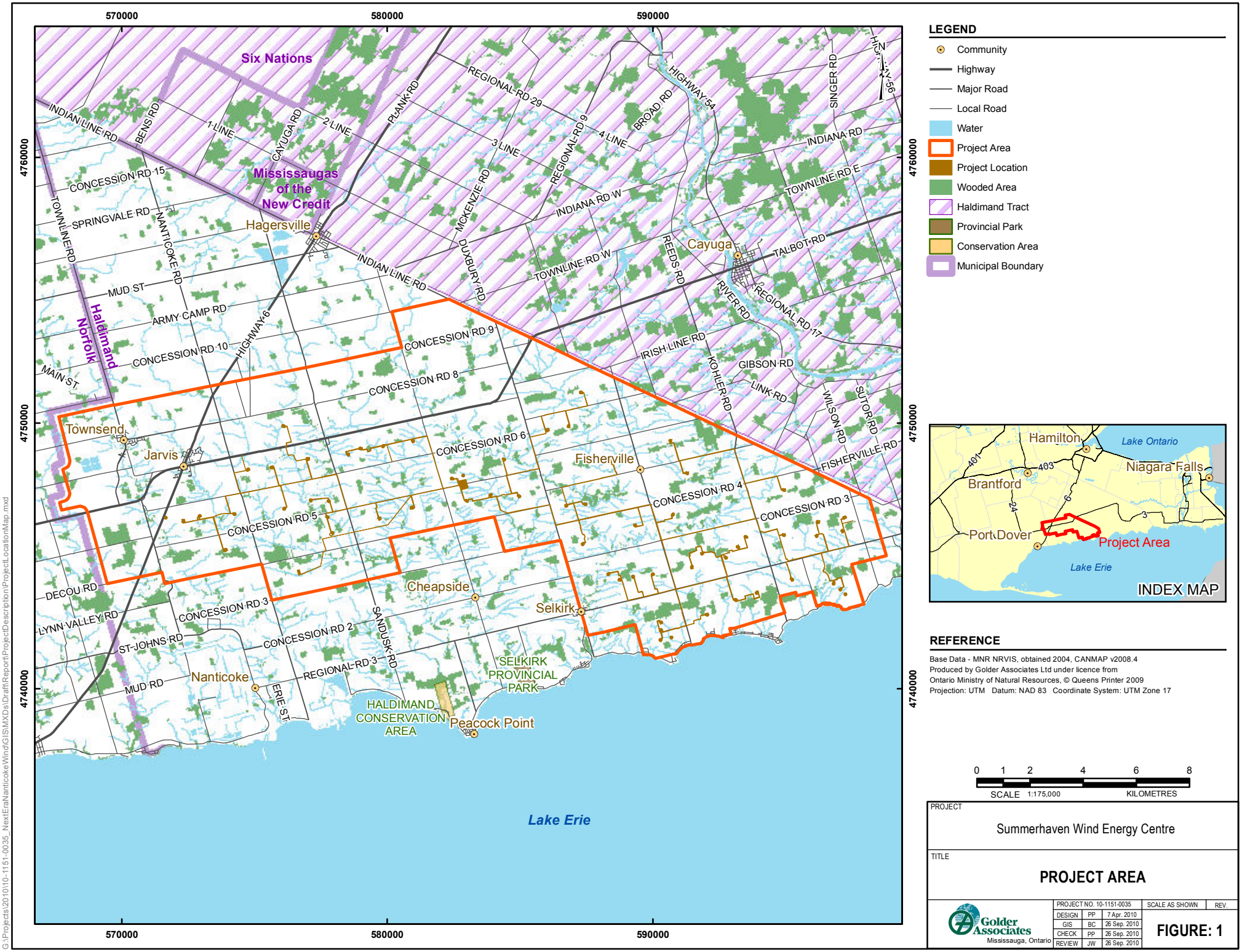
FIGURE 1

Project Area



LEGEND

- Community
- Highway
- Major Road
- Local Road
- Water
- Project Area
- Project Location
- Wooded Area
- Haldimand Tract
- Provincial Park
- Conservation Area
- Municipal Boundary

REFERENCE

Base Data - MNR NRVIS, obtained 2004, CANMAP v2008.4
Produced by Golder Associates Ltd under licence from
Ontario Ministry of Natural Resources, © Queens Printer 2009
Projection: UTM Datum: NAD 83 Coordinate System: UTM Zone 17

0 1 2 4 6 8
SCALE 1:175,000 KILOMETRES

PROJECT
Summerhaven Wind Energy Centre

TITLE
PROJECT AREA

Golder Associates
Mississauga, Ontario

PROJECT NO. 10-1151-0035			SCALE AS SHOWN	REV.
DESIGN	PP	7 Apr. 2010		
GIS	BC	26 Sep. 2010		
CHECK	PP	26 Sep. 2010		
REVIEW	JW	26 Sep. 2010		

FIGURE: 1

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Africa	+ 27 11 254 4800
Asia	+ 852 2562 3658
Australasia	+ 61 3 8862 3500
Europe	+ 356 21 42 30 20
North America	+ 1 800 275 3281
South America	+ 55 21 3095 9500

solutions@golder.com
www.golder.com

Golder Associates Ltd.
2390 Argentia Road
Mississauga, Ontario, L5N 5Z7
Canada
T: +1 (905) 567 4444

Golder Associates