

ROMNEY WIND ENERGY CENTRE

Project Description Report

Romney Energy Centre Limited Partnership

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 Customer: Romney Energy Centre Limited Partnership
 53 Jarvis St
 Suite 300
 Toronto, ON, M5C 2H2
 Contact person: Mark Gallagher
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DNV GL - Energy
 Advisory Americas
 4100 Rue Molson, Suite 100,
 Montreal, QC, H1Y 3N1 CANADA
 Tel: 514 272-2175
 Enterprise No.: 860480037

Prepared by: Verified by: Approved by:

Nancy O'Neill
 Project Manager, Environmental and
 Permitting Services

Gabriel Constantin
 Team Leader, Environmental and Permitting
 Services

Michael Roberge,
 Team Leader, Environmental and Permitting
 Services

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B	5 July 2016	DRAFT	N. O'Neill	G. Constantin	M. Roberge
B	7 February 2017	Update various sections to be consistent with updated Project information, primarily reference to number of turbines.	N. O'Neill	G. Constantin	M. Roberge

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List of abbreviations

Abbreviation	Meaning
ANSI	Life Science Area of Natural and Scientific Interest
APRD	Approval and Permitting Requirements Document
ARA	Archaeological Research Associates Ltd.
CEAA	<i>Canadian Environmental Assessment Act</i>
DFO	Department of Fisheries and Ocean Canada
DNV GL	GL Garrad Hassan Canada Inc.
EDF EN	Électricité de France Energies Nouvelles
ESA	Endangered Species Act
EPA	Ontario <i>Environmental Protection Act</i>
Hydro One	Hydro One Network Inc.
IBA	Important Bird Areas
IESO	Independent Electricity System Operator
LTVCA	Lower Thames Valley Conservation Authority
MNRF	Ontario Ministry of Natural Resources and Forestry
MOECC	Ontario Ministry of Environment and Climate Change
MTCS	Ontario Ministry of Tourism, Culture and Sport
MTO	Ontario Ministry of Transportation
MW	Megawatt
NIA	Noise Impact Assessment
OEC	Ontario Electrical Code standards
OGSR	Oil, Gas and Salt Resources
OEB	Ontario Energy Board
O. Reg	Ontario Regulation
PDR	Project Description Report
PSWs	Provincially Significant Wetlands
REA	Renewable Energy Approval
SCADA	Supervisory Control and Data Acquisition
SARA	<i>Species at Risk Act</i>
TC	Transport Canada
WTG	Wind Turbine Generator

1 PREAMBLE

Romney Energy Centre Limited Partnership (the "Proponent") is proposing to develop the Romney Wind Energy Centre (the "Project") which is subject to Ontario Regulation (O. Reg.) 359/09 (Renewable Energy Approvals (REA) [1] under Part V.0.1 of the Ontario Environmental Protection Act (EPA)), as amended. EDF EN was awarded a contract for this Project in March 2016 from the Independent Electricity System Operator (IESO) under the Large Renewable Procurement (LRP), and is seeking a Renewable Energy Approval (REA) from the Ontario Ministry of the Environment and Climate Change (MOECC). The Project will be owned and operated by Romney Energy Centre Limited Partnership.

This Project with a total nameplate capacity of up to 60 megawatts (MW) is considered to be a Class 4 wind facility. A total of 18 wind turbine locations are being permitted for the Project.

This Draft Project Description Report (PDR) has been prepared in accordance with Table 1 of O. Reg 359/09 and the Technical Guide to Renewable Energy Approvals, Chapter 4: Guidance for preparing the Project Description Report [2]. Table 1-1 presents the corresponding sections for each Project Description Report requirements.

Table 1-1: Project Description Report Requirements and Corresponding Sections

Requirement	Section
Any energy sources to be used to generate electricity at the renewable energy generation facility	Section 2.3
The facilities, equipment or technology that will be used to convert the renewable energy source or any other energy source to electricity	Section 3.1
The class of the renewable energy generation facility	Section 2.3
The activities that will be engaged in as part of the renewable energy project	Section 3.2
The name plate capacity of the renewable energy generation facility	Section 2.3
The ownership of the land on which the project location is to be situated	Section 3.4
Negative environmental effects that may result from engaging in the project	Section 4
An unbound, well marked, legible and reproducible map that is an appropriate size to fit on a 215 millimetre by 280 millimetre page, showing the project location and the land within 300 metres of the project location	Section 3.3, Appendix A

2 GENERAL INFORMATION

2.1 Project Name and Project Proponent

The name of the project is Romney Wind Energy Centre (hereafter referred to as "the Project") and Romney Energy Centre Limited Partnership is the Project proponent.

2.2 Project Location

The Romney Wind Energy Centre is located in southwestern Ontario, Town of Lakeshore and the Municipality of Chatham Kent, Ontario. More specifically, the Project is located south of Highway 401, and extends along Richardson Side Road and Wheatley Road near the community of Wheatley, ON. It has a total Project study area of approximately 5,093 ha.

Project components will be mostly installed on privately-owned agricultural lots within this area. It is anticipated that the electrical collector lines, including junction boxes will be partially located within public road allowances. It is planned to connect to the existing 230 kV transmission line located within the Town of Lakeshore close to Richardson Side Road. There may be a small section of transmission line of less than 1 km proposed for the Project.

The proposed Project study area is located on private and public lands; the geographic coordinates of the extreme points of the Project study area are presented in Table 2.1. The location of the study area was defined early in the planning process for the proposed wind energy facility, based on the availability of wind resources, approximate area required for the proposed Project, and availability of existing infrastructure for connection to the electrical grid. Most of agricultural fields are planted annually with common crops (e.g. corn, soybeans and winter wheat) or are used as pasture lands. All turbines are to be installed in agricultural fields.

Table 2-1: Geographic coordinates of Project Study Area

Site Location	Easting	Northing
North	378764	4678793
East	386458	4665518
West	376264	4669394
South	379094	4662491

The Project Location, situated within the broader Project study area, is defined in O. Reg. 359/09 as "...*a part of land and all or part of any building or structure in, on or over which a person is engaging in or proposes to engage in the project and any air space in which a person is engaging in or proposes to engage in the project*". As described therein, the Project Location boundary is the outer limit of where site preparation and construction activities will occur (i.e., *Disturbance Areas* described below) and where permanent infrastructure will be located, including the air space occupied by turbine blades.

Disturbance Areas have been identified surrounding various Project components; such areas correspond to the "Project Location" boundaries in the map in Appendix A. These areas denote zones where temporary disturbance during the construction phase may occur as a result of: temporary Project component laydown and storage areas, crane pad construction or turbine turnaround areas. With the exception of the Project

components described above, no permanent infrastructure is proposed within these areas. Following construction activities, the land will be returned to pre-construction conditions.

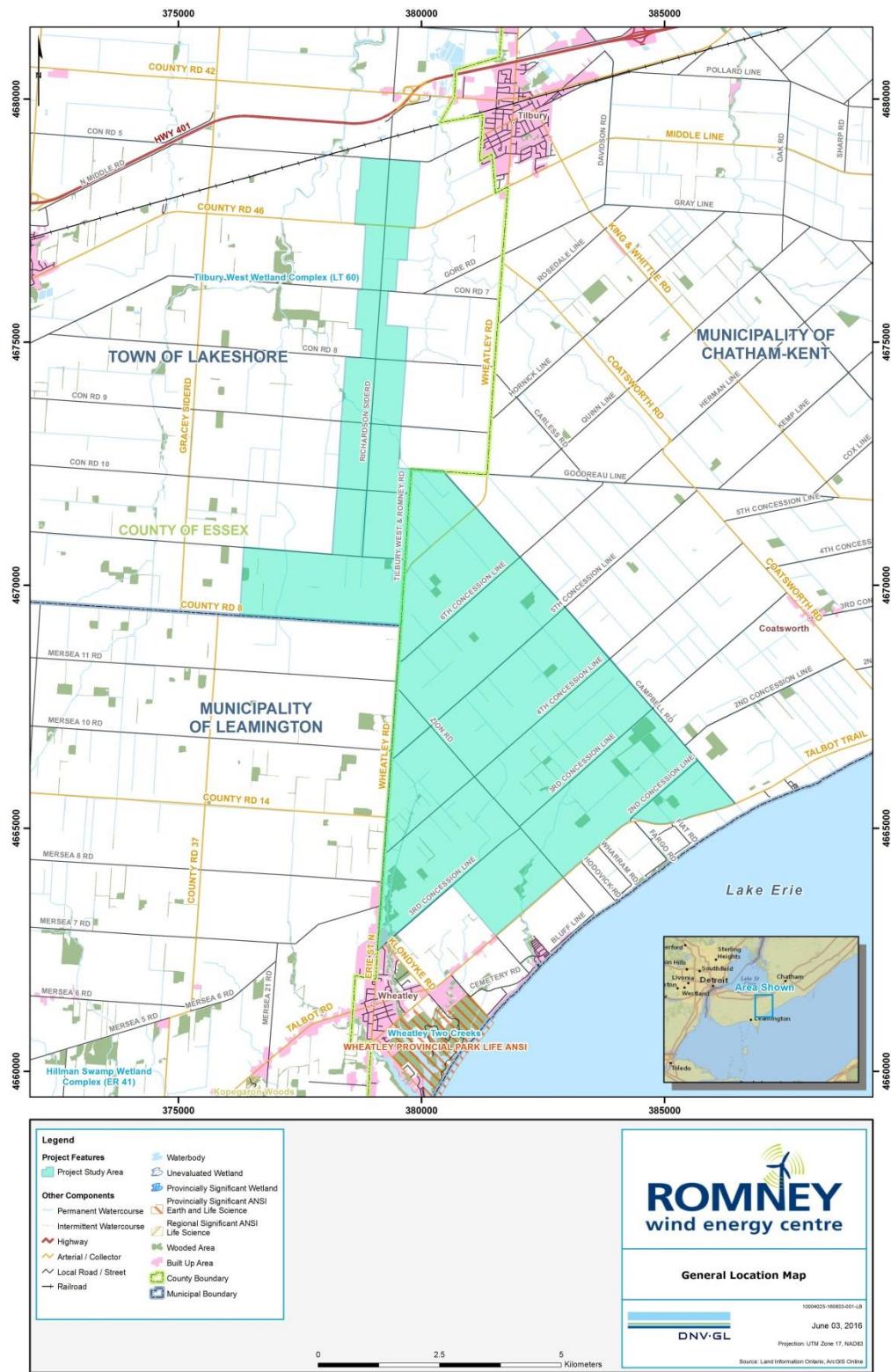


Figure 2-1: General Project study area

Figure 2-2 through Figure 2-5 are representative of current agricultural land use in the Project study area.



Figure 2-2: Intersection of Lakeshore Road and Richardson Side Road



Figure 2-3: Zion Road North of Concession 5



Figure 2-4: Concession 3 west of Campbell Road



Figure 2-5: Zion Road south of Concession 4

2.3 Description of the Energy Source, Nameplate Capacity, and Class of Facility

The wind turbine generators of the Project will convert the wind's energy into electricity to feed into the Ontario IESO transmission system. This Project with a total nameplate capacity of up to 60 megawatts (MW) is considered to be a Class 4 wind facility. A total of 18 wind turbine locations are being permitted for the Project. The proponent is currently evaluating different wind turbine technologies for the Project.

2.4 Contact Information

2.4.1 Project Proponent

The Project proponent is Romney Energy Centre Limited Partnership. The primary contact for this Project is:

Mark Gallagher

Senior Developer

Romney Energy Centre Limited Partnership

c/o EDF EN Canada Inc.

53 Jarvis Street, Suite 300

Toronto (ON), M5C 2H2, Canada

(514)805-3243

mark.gallagher@edf-en.ca

Project email: RomneyWind@edf-en.ca

Project website: http://www.edf-en.ca/projects/project_display/romney-wind-energy-centre

2.4.2 Project Consultant

GL Garrad Hassan Canada Inc. (hereafter referred to as "DNV GL"), a member of the DNV GL Group and part of the DNV GL brand, has been retained to lead the REA for the Project. The Environmental and Permitting Services team of DNV GL has completed mandates throughout Canada, the United States and in many other parts of the world. These mandates include permitting management, permit applications, environmental impact assessment, and various environmental studies for more than 15,000 MW of wind and solar-PV projects.

DNV GL's environmental team is composed of over 20 environmental professionals, including environmental impact specialists, planners, GIS, technicians and engineers. DNV GL has no equity stake in any Project. This rule of operation is central to its philosophy, distinguishing it from many other players and underscoring its independence.

DNV GL's contact information is as follows:

Nancy O'Neill

Project Manager, Environmental and Permitting Services
DNV GL – Energy Advisory
4100 Molson Street, Suite 100,
Montreal (QC), H1Y 3N1, Canada
905-630-1712
nancy.oneill@dnvgl.com
www.dnvgl.com

2.5 Other Approvals Required

The Project is subject to the provisions of the *Environmental Protection Act* and *O. Reg. 359/09*, as amended. The issuance of an approval by the MOECC will require approval by the Ministry of Natural Resources and Forestry (MNRF) and the Ministry of Tourism, Culture and Sport (MTCS).

In addition to the approvals required under *O. Reg. 359/09*, as amended, the Project will require additional approvals such as municipal building permits, as well as Lower Thames Valley Conservation Authority permits where potential disturbances to watercourses are anticipated. The Project may also require a permit under the *Endangered Species Act* (ESA), upon completion of an Approval and Permitting Requirements Document (APRD).

The Project may also require the following provincial or municipal authorizations:

- Encroachment Permit (Ministry of transportation);
- Building Land Use Permit / Entrance Permit (Ministry of Transportation);
- Special Vehicle Configuration Permit (Ministry of Transportation);
- Oversize / Overweight Permits (Ministry of Transportation);
- Notice of Project (Ministry of Labor);
- Connection assessment and approvals (IESO);
- System impact assessment (IESO); and
- Leave to construct (Ontario Energy Board (OEB)); and
- Entrance permits, building permits, road use agreement, drainage permit (Municipality).

2.5.1 Federal Involvement

This Project is not expected to trigger the *Canadian Environmental Assessment Act* (CEAA), as no federal authority will be expected to provide a licence, permit, certificate or other regulatory authorization. The Project will however be required to obtain land use clearance from NAV CANADA and an aeronautical obstruction clearance from Transport Canada (TC) for obstruction marking and lighting.

If Project infrastructures are crossing navigable waters, approval from TC may be required. While unlikely for this Project, if the Department of Fisheries and Ocean Canada (DFO) determines that any project activities can potentially cause serious harm to fish or adversely impact any aquatic species at risk listed under the *Species at Risk Act* (SARA), or their critical habitat, the Proponent is required to apply for an authorization under the *Fisheries Act* and/or SARA.

3 PROJECT INFORMATION

3.1 Facility Components

The Project will be made up of the following main components:

- Wind turbine generators;
- Meteorological towers;
- Access roads and crane pads; and
- Electrical collector system and substation;
- Operation and maintenance building; and
- Laydown and storage areas (including temporary staging areas).

3.1.1 Wind Turbines

At the time of this report, the final wind turbine technology has not been selected; however, it is likely to be in 3MW+ range of turbine. For the purposes of reference the Vestas V136-3.45 MW turbines will be considered some of which may need to be de-rated, for a total installed capacity of up to 60 MW. The proposed turbine will be a 3-bladed and horizontal-axis turbine.

The total rotor diameter of the V136 is 136 m, resulting in a swept area of 14,526m². The turbine rotors and nacelles are mounted on top of 132 m tubular towers, although other heights are being evaluated, which are manufactured in sections from steel plate. A pad mounted transformer will also be located adjacent to or inside the wind turbine tower.

The complete technical specifications for the selected technology will be available in the Wind Turbine Specification Report as part of the complete REA package.

The acoustic emissions data, including the sound power level and frequency, will be available as part of the Noise Impact Assessment (NIA) and will be available as part of the complete REA package.

All turbines of the Project will meet Transport Canada requirements from an aviation safety and lighting perspective.

3.1.2 Permanent Meteorological Tower

Wind speed, wind direction, temperature and humidity will be measured by means of a meteorological tower of up to 132 m in height. The tower will remain on site for the duration of the Project for wind turbine performance testing; its exact location will be determined prior to issue the draft REA reports. The tower will be of lattice or monopole type. It will be constructed on a small concrete pad and supported by a number of guy wires (lattice tower only).

3.1.3 Access Roads

Transportation of machinery, turbine components and other equipment will use existing municipal roads. New access roads will be constructed on private lands to provide an access point to the private properties for equipment during the construction phase and for maintenance activities during operation. Typically access roads will be constructed to be up to 12 m wide during construction. Areas adjacent to the access road within the larger 20m disturbance area may be utilized during the construction phase in order to

accommodate cranes, transportation equipment and other construction activities. After construction, these roads may be reduced in size to approximately 5-6m in width, to allow access to turbines and associated infrastructure for maintenance and repairs.

3.1.4 Electrical Collector Lines and Substation

Energy generated by the Project will be collected via underground electrical collector lines and directed to a substation.

3.1.4.1 Electrical Collector Lines

The electricity generated at each of the WTG will be transported through 34.5 kV underground or overhead electrical collector lines to the Project's substation. Electrical collector lines will be sited adjacent to the turbine access roads, where feasible, and will follow public road allowances to reach the Project substation.

Junction boxes will also be installed below or above ground where more than one circuit must be connected together and will be located whether on privately-owned agricultural lots or within public road allowances.

3.1.4.2 Substation

Measuring a total foot print of approximately 2-3 ha, the electrical substation for the Project will be located on privately-held lands through an "option to lease land" agreement. The substation comprises the following components:

- Isolation switch(es);
- Circuit breaker (s);
- Main power transformer (s);
- Transmission switch gear (s);
- Instrument transformers;
- Grounding (consistent with Ontario Electrical Code standards (OEC));
- Containment system;
- Oil / water separator;
- Revenue metering; and
- Control building.

A secondary containment system will be included to prevent soil contamination in the event of a leak from the main transformer. After voltage is transformed from 34.5 kV to a transmission voltage (230 kV) at the substation, electricity will be fed into the existing Ontario IESO transmission system less than 1 km from the Project substation.

A small parking lot will be constructed to accommodate staff vehicles.

3.1.5 Operations and Maintenance Building

It is anticipated that an operation and maintenance building will be constructed near the Project substation or closer to the wind turbines for the purpose of monitoring the day-to-day operations of the Project and supporting maintenance efforts. The exact location will be determined prior to issue the draft REA reports. A small parking lot will be constructed to accommodate staff vehicles.

Potable water will be supplied by a well or through the municipal water system and a septic bed will be constructed for the disposal of sewage. The septic bed will be constructed to the minimum size required for the size of the operation and maintenance building. It is the Project owner's responsibility to ensure proper maintenance of the septic system. The operations and maintenance building, septic system, and water supply solution will be constructed in accordance with applicable municipal and provincial standards.

3.1.6 Construction Staging and Laydown Areas

A temporary construction staging area will be constructed on privately owned lands for the purpose of staging and storing equipment during the construction phase. Activities on this site will include material storage, equipment refuelling, construction offices, parking lot, temporary toilet facilities, rinsing and water facilities. The temporary staging area will have a total foot print of approximately 2 ha.

In addition, a temporary area of approximately 1 ha around each wind turbine will be established for the laydown and assembly of the wind turbine components. This temporary area will be restored following the construction phase to maintain agricultural uses.

3.2 Water Crossings

To the extent possible, Project infrastructure will be sited to minimize the number of water crossings. The Water Assessment and Water Body Report, which is being developed as part of the REA, will describe all water crossings and associated mitigation measures.

3.3 Project Activities

A wind energy project consists of three main phases: (i) site preparation and construction, (ii) operations, and (iii) decommissioning. This section presents an overview of the activities of each phase. Additional information will be provided in the Design and Operation Report, Construction Plan Report and the Decommissioning Plan Report that will be prepared as part of the REA Application.

3.3.1 Site Preparation and Construction Phase

The Site Preparation and Construction Phase includes all activities from initial work planning to testing of the wind energy project before commissioning. Romney Energy Centre Limited Partnership will obtain all approval requirements, undertake sites surveys, conduct a geotechnical assessment, preliminary and detailed engineering and secure equipment procurement (wind turbines, substation) during the pre-construction period. Romney Energy Centre Limited Partnership will continue to engage with First Nation and Aboriginal communities as well as local landowners, the surrounding community, federal, provincial and municipal authorities.

The following activities will be undertaken during the Site Preparation and Construction Phase:

- Mobilisation on site;
- Clearing and grubbing of vegetation within construction limits;
- Site grading;
- Preparation of the construction staging area;
- Construction of new private access roads or upgrading existing public roads, if necessary;

- Trenching and installation of electrical collector lines;
- Excavation and pouring of concrete turbine foundation;
- Construction of crane pads;
- Delivery of equipment (turbines, cables, substation) and vehicles;
- Wind turbine assembly and installation;
- Application of erosion mitigation measures;
- Construction of the substation;
- Construction of the operation and maintenance building;
- Installation of the permanent meteorological tower;
- Installation of the microware tower (if applicable);
- Clean-up and reclamation of agricultural lands; and
- Turbine Commissioning.

More specific details about the Site Preparation and Construction phase will be provided in the Construction Plan Report.

3.3.2 Operations Phase

The Project will require full-time technical and administrative staff to maintain and operate the facility. The primary workers will be wind turbine technicians along with a site supervisor. The wind turbines will be operating and generating electricity when the wind speed is within the operating range for the turbine and there are no component malfunctions.

Each turbine has a comprehensive control system that monitors the subsystems within the turbine and the local wind conditions to determine whether the conditions are suitable for operation. If an event occurs which is considered to be outside the normal operating range of the turbine (such as low hydraulic pressures, unusual vibrations or high generator temperatures), the wind turbine will immediately take itself out of service and report the condition to the Operations Centre. A communication line connects each turbine to the Operations Centre, which closely monitors and, as required, controls the operation of each turbine. The wind turbine system will be integrated with the electric interconnection Supervisory Control and Data Acquisition (SCADA) to ensure that the Project critical controls, alarms, and functions are properly coordinated for safe, secure, and reliable operation.

The following activities will be undertaken during the Operations Phase:

- Operation of wind turbines and substation;
- Routine turbine maintenance ;
- Unplanned turbine maintenance;
- Conduct natural heritage and noise compliance surveys;
- Follow-up with any complaints from neighbors;
- Transportation of Project staffs; and
- Meter calibrations.

More specific details about the Operations phase will be provided in the Design and Operation Report.

3.3.3 Decommissioning Phase

The anticipated life of the Project is estimated to be a minimum of 20 years. If the facility is to be decommissioned and the turbines are to be removed at the end of its service life or during construction, the procedures will be similar to the construction phase, but in reverse sequence.

- Mobilisation on site;
- Preparation of temporary staging areas;
- Upgrading access roads to allow access to dismantling equipment;
- Dismantling or removal of Project components (wind turbines, substation, meteorological towers, microwave towers and operation and maintenance building)
- Removal of wind turbine foundation:
 - The top 1 m of the turbine foundations will be removed and replaced with clean fill and stockpiled topsoil. This will be contoured to allow cultivation in the case of agricultural lands.
- Underground electrical collector lines will be cut, the ends buried to 1 m below grade, and left in place;
- Overhead electrical lines and poles, if any, that are not shared with Hydro One will be removed and the holes will be filled with clean fill;
- Transportation of equipment and material:
 - All materials will be recycled, where possible, or disposed off site at an approved and appropriate facility; and
- Reclamation of agricultural lands (conditional to approval from landowner).

More specific details on the Decommissioning Phase will be provided in the Decommissioning Plan Report.

3.3.4 Hazardous Waste Disposal, Sewage and Stormwater Management and Water-Taking Activities

All hazardous material will be treated using best practices. Hazardous material including fuel, oils, and grease may not be stored on site, but off site in a designated safe storage area. Disposal of hazardous wastes will only be required in the event of an accidental spill. The effect of accidental spills will be minimized by ensuring that relevant industry regulations are followed including (i) refueling construction equipment only at crane pads or designated areas, (ii) storing hazardous materials off site at designated safe storage areas, and (iii) maintaining emergency spill kits on the Project site.

The final decision on waste disposal or recycling will be the responsibility of the on-site contractor who will refer to the *Environmental Protection Act* before submitting a Generator Registration Report for each waste type produced at the facility.

Stormwater management will be practiced through the installation of erosion and runoff prevention measures during the construction and decommissioning phases, where necessary.

Water takings, if required, will be conducted as proposed by the Water Body and Water Assessment Reports, included as part of the complete REA Application.

3.4 Project Location Map

The map in Appendix A illustrates the Project study area and vicinity. The map identifies land uses and water bodies within the Project study area and within a radius of 300 m thereof. Cultural and heritage features will be shown in the updated Project Location Map that will be part of the complete REA application.

3.5 Land Ownership

Turbines and substation will be located entirely on private land and the Proponent currently holds an "option to lease land" agreement for the properties on which Project components are proposed. Public road allowances (rights-of-way) will be used in some cases for electrical collector lines. The Project is not located on Crown land.

A legal description of the land parcels will be provided in the final REA application.

4 DESCRIPTION OF ENVIRONMENTAL EFFECTS

The effects assessment will be completed in accordance with the requirements and recommendations outlined in the document Technical Guide to Renewable Energy Approvals, Chapter 4: Guidance for preparing the Project Description Report [2], and will be included in the final PDR. It will include a full description of the study area's baseline conditions as they relate to the environmental features outlined below within a 300 m radius of the study area. This section will provide a description of potential effect, identifying both positive and negative effects, on the features resulting from the construction, operation and decommissioning phases of the Project.

The PDR will be updated as the Project evolves and the final version will include mitigation measures and residual effect in addition to what is currently provided in this section. The additional information will be based on the conclusions of ongoing mandatory REA studies such as the Natural Heritage Assessment reports, Archaeological Assessment Reports, Heritage Report, NIA and Water Body Report. The existing conditions or planned studies, as well as the Project potential effect during the construction, operation and decommissioning phases are presented in Table 4-1. Depending on the outcome of the effects assessment, follow-up and/or monitoring programs could be proposed in order to further investigate the potential effects, or verify the significance of the effect following commissioning.

Table 4-1: Existing Conditions and Potential Effects

Existing Conditions / Planned Studies and Assessment	Project phase	Potential Effect	Performance Objective
Cultural Heritage (Protected Properties, Archaeological and Heritage Resources)			
Detailed heritage and archaeological assessments are currently underway; a detailed report of the findings will be submitted to the Ministry of Tourism, Culture and Sport (MTCS) for review and comment. The result of these studies and associated reports will be presented in the final REA submission.	Construction and decommissioning	Disturbance or displacement of archaeological resources by any ground disturbance activity	-Avoid disturbance/loss of archaeological sites
	Operations	Alteration of the visual character of a cultural heritage sites	-Minimise visual impact of recognized heritage sites
Natural Heritage			
The Project study area lies within the boundaries of the Lower Thames Valley Conservation Authority (LTVCA). An extensive program of natural heritage studies is being conducted for the Project. Seasonal bird surveys, bat surveys, wildlife habitat mapping and vegetation inventories will be conducted. Further studies will be conducted as needed/recommended. A preliminary records review and site visits suggest that effects on natural heritage features are anticipated to be limited and will generally avoid impacts to significant natural features in the Project study area. The majority of the habitat in the study area is composed of agricultural fields and associated farms, with hedgerows, isolated woodlands, and watercourses occasionally present throughout. An Environmental Effects Monitoring Plan will be outlined in the Design and Operations Report to describe how potential effects will be mitigated during of the construction	Construction and decommissioning	Direct vegetation removal – significant woodlands, wetlands and valleylands	-Minimize direct impacts on significant vegetation communities
		Disturbance of local wildlife- significant woodlands, wetlands and valleylands	-Avoid direct impacts on breeding birds and their habitats -Minimize impacts on species that are relatively inactive at night and not accustomed to nighttime disturbances
		Reduced water quality – significant wetlands	-Avoid contamination of significant wetlands
		Reduced flood attenuation – significant wetlands	-Avoid impact on flood attenuation of significant wetlands
		Sedimentation and erosion - significant woodlands, wetlands and valleylands	-Maintain or restore vegetated buffers
		Spills (i.e. oil, gasoline, grease, etc.) - significant woodlands, wetlands and valleylands	-Avoid contamination of significant natural features
		Changes in soil moisture and compaction - significant woodlands, wetlands and valleylands	-Minimise impact to soil moisture regime and vegetation species composition
		Changes to surface water hydrology – significant woodlands, wetlands and valleylands	-Maintain existing surface water flow patterns
		Direct vegetation removal – bat habitats	-Protection of bat roosting habitat
		Disturbance of local wildlife-significant bat habitats	-Avoid disturbance of locally roosting bat species -Determine if local bat populations are adversely impacted by the presence of

Existing Conditions / Planned Studies and Assessment	Project phase	Potential Effect	Performance Objective
and operation phases of the Project. A Natural Heritage Assessment will be prepared and submitted to the MNRF for review and comment. Supplementary natural heritage surveys will be completed prior to construction as necessary. The Project will meet the REA setback requirements for natural heritage features. Consultation with the Conservation Authority and the MNRF is ongoing.	Operations	Direct vegetation removal – significant raptor wintering areas	operational turbines -Protect raptor wintering areas
		Disturbance of local wildlife- significant amphibian breeding habitats	-Minimise disturbance of local wildlife habitat -Determine if amphibian populations or species abundance are being impacted by Project components
		Impacts to Species at Risk	-Limit impacts to Species at Risk
		Application of herbicides	-Protection of native vegetation species -Minimize impacts to local wildlife and their habitats.
		Direct mortality of bats due to operational wind turbines	-Limit direct mortalities to bats due to operational turbines
		Direct mortality of birds with operational wind turbines	-Limit direct mortality to birds due to operational turbines
		Disturbance impact of operational turbines on significant bat maternity roosts	-Assess the impact of operational turbines on significant bat maternity roosts within 120 m of a turbine
		Disturbance of local wildlife- raptor wintering areas	-Minimise disturbance of local wildlife habitat -Monitor habitat to determine if raptors are still using these habitats in similar numbers to preconstruction results
		Direct mortality of dispersing amphibians along access roads – significant amphibian breeding habitats	-Limit direct mortalities to amphibians
		Soil or water contamination.	-Avoid contamination of significant natural features.
Water Bodies		Impacts to Species at Risk	-Limit impacts to Species at Risk.
Effects to surface water and groundwater resulting from locating a Project component within the prescribed setbacks to water bodies will be evaluated in the Water Assessment and Water Body Report. Construction-related activities,	Construction and decommissioning	Water takings resulting in reduced stream flow rate and increased water temperature.	-Minimise impacts on stream flow water temperature
		Fish habitat alteration/loss	-Limit fish habitat alteration/loss
		Erosion and sedimentation	-Minimize impacts of erosion and sedimentation on water bodies
		Water quality impairment	-Minimize any negative impacts to water

Existing Conditions / Planned Studies and Assessment	Project phase	Potential Effect	Performance Objective
including road construction and upgrading, installation of infrastructures and electrical collector lines, as well as restoration of the Project area may have interactions with the surrounding aquatic resources (surface water and groundwater). Minimal grading is expected during the construction of this Project and existing drainage patterns of the Project area are expected to remain unaltered.		Temporary disruption of fish habitat (in-water work)	quality -Limit disruption of fish habitat
		Water level alteration	-Minimize alteration of water level
		Soil Compaction	-Limit soil compaction
		Debris entering a water body	-Limit the amount of debris entering water bodies
		Drilling frac-out	-Minimize number of frac-out
	Operations	Water quality impairment	-No impairment of water quality
Emissions to Air, including Odour and Dust			
Construction and decommissioning activities would require the operation of equipment, including trucks, cranes, and bulldozers, that represent a source of air emissions. Similarly, the use of maintenance equipment during operations could result in minor localized air emissions. Effects to air, including odour and dust will be assessed in the Construction Plan Report, Design and Operation Report and the Decommissioning Plan Report.	Construction and decommissioning	Reduction in air quality due to Criteria Air Contaminants (CAC) emissions and dust	-Minimise deterioration of air quality
	Operations	Emissions of contaminants from maintenance vehicles	-Limit impact of maintenance vehicles on local air quality
Noise			
Wind energy projects have the potential to generate environmental noise which under certain circumstances may represent an annoyance to some surrounding residents. As with any wind energy project undertaken in Ontario, a noise study will be conducted to minimize these effects; the results of the study will be summarized in the NIA Report. The final Project configuration will comply with all of the requirements outlined in O. Reg. 359/09, and the MOE "Noise Guidelines for Wind Farms (2008)". These regulations set out a minimum	Construction and decommissioning	Increase in noise levels in Project study area	-Minimise noise increases for inhabited areas
	Operations	Increase in noise levels	-Minimise noise level increases in the Project area -Comply with MOE's permissible sound limits at all identified Points of Reception -Receive limited complaints

Existing Conditions / Planned Studies and Assessment	Project phase	Potential Effect	Performance Objective
550 m setback from non-participating noise receptors (i.e., residents, hospitals, schools, daycares, places of worship, etc.). Noise modelling will be used to predict sound levels and assist in determining turbine layout to minimize the potential for noise annoyance.			
Local and Provincial Interest, Land Use and Infrastructure			
Existing land uses within the Town of Lakeshore and the Municipality of Chatham Kent and more specifically, the Project study area is dominated by common agricultural operations. Much of the soil in the Prescott and Russell County is suitable for growing a variety of common field crops. Land uses within a minimum of 300 m of the study area will be identified through the REA planning process and in consultation with the Municipalities, Ontario Ministry of Transportation (MTO) and local landowners. Following this identification, any potential effects on the availability of the resource, current land uses, and local and provincial services and infrastructure will be defined and mitigation measures developed. Effects to local interested including land use and infrastructure will be assessed in the Construction Plan Report, Design and Operation Report and the Decommissioning Plan Report.	Construction and decommissioning	Reduction in usable agricultural land	-Minimise reduction in useable agricultural land
		Increased congestion due to increase in truck traffic and short-term lane closures on local roads during delivery of Project components	-Minimise disturbance to local community and achieve zero human safety incident
		Damage to local infrastructure	-Minimise damage to local infrastructure
	Operations	Reduction of farmland	-Minimise reduction of farmland
		Impacts to abutting parcels of land	-Avoid impacts to abutting parcels of land
		Stray voltage	-No stray voltage events affecting livestock
Areas Protected under Provincial Plans and Policies			
N/A			
Public Health and Safety			
To minimize or avoid effects on	Construction and	Effects on public health and safety during	

Existing Conditions / Planned Studies and Assessment	Project phase	Potential Effect	Performance Objective
public health and safety, the turbines will be sited according to setback distances outlined in O.Reg. 359/09. Effects to public health and safety will be assessed in the Construction Plan Report, Design and Operation Report and the Decommissioning Plan Report.	decommissioning	construction have been described above under Emissions to air, including Odour and Dust, Noise and Local and Provincial Interests Land Use and Infrastructure	
	Operations	Incidents resulting from ice shed	-No public health and safety incidents
Radio Communication and Radar Systems			
In accordance with the RABC/CanWEA Guidelines and the CBC Guidelines, an inventory and preliminary impact assessment will be conducted for radiocommunication and radar systems present in the vicinity of the Romney Wind Energy Centre . Consultation with owners of the radiocommunication and radar systems will also be completed to understand if mitigation measures are required. Summary of consultation efforts will be summarized in the Consultation Report.	Operations	Interference to systems from turbines	Avoid interference to all identified and registered systems
Other Resources			
The MNRF and MOECC will continue to be consulted to determine whether the Project will have any effects on aggregate resources, petroleum wells, forest resources and any landfill sites. Effects to these resources will be assessed in the Construction Plan Report, Design and Operation Report and the Decommissioning Plan Report.	Construction	Potential impacts to petroleum wells or facilities (APRD)	No negative effects on petroleum resources or the renewable energy project

5 REFERENCES

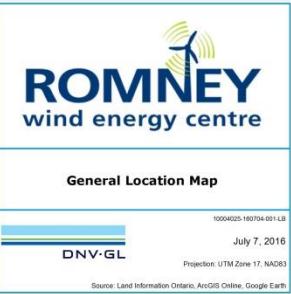
- [1] Ontario Regulation 359/09, made under the Environmental Protection Act, Renewable Energy Approvals under Part 1.0 of the Act.
- [2] Technical Guide to Renewable Energy Approvals, Ontario Ministry of the Environment, 2013.



APPENDIX A – PROJECT LOCATION MAP



Legend	
Project Features	■ Project Study Area ■ Waterbody ■ Unevaluated Wetland ■ Provincially Significant Wetland ■ Provincially Significant ANSI ■ Earth and Life Science ■ Regional Significant ANSI ■ Life Science ■ County Boundary ■ Municipal Boundary
Other Components	— Permanent Watercourse — Intermittent Watercourse — Highway — Arterial / Collector — Local Road / Street — Railroad





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