PORT RYERSE
WIND POWER PROJECT
DECOMMISSIONING PLAN REPORT

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Prepared for:

Boralex Inc.
772 Sherbrooke St. West
Suite 200
Montreal QC H3A 1G1

In Association with:

UDI Renewables Corporation
492 South Coast Drive
Nanticoke, ON N0A 1L0

Prepared by:

Stantec Consulting Ltd.
Suite 1 – 70 Southgate Drive
Guelph, ON N1G 4P5

Record of Revisions

Revision	Date	Description
0	November 2012	Submission to Municipalities and Aboriginal Communities
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2	March 2013	Submission to the Ministry of the Environment

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1.0 Introduction

1.1 PROJECT OVERVIEW

Boralex Inc. (Boralex), in association with UDI Renewables Corporation (UDI), is proposing to develop the Port Ryerse Wind Power Project (the Project) east of the hamlet Port Ryerse in Norfolk County , Ontario, in response to the Government of Ontario's initiative to promote the development of renewable electricity in the province. The Project was awarded a Feed-In-Tariff (FIT) contract with the Ontario Power Authority (OPA) on February 25, 2011. Further information on the Project can be found on the Project-specific website at http://www.udi-canada.com. Boralex Inc. is a power producer whose core business is dedicated to the development and operation of renewable energy facilities. Further information on Boralex can be found at http://www.Boralex.com/en/.

The Renewable Energy Approval (REA) process for the Port Ryerse Project was originally initiated by UDI, with the assistance of M.K. Ince and Associates Ltd. Boralex is considering acquisition of the Project from UDI and retained Stantec Consulting Ltd. (Stantec) to complete the REA Application, as required under Ontario Regulation 359/09 - Renewable Energy Approvals under Part V.0.1 of the Act of the Environmental Protection Act (O. Reg. 359/09). According to subsection 6(3) of O. Reg. 359/09, the Project is classified as a Class 4 Wind Facility and will follow the requirements identified in O. Reg. 359/09 for such a facility.

The Project Study Area is generally bounded by i) Woolley and Gilbert Roads to the north; ii) Port Ryerse Road to the west; iii) Hay Creek to the east and iv) Avalon Lane to the south. The proposed Project Location includes all parts of the land in, on, or over which the Project is proposed. The Project Location, including all Project infrastructure, is sited on privately-owned lands, where landowners have entered into a lease agreement with Boralex/UDI. Permissions to access these properties have been obtained through verbal discussions with landowners, as a requirement of their signed agreements with Boralex /UDI.

Three wind turbine models were initially assessed as part of the REA process, the Siemens SWT 3.0 113, ENERCON E-92 2.35 MW and ENERCON E-82 E2 2.3MW; however one turbine model has been selected as the preferred alternative; the Siemens SWT 3.0 113.

The Project will include four Siemens SWT 3.0 113 wind turbine generators. The 3.0 MW turbines will be customized to a nameplate capacity of 2.5 MW for this Project. The total maximum installed nameplate capacity of all four turbines will not exceed 10 MW. Other basic components include step-up transformers located adjacent to the base of each turbine (step up voltage from approximately 0.69 kV to 27.6 kV), a 27.6 kV underground collector system, fibre optic data lines, a distribution substation, a permanent parking lot (if required), a meteorological tower and turbine access roads.

Temporary components during construction include laydown areas at the turbine locations and crane pads. No operations and maintenance building or transmission line is anticipated to be required for the Project. No Project components are located within municipal road Rights of Way (ROWs).

The 27.6 kV underground collector lines will transport the electricity generated from each turbine to the distribution substation located on private property east of Port Ryerse Road. Directional bore techniques will be used where the underground collector lines cross valleylands and watercourses. At the substation, a dip-pole connection will be made directly into the local distribution system.

1.2 REPORT REQUIREMENTS

The purpose of the Decommissioning Plan Report is to provide the public, Aboriginal communities, municipalities, and regulatory agencies with an understanding of the closure plan for the Project at the end of its useful life, and to describe how Boralex/UDI proposes to restore the Project Location to an acceptable condition for its intended use following Project closure.

This Decommissioning Plan Report is one component of the REA Application for the Project, and has been prepared in accordance with Item 3, Table 1 of O. Reg. 359/09 and the Ministry of the Environment's (MOE's) "*Technical Guide to Renewable Energy Approvals*" (MOE, March 2012).

O. Reg. 359/09 sets out specific content requirements for the Decommissioning Plan Report as provided in **Table 1.1**.

Table 1.1: Decommissioning Plan Report Requirements: O. Reg. 359/09

Requirements	Completed	Section Reference
Set out a description of plans for the decommissioning of the renewable energy generation facility, including the following:		
1. Procedures for dismantling or demolishing the facility.	✓	3.3
2. Activities related to the restoration of any land and water negatively affected by the facility.	✓	3.4
3. Procedures for managing excess materials and waste.	✓	3.5

2.0 Decommissioning During Construction (Abandonment of Project)

In the unlikely event that Boralex/UDI cannot successfully complete the construction of the Project, the rights to the Project (and any associated liabilities and obligations) would likely be sold and the Project would be successfully constructed by the purchasing developer.

In the event that a delay occurs in the purchasing of the Project by another developer, Boralex/ UDI would be responsible for interim environmental protection. In the event that the site has been cleared and/or excavated in preparation for installation of Project infrastructure, appropriate environmental protection measures would be implemented to prevent topsoil erosion and/or watercourse sedimentation. The extent of environmental protection measures required would be dependent on the progress made at the time of Project abandonment, and would be determined through site inspections by qualified specialists. Possible measures would include, as appropriate, erosion and sediment control fencing, filling excavated areas, replacement of topsoil and/or re-seeding and re-vegetation.

In the event that the Project is not purchased by another developer, Boralex/UDI will be responsible for decommissioning of the Project. In such a case the decommissioning process to be followed and the mitigation measures to be implemented will be the same as those detailed in **Section 3.0** for decommissioning after ceasing operation of the Project.

3.0 Decommissioning after Ceasing Operation

Project components are expected to be in service for the term of the 20 year Ontario Power Authority Feed-In Tariff contract. Following the term of the contract, a decision would be made to extend the life of the facility or to decommission. Decommissioning would entail removing facility components and restoring the land to an acceptable condition for its intended use.

3.1 GENERAL ENVIRONMENTAL PROTECTION DURING DECOMMISSIONING

During all decommissioning and restoration activities, general environmental protection and mitigation measures would need to be implemented. Many activities during decommissioning would be comparable to the construction phase. As such, general mitigation measures and best management practices as appropriate, including erosion and sediment control, air quality and noise mitigation, and contingency plans for unexpected finds and spills are provided in the Construction Plan Report. All decommissioning and restoration activities will be performed according to the requirements of relevant government agencies, and will be in accordance with all relevant statutes in place at the time of decommissioning.

3.2 PRE-DISMANTLING ACTIVITIES

At the end of the Project's useful life, it will first be de-energized and isolated from all external electrical lines.

Prior to any dismantling or removal of equipment, laydown areas would be delineated at each turbine site and at the distribution substation property. All decommissioning activities would be conducted within designated areas, including ensuring that vehicles and personnel stay within the demarcated areas.

3.3 EQUIPMENT DISMANTLING AND REMOVAL

3.3.1 Laydown Areas

A temporary laydown area at each turbine location would be used for temporary storage of the turbine components, and excavated foundation spoil pile. This area would not be excavated or gravelled with the exception of the crane pads and would be restored to pre-existing conditions at the end of the decommissioning phase.

3.3.3 Turbines

The turbines would be dismantled into their original component parts. A heavy-lift crawler and mobile cranes would be used to carry out the reverse sequence of steps that occurred during turbine assembly (detailed in the Construction Plan Report), namely:

- Dismantling of the rotor: removal and lowering blades from the hub, followed by removal and lowering of the hub;
- Removal and lowering of the nacelle; and,
- Decoupling and lowering the tower sections.

The turbine components would be temporarily stored at the laydown areas until removed from the site by truck. Once the components are disassembled and at ground level (within the same laydown areas beside each turbine as described in the Construction Plan Report), the materials will be broken down into manageable sizes for transport to various salvage facilities. The main sources of salvage material are steel, copper, fibreglass and plastic, which may be sold to recycling facilities. All non-salvageable components will be processed and safely transported to an MOE-approved disposal facility.

3.3.4 Turbine Transformers

The small transformer associated with each turbine will be removed for reuse, reconditioning, or disposal. The foundation of each transformer will be removed entirely as its depth will be less than 1m below grade.

3.3.5 Turbine Foundations

Depending on the landowner specifications, the turbine foundations will either be removed completely, or partially removed to a depth of at least 1 m below grade, in accordance with the Land Lease Agreements. This depth enables normal agricultural practices to be conducted over the foundation areas. The concrete would be removed from the site by dump truck. A permit will be required if blasting is to be used to remove the foundation; Boralex/UDI will determine the need for blasting at the time of foundation removal.

3.3.6 Crane Pads

As during construction, a crane pad adjacent to each turbine location will be constructed for disassembly of the turbine. The crane pads will be constructed in the same manner as described in the Construction Plan Report. All crane pads would be removed; this includes the geotextile material beneath the pads, if present, and granular material. All granular and geotextile materials (if present) would be removed from the site by dump truck.

3.3.7 Electrical Infrastructure

Electrical Collector Lines

Collector lines on optioned property would remain in place, with both ends that come to the surface excavated to approximately 1 m below grade, in consultation with the landowner and in accordance with the Land Lease Agreements. The dip-pole/interconnection to the local distribution system would be removed in accordance with the Local Distribution Company requirements.

Distribution Substation

The distribution substation would be dismantled as agreed to, or as necessary, in accordance with the Land Lease Agreement. The metering and isolating equipment and grounding and control system would be removed. All granular and geotextile materials, if present, would be removed from the site by dump truck. All electrical system components would be taken off-site by truck.

3.3.8 Access Roads and Parking Lot

The parking area (if present) and access roads would be removed, including the geotextile material beneath the roads/parking area and granular material. The access roads and parking area would be returned to a similar condition as prior to Project commencement, as excavated areas would be brought to grade with fill and topsoil to be taken from surrounding land. All granular and geotextile materials would be removed from the sites by dump trucks. Where the landowner see it advantageous to retain access roads/parking lot, these would be left in place.

3.3.9 Meteorological Tower

The meteorological tower (met tower) would be disassembled and removed by truck from the site. The truck to be used for removal of the met tower would be determined based on the tower model selected, but may be an appropriately sized pick-up truck (e.g. F350) or a small rubber tired rig. Foundations would be partially removed to a depth of approximately 1 m below grade. The site would be accessed using the same route as the construction phase.

Power and data cabling would remain in place, with both ends that come to the surface excavated to approximately 1 m below grade, in consultation with the landowner and in accordance with the Land Lease Agreement.

3.4 SITE REHABILITATION/RESTORATION

3.4.1 Natural Heritage Features

Natural heritage features which may be impacted by the removal of facility components would be reviewed with the Ministry of Natural Resources (MNR) prior to removal. Mitigation and

monitoring measures may also be required including plans for replanting and restoration and would also be reviewed and implemented in consultation with the MNR.

3.4.2 Agricultural Lands

Areas that would require excavation during decommissioning are described in previous report sections. Subsoil or clean fill would be added as necessary. Where applicable, and in discussion with landowners, topsoil would remain on site.

Areas that may have compacted due to facility operation or decommissioning activities, including crane pads and access roads, would be decompacted using chisel ploughing and/or subsoiling.

Any agricultural tile drains capped during construction, and or damaged during decommissioning, would be repaired by a drainage tile contractor. After repair, the landowner would be invited to inspect and approve the repair.

Topsoil taken from the surrounding land would be added to a similar depth as surrounding areas, where necessary. All areas would be graded to pre-construction conditions and restored appropriately, in consultation with the landowner.

3.4.3 Watercourse Crossings

Any proposed decommissioning works within or near watercourses would be discussed with the Ministry of Natural Resources, Long Point Region Conservation Authority and/or Fisheries and Oceans Canada, as necessary, to determine any applicable guidelines, permitting, site-specific mitigation and/or remediation plans. It is envisioned that the same mitigation and monitoring measures implemented during construction would be used for the decommissioning of the Project (described in the Construction Plan Report). In particular, erosion and sediment control measures would be used, and all refuelling would be conducted away from the watercourse.

3.4.4 Potential Contamination

During the construction and operation of the Project, environmental management practices would be in effect, such as secure containment of potential hazardous materials, to minimize the potential for spills. As there is limited handling or storage of bulk fuels or chemicals during the lifetime of the Project, the potential for site contamination is very low. The Project should not, therefore, result in any long term decommissioning issues that would be detrimental to future site uses. In addition, the turbine sites would have no materials storage. Liquids such as oils would be primarily fully contained within equipment.

Although strict spill prevention procedures will be in place during operation, there is the potential through the routine operation, maintenance, and decommissioning process for small spills to occur. Should soil contamination be noted, the impacted soils will be delineated, excavated, and

removed, to the standards of the day. The contaminated material will be disposed at an MOE-approved and appropriate facility, and will be replaced with appropriately compatible material.

No hazardous materials or wastes such as lubricating oils will be stored on-site during operation and maintenance of the Project. Provided the Project is operated and maintained in-line with industry standard best practices, there should be no significant environmental liabilities associated with cleanup or restoration. The costs for removal of Project infrastructure will be the responsibility of the owner of the Project or the purchaser of the reusable materials.

3.5 MANAGING EXCESS MATERIALS & WASTE

Prior to embarking on the dismantling and demolition of the Project, Boralex or UDI would complete a waste audit of the materials to be handled and prepare a waste reduction work plan in accordance with *A Guide to Waste Audits and Waste Reduction Work Plans For Construction & Demolition Projects, as required under Ontario Regulation 102/94* (O. Reg.102/94), as amended or other applicable regulation that is in place at the time. All wastes would be managed in accordance with *Ontario Regulation 347, General – Waste Management* (O. Reg.347) and with reference to *Ontario Provincial Standard Specification 180 - General Specification For The Management of Excess Materials* (OPSS 180), or relevant regulations and specifications in effect at that time.

Typical waste materials and modes of disposal, recycling or reuse are presented in **Table 3.1** below:

Table 3.1: Typical Facility Decommissioning Waste Materials and Modes of Disposal

Component	Mode of Disposal
Turbine blades	Cut and dispose in landfill
Turbine towers	Recycle for scrap
Met tower	Recycle for scrap
Generators	Salvage for reuse or recycle for scrap
Concrete foundations	Crush and recycle as granular material
Cabling	Recycle for scrap
Transformers and switchgear	Salvage for reuse or recycle for scrap
Granular materials (roads, tower sites, etc.)	Reuse or dispose in landfill
Oils/lubricants	Recycle
Hazardous materials	Dispose through licensed hauler
Geotextile material	Dispose in landfill
Miscellaneous non-recyclable materials	Dispose in landfill

As much of the facility would consist of reusable or recyclable materials, there would be minimal residual waste for disposal as a result of decommissioning the facility. Small amounts of

registerable waste materials would be managed in accordance with O. Reg. 347 or subsequent applicable legislation. Residual non-hazardous wastes would be disposed at a licensed landfill in operation at the time of decommissioning.

3.6 MONITORING

Follow-up monitoring would be conducted for one year after site restoration, to allow for the Project area to experience seasonal changes and help determine if additional restoration is required, as determined by an environmental advisor. A monitoring plan would be prepared prior to decommissioning.

For agricultural land, potential soil problem areas including trench subsidence, soil erosion and/or stoniness would be noted. Additional monitoring activities may also be conducted, depending upon the site conditions at the time of decommissioning. If negative impacts are noted during monitoring activities, appropriate remediation measures would be implemented as necessary, and additional follow-up monitoring would be conducted, as determined by an environmental inspector.

4.0 Emergency Response and Communications Plan

The Project's Emergency Response and Communications Plan is provided in the Design and Operations Report. The plan would be in effect for all phases of the Project including decommissioning. The following programs, plans, and procedures described within the Design and Operations Report will be carried forward during the decommissioning of the Project.

Environmental Procedures

- *spills and releases:* to identify the specific procedures for the prevention, response, and notification of spills. In addition, it will establish the general procedures for spill clean-up, personnel training, and material handling and storage to prevent spills.
- *hazardous waste management:* to outline the procedures for proper identification, storage, handling, transport, and disposal of hazardous waste. In addition, the procedures will outline specific requirements for personnel training, emergency response, product review and approval, and record keeping.
- *non-hazardous waste management:* to establish alternative procedures for the management and disposal of used lubricants, used drums, and general waste.

Occupation Health and Safety Procedures

The firm responsible for decommissioning will ensure employee health and safety is maintained and will also implement the following safety procedures and protocols as appropriate in an effort to ensure employee safety is addressed throughout decommissioning activities:

- Personal Protective Equipment (PPE), including non-slip footwear, eye protection, clothing, and hardhats, will be worn by personnel when on duty;
- elevated platforms, walkways, and ladders will be equipped with handrails, toe boards, and non-slip surfaces; and
- electrical equipment will be insulated and grounded in compliance with the appropriate electrical code.

Incidents in the work place have the potential to cause personal injury and property damage. As appropriate, a master Incident Report that documents illnesses and accidents will be maintained. The Incident Report should document all activities resulting in incapacity to work for at least one full workday beyond the day on which the illness or accident occurred. As required, records will also be maintained noting the total number of days of absence from work as a direct result of the illness or accident.

As appropriate, the firm responsible for decommissioning will develop or have an existing training program to ensure personnel receive appropriate training in relation to decommissioning programs, environmental, health, and safety procedures, and the emergency response plan.

Emergency Response Plan

The Emergency Response Plan developed for the construction and operation of the Project will be carried forward and followed during decommissioning of the Project (see the Construction Plan Report and Design and Operations Report for additional detail).

Response and Public Safety Plan

The Response and Public Safety Plan detailed in the Design and Operations Report includes Project updates/notifications, Complaint Response Protocol and Public Safety Plan. The Response and Public Safety Plan will be utilized during the decommissioning of the Project. This includes the actions to be taken during the decommissioning of the Project to inform the public, aboriginal communities, and Norfolk County regarding activities occurring at the Project site (including emergencies), means by which stakeholders can contact the decommissioning firm, and means by which correspondence sent to the decommissioning firm and/or Boralex/UDI will be recorded and addressed.

5.0 Decommissioning Notification

Prior to decommissioning, Boralex/UDI will consult with interested parties regarding the details of decommissioning and would amend this Decommissioning Plan to meet regulatory requirements in effect at that time. The Design and Operations Report contains an Emergency Response and Communications Plan that would be in effect for all phases of the Project including decommissioning and includes description of non-emergency communications with Project stakeholders. Notification of decommissioning will also be provided to Norfolk County, Aboriginal communities, interested stakeholders, and other interested agencies prior to undertaking decommissioning activities. Notification may be in the form of letters, newspaper notices, updates on the Project website, or direct communications.

6.0 Other Approvals

Following the updating of this Decommissioning Plan as noted in **Section 5.0**, Boralex/UDI would obtain all necessary approvals in effect at the time from appropriate government and regulatory bodies. Currently existing permits and approvals, which may be required at the time of decommissioning, are provided in the following table (**Table 6.1**).

Table 6.1: Potential Decommissioning Permits and Approvals

Permit / Approval	Administering Agency	Rationale
Municipal		
Building Permit	Municipality	Compliance with building codes (demolition)
Entrance Permit	Municipality	Use of County roads
Oversize/Overweight Permit	Municipality	For moving oversized or heavy loads
Provincial		
Development, Interference with Wetlands, and Alterations to Shorelines and Watercourses Permit	Long Point Region Conservation Authority	Work within floodplains, water crossings, river or stream valleys, hazardous lands and within or adjacent to wetlands. Projects requiring review, *Fisheries Act* authorization and/or assessment under the *Canadian Environmental Assessment Act* are forwarded to the Department of Fisheries and Oceans
Record of Site Condition	MOE	For change of property use and/or ownership
Notice of Project	Ministry of Labour	Notify the Ministry of Labour before decommissioning begins
Special Vehicle Configuration Permit	Ministry of Transportation (MTO)	Use of non-standard vehicles to transport large components
Transportation Plan	MTO	Adherence to road safety and suitability
Highway Entrance Permit	MTO	Interference or obstruction of the highway
Change of Access and Heavy/Oversize Load Transportation Permit	MTO	Compliance with provincial highway traffic and road safety regulations
Wide or Excess Load Permit	MTO	Transportation of large or heavy items on provincial highways

7.0 Conclusion and Signatures

This Decommissioning Plan Report for the Port Ryerse Wind Power Project has been prepared by Stantec for Boralex/UDI in accordance with Item 3, Table 1 of Ontario Regulation 359/09, and the guidance document "*Technical Guide to Renewable Energy Approvals*" (MOE, March 2012).

This report has been prepared by Stantec for the sole benefit of Boralex/UDI, and may not be used by any third party without the express written consent of Boralex/UDI. The data presented in this report are in accordance with Stantec's understanding of the Project as it was presented at the time of reporting.

Respectfully submitted,

STANTEC CONSULTING LTD.

Kristy Ramkissoon, B.Sc
Environmental Planner

Fiona Christiansen, M.Sc.
Senior Project Manager

BORALEX INC.

Adam Rosso
Manager of Project Development
772 Sherbrooke Ouest, Suite 200
Montréal (Québec) H3A 1G1
416-389-8942
Project e-mail:portryersewind@boralex.com

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