

September 2011



NORTHLAND POWER

McLean's Mountain Wind Farm

Decommissioning Plan Report - Final



Submitted by:



**McLean's Mountain Wind Farm -
Renewable Energy Approval (REA)
Application Submission**

FINAL SUBMISSION

Decommissioning Plan Report

September 2011

**McLean's Mountain Wind Limited
Partnership**

09-1983

Submitted by

**Dillon Consulting
Limited**

Executive Summary

Northland Power Inc. (NPI) and Mnidoo Mnising Power (MMP) together form the McLean's Mountain Wind Limited Partnership (MMWLP). MMWLP proposes to develop the McLean's Mountain Wind Farm (MMWF), located south of the community of Little Current, in the Municipality of Northeastern Manitoulin and the Islands (NEMI); geographic Township of Howland, and the geographic Township of Bidwell in the District of Manitoulin, Ontario and falls within the traditional lands of the Anishnabee of Mnidoo Mnising. The selection of the project's location was based primarily on the wind resource, access to the Provincial transmission system, environmental constraints and local landowner support.

The proposed wind farm (the "project") will consist of 24, 2.5 MW wind turbines with a nameplate capacity of 60 MW. The electricity generated from the wind turbines will be collected through a network of collection grid lines to the on-site transformer. The transformer will step-up the voltage to 115 kV. A 10.3 kilometre transmission line will be installed to connect the project to the Provincial Grid on Goat Island. A section of the transmission line will involve a submarine cable to cross the North Channel to access Goat Island. Each wind turbine will be accessed by a short access road.

The proposed project will require approval under Ontario Regulation 359/09 – Renewable Energy Approval (REA) under the *Green Energy Act*. Based on the REA Regulations, this project is a "Class 4" wind facility. The *Construction Plan Report* is one component of the REA Application for the Project, and has been written in accordance with Ontario Regulation 359/09, the Ontario Ministry of Natural Resources' (MNR) Approval and Permitting Requirements Document for Renewable Energy Projects (September 2009) and MOE's draft Technical Bulletin Three: Guidance for preparing the Construction Plan Report (March 2010).

This *Decommissioning Plan Report* provides a description of decommissioning activities, including the disposal or recycling of wastes and the management of excess waste and materials. The report also provides an overview of the restoration of lands affected by the project after the project life span.

Environmental monitoring plans have been developed and are discussed in the *Environmental Monitoring and Protection Plan*, which is appended to the *Design and Operations Report* document submitted with the REA Application.

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1. INTRODUCTION

Northland Power Inc. (NPI) and Mnidoo Mnising Power (MMP), together form the McLean's Mountain Wind Limited Partnership (MMWLP). MMWLP proposes to develop the McLean's Mountain Wind Farm (MMWF). The proposed wind farm will consist of 24, 2.5 megawatt (MW) wind turbines that will generate 60 MW of electricity. The proposed project will require approval under Ontario Regulation 359/09 – Renewable Energy Approval (REA) under the *Green Energy Act*. Based on the REA Regulations this project is a “Class 4” wind facility. This *Construction Plan Report* is written in accordance with Ontario Regulation 359/09.

The McLean's Mountain Wind Farm Environmental Study Report (ESR) document was released in July 2009 for a 30-day public review, as part of the Environmental Assessment process. The ESR document is consistent with the Environmental Screening provisions of Ontario Regulation 116/01 for a Category B project and with the requirements of the *Canadian Environmental Assessment Act*. The ESR document was developed to assist in the determination of potential environmental effects, including both the social and natural environment, which could result from the proposed project. The ESR document contains additional information that is not required under the REA legislation and can provide further reference as required.

The REA approval process replaces several approvals formerly required under the Environmental Assessment Act, Planning Act, and Environmental Protection Act. The project is being developed under the Ontario *Green Energy Act* (GEA) Feed-In-Tariff (FIT) program.

This *Decommissioning Plan Report* has been prepared to fulfill the requirements of Item 3 in Table 1 of the Ontario Regulation 359/09, Renewable Energy Approvals as per the table below (**Table 1-1**).

Table 1-1: Adherence to O.Reg 359/09 Decommissioning Plan Report

<i>Requirements</i>	<i>Section Reference</i>
Set out a description of plans for the decommissioning of the renewable energy facility, including the following:	
1. Procedures for dismantling or demolishing the facility.	Section 4.0
2. Activities related to the restoration of any land and water negatively affected by the facility.	Section 5.0
3. Procedures for managing excess materials and waste.	Section 6.0

Additional information about the Project can currently be found in the *Construction Plan Report*, *Design and Operations Report* and the *Project Description Report*. Technical studies associated with the REA requirements have been completed. In addition to this report the REA submission package includes:

- Project Description Report;
- Design and Operations Report;
- Construction Plan Report;
- Noise Study Report;
- Natural Heritage Assessment Reports (Records Review, Site Investigation, Evaluation of Significance, and Environmental Impact Statement (EIS));
- Water Bodies Assessment Summary Report;
- Archaeological Assessment Reports (Stage 1 and 2) ;
- Cultural Heritage Self-Assessment Report;
- Consultation Report;
- Property Line Setback Report;
- Wind Turbine Specification Report;
- Environmental Management and Protection Plan (EMPP);
- Post-Construction Monitoring Plan (PCMP); and
- Supporting Documents.

2. THE PROPONENT

Northland Power Inc. is a developer, owner and operator of power generation facilities. In February 2011, Mnidoo Mnising Power (MMP), a company formed by the United Chiefs and Councils of Mnidoo Mnising First Nations (UCCMM), entered into a 50/50 partnership with Northland Power Inc. to form the McLean's Mountain Wind Limited Partnership, to develop the McLean's Mountain 60 MW Wind Farm project.

NPI's development activities include building, owning and operating wind energy facilities. In the course of developing its wind energy projects, NPI satisfies various environmental approval requirements and obtains regulatory approvals that vary depending on the jurisdiction, project capacity and site location.

The MMP company was formed to lead renewable energy projects on Manitoulin Island in order to protect First Nations' rights, heritage and ensure the future for First Nations' youth.

MMWLP is the primary contact for this project. The MMWLP contact information is as follows:

Full Name of Company: *McLean's Mountain Wind Partnership Limited*
Address: *30 St. Clair Avenue West, 12th Floor*
Toronto, Ontario M4V 3A1
Canada
Telephone: *Local office: (705)-368-0303*
mobile: (705)-271-5358
Prime Contact: *Rick Martin, Project Manager*
Email: *rickmartin@northlandpower.ca*

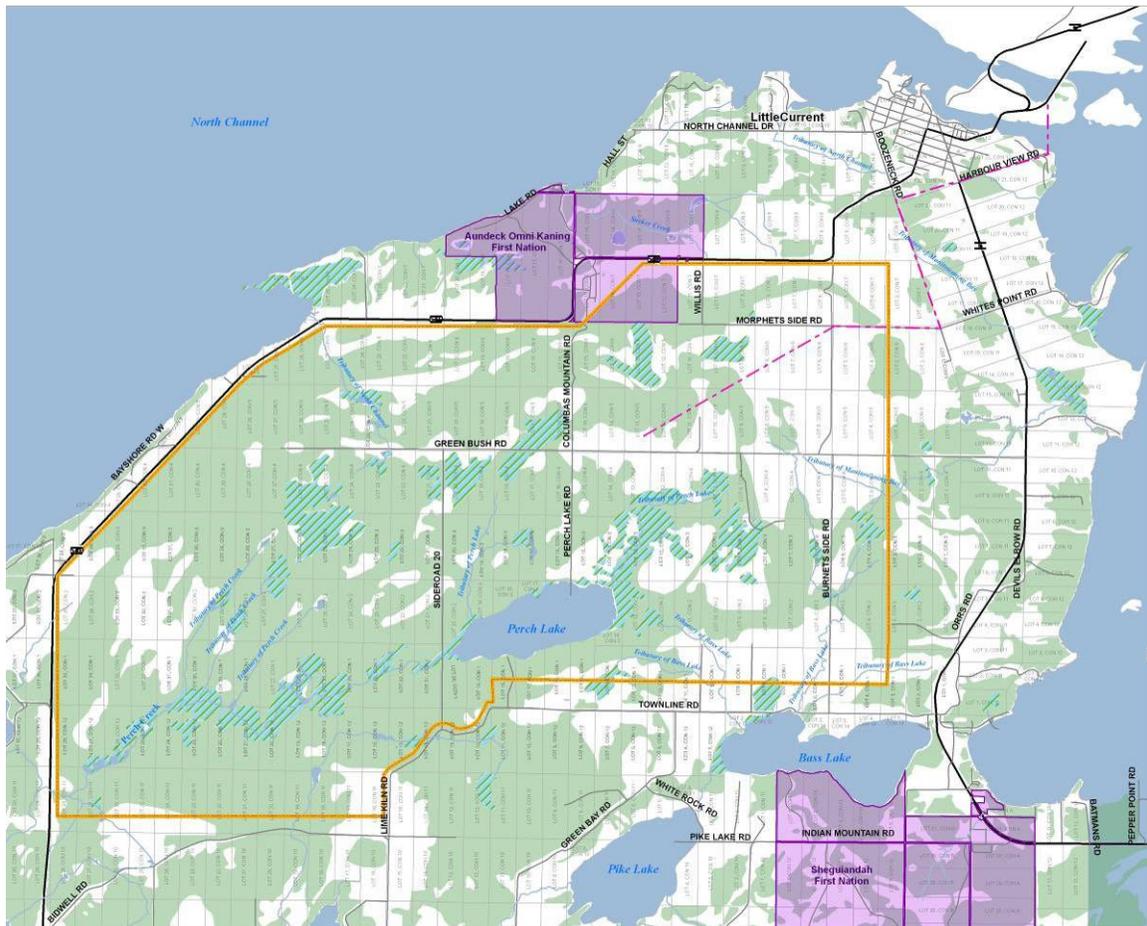
Dillon Consulting Limited is the prime consultant for the preparation of this Project Description Report. The Dillon contact information is as follows:

Full Name of Company: *Dillon Consulting Limited*
Address: *235 Yorkland Boulevard, Suite 800,*
Toronto, Ontario M2J 4Y8
Telephone: *Office: (416)-229-4646 ext 2335*
Prime Contact: *Don McKinnon, REA Project Manager*
Email: *dpmckinnon@dillon.ca*

3. PROJECT LOCATION

The project study area is located entirely in the Municipality of Northeastern Manitoulin and the Islands; geographic Township of Howland and the geographic Township of Bidwell, in the District of Manitoulin and falls within the traditional lands of the Anishnabee of Mnidoo Mnising. The project location is approximately 5 kilometers from the Town of Little Current. Within this broader project study area is the project site area, where the wind turbines and associated wind farm infrastructure will be located (excluding a portion of the transmission line and the connection yard at the Hydro One grid, which is located on Goat Island). **Figure 3-1** presents the location of the project area.

Figure 3-1: Project Area



4. DECOMMISSIONING PLAN OVERVIEW

The wind turbine decommissioning process shall be initiated upon the termination of the leases with the landowners. The primary reason for the leases to be terminated would be the completion of the project's useful life or the lack of a power purchase agreement with the Ontario Power Authority (or legal successor) or another green energy power purchaser. The decommissioning involves removing the wind turbine including, tower, generator, auxiliary equipment, above ground cables/poles, fixtures, all other personal property and otherwise restoring the premises to its original condition. If it is agreed upon with the landowner, access roads may be left in place for their continued use. Foundations shall be removed to original soil depth or three feet below grade, whichever is the lesser, and replaced with topsoil.

The project owners agree to meet with the landowner prior to the lease expiration date to ensure that the owners perform its obligations to remove its property and restore the premises. Within twelve (12) months of initiating the decommissioning, the project owners will have removed the relevant components from the leased land.

The decommissioning of the McLean's Mountain Wind Farm will follow the Ontario Health and Safety Act along with any applicable municipal, provincial and federal regulations and standards. As with the construction, a manager responsible for safety will be present on site for the duration of the work.

4.1 Decommissioning During Construction (Abandonment of Proposed Project)

While not expected and considered to be extremely unlikely, in the event that construction of the proposed project and associated work may not be completed, the project would be decommissioned in a manner as described in this report. Further, mitigation measures as described in the *Environmental Management and Protection Plan* (part of the *Design and Operations Report*) would be implemented.

4.2 Decommissioning After Ceasing Operation

Properly maintained wind turbines have an expected life of thirty (30) years. At the end of the project life, depending on market conditions and project viability, the wind turbines may be 're-powered' with new nacelles, towers, and/or blades. Alternatively, the wind turbines may be decommissioned. Decommissioning activities such as removal of cables and access roads will be conducted in consultation with land owners.

In the event the project requires decommissioning, the following sequence for the removal of the components will be used:

- Remove above ground collection and transmission system including substation and switchyard;
- Remove wind turbines;
- Partial removal of wind turbine foundations; and

- Remove turbine access roads, if required by landowners.

This decommissioning plan is based on current procedures and experience. These procedures may be subject to revision based on new experiences and requirements.

4.2.1 Wind Turbines

The first stage of the disassembly will be to have wiring crews disconnect the tower from the collection system and disconnect the wiring between turbine sections. A crane will then, supported by a disassembly crew, remove the blades, the rotor, nacelle and then the towers section by section. The lubricating oil will be drained from the generator once it has been placed on the ground, and the oil will be disposed of in accordance with O. Reg 347. As the turbine is being disassembled, the various components will be transported off site.

4.2.2 Wind Turbine Foundations

Once all the turbine components have been cleared from a site, the top metre of overburden around the foundation will be excavated and stockpiled. Once cleared, the top metre of the foundation (or to bedrock) will be demolished. The resulting concrete and rebar will be hauled off site and disposed of at an off-site licensed facility. Afterwards, the stockpiled soil will be used to replace the now cleared area. The disturbed area will be feathered out and graded. No off site soil is predicted to be needed.

4.2.3 Access Road Removal

Access roads will be left at landowner's requests or graded to restore terrain profiles (as much as possible), and vegetated.

4.2.4 Cable Wire and Trench Decommissioning

If environmentally appropriate at the time of decommissioning, the underground cables will be left in place.

Overhead collection and transmission systems will be removed, including conductors and poles. The submarine portion of the transmission line will be removed using best practices at the time of decommissioning.

4.2.5 Electrical Substation Decommissioning

The substation electrical components (e.g. GSU, cable, cooling equipment, etc) will be either removed as a whole or disassembled, pending reuse or recycling. Once cleared. The gravel around the yard will be reclaimed (unless the land owner wishes to keep the area as is) and the fence removed. As with the turbine foundation, the substation foundation will be excavated and the top 1 m of concrete (or to bedrock) will be demolished and hauled off site to be properly disposed off. The excavated area will then

be filled in native soil and will be re-graded. Any material that has been used as a sound attenuating berm will be leveled and replanted to the requirements of the land holder.

4.2.6 Crane Pad Decommissioning

Crane pads will be approximately 200 m² and consist of compacted native material. Approximately 300-600 mm of base fill is expected to be used for the crane pads. After decommissioning, the crane pad aggregate will be removed and areas will be filled unless the land holder asks for it to remain.

5. RESTORATION OF LAND AND WATER NEGATIVELY AFFECTED BY FACILITY

Once all of the turbines and ancillary facilities are removed, the remaining work to complete the decommissioning of the Project will consist of shaping and grading of the areas to as near as practicable to the original contour prior to construction of the wind turbines and access roads. All areas, including the access roads, transformer pads and crane pads will be restored as near as practical to their original condition with native soils and seeded.

Other than the concrete, which will remain three feet below the soil at the depth of the native bed rock or, no other residual impact is foreseen. The decommissioning will affect the agricultural practices directly around the access roads, substation and turbine locations, but only during their removal. Also, no impacts to terrestrial vegetation and wildlife are expected since all the McLean's Mountain Wind Farm infrastructures will be located exclusively on agricultural land.

The most significant risk to the aquatic environment will be when the access roads near drains or municipal drain crossings are removed. Similar to the construction phase, the plant decommissioning will follow a storm water protection plan that will ensure proper steps are followed to mitigate erosion and silt/sediment runoff.

As with the project's construction, noise levels around the decommissioning work will be higher than average. Proper steps will be followed to minimize this disturbance, such as working only during daylight hours. Also, as with the project's construction, road traffic in the area will increase temporarily due to crews and heavy equipment movements.

6. PROCEDURES FOR MANAGING WASTE AND MATERIALS

The major components of the wind turbines (tower, nacelle, blades) are modular items that allow for ease of construction and disassembly of the wind turbines during replacement or decommissioning. Dismantled wind turbines have a high salvage value due to the steel and copper components. These components are easily recyclable and

there is a ready market for scrap metals. Transformers and transmission lines are designed for a 50 year lifespan so these items could be refurbished and sold for reuse.

Based on the construction details for the GE wind turbines and associated tower and components, it is assumed that both the tower and nacelle will yield approximately 80% salvageable materials. Since the hub assembly and bedplate is manufactured steel, it is anticipated that the hub will yield 100% salvageable metallic materials. Copper salvage estimates were derived by assuming 5% of the total tower and nacelle weight consists of salvageable copper bearing materials. Since the rotor/blades are constructed of predominantly non-metallic materials (fiberglass reinforced epoxy and carbon fibers), no salvage for the rotor or blades is currently assumed.

It is assumed that 75% of the aggregate material from the decommissioning of the crane pads can be salvaged for future use as aggregate base course. It is also assumed that 50% of the aggregate base course could be reused as aggregate base course. The remaining materials would be viable for general fill on non-structural fill areas. The geotextile fabric cannot be salvaged.

7. EMERGENCY RESPONSE AND COMMUNICATIONS PLANS

The *Emergency Response and Communications Plans* are included in Section 8 of the *Design and Operations Report* prepared as part of the Renewable Energy Approval application for the proposed McLean's Mountain Wind Farm Project.

8. DECOMMISSIONING NOTIFICATION

The process for notification of decommissioning activities will be the same as the process for notification of construction activities and is detailed in Section 8.1 of the *Emergency Response and Communications Plans* in the *Design and Operations Report* prepared as part of the Renewable Energy Approval application for the proposed McLean's Mountain Wind Farm Project.

9. OTHER APPROVALS

The project owners are aware that after the decommissioning of the proposed facility, a Record of Site Condition under the MOE Records of Site Condition Regulation may be required.

The project owners will ensure that all of the required approvals at the time of decommissioning of the proposed wind farm are adhered to.

10. CONDITIONS OF APPROVAL

The project owners will ensure that the decommissioning stage of the proposed facility is carried out in accordance with REA requirements and the measures/practices as described

in this report. The owners understand that the MOE Director of Approvals could request specific decommissioning activities as a condition of REA approval that could include, for example:

- Providing notification regarding the plans to continue or cease the operation of the proposed facility by the end of power purchase agreement;
- Providing notification regarding the need for an application for amendment to the REA to keep the proposed facility in operation after the end of power purchase agreement;
- Providing timelines for the start and completion of the decommissioning activities;
- Keeping this report updated to ensure that when required a portion of the facility which is not operational due to technical failure can be properly decommissioned;
- Continuing ground water and surface water monitoring after operation, for a period of time acceptable to the MOE REA Director;
- Providing site restoration measures that would ensure that the nutrient content of the soil is restored;
- Providing restoration of the site as close to a pre-construction state as feasible; and,
- Providing a decommissioning cost estimate as well as the methods for ensuring that the funds will be available for decommissioning and site restoration.

11. SUMMARY AND CONCLUSIONS

This *Decommissioning Plan Report* has been completed to assist the project owners in fulfilling regulatory requirements as mandated by the provincial government agencies for the decommissioning of the McLean's Mountain Wind Farm project. This report is consistent with the provisions of Ontario Regulation 359/09 for a Class 4 Wind Farm facility as set out by the *Green Energy Act*.

In the event of the abandonment of the proposed facility or in the event that the wind farm operation closes down, the owners will adhere to all decommissioning requirements provided in his report and will ensure the project site is properly restored to a safe, clean pre-facility condition.

Environmental monitoring plans have been developed and are discussed in the *Environmental Monitoring and Protection Plan*, which is appended to the *Design and Operations Report* document submitted with the REA Application.