



**NORTHLAND
POWER**

Burk's Falls West Solar Project Decommissioning Plan Report

November 16, 2011



Northland Power Inc.
on behalf of
Northland Power Solar
Burk's Falls West
Toronto, Ontario

Decommissioning Plan Report

Burk's Falls West Solar Project

H334844-0000-07-124-0188

Rev. 1

November 16, 2011

Disclaimer

This report has been prepared by or on behalf of Northland Power Inc. for submission to the Ontario Ministry of the Environment as part of the Renewable Energy Approval process. The content of this report is not intended for the use of, nor is it intended to be relied upon by, any other person. Neither Northland Power Inc. nor any of its directors, officers, employees, agents or consultants has any liability whatsoever for any loss, damage or injury suffered by any third party arising out of, or in connection with, their use of this report.

Project Report

November 16, 2011

Northland Power Inc.
Burk's Falls West Solar Project

Decommissioning Plan Report

Table of Contents

1. Introduction	3
1.1 Background.....	3
1.2 Objective and Scope.....	3
2. Decommissioning After Ceasing Operation	4
2.1 Equipment Dismantling and Removal	4
2.1.1 PV Modules	4
2.1.2 Electrical Equipment.....	4
2.1.3 Other Components.....	5
2.2 Site Restoration	5
2.3 Management of Waste and Excess Materials.....	5
2.4 Emergency Response and Communications	5
2.5 Emergency Response.....	5
2.5.1 Fire.....	6
2.5.2 Personal Injury	6
2.5.3 Spills	6
2.6 Communications Plan for Non-Emergencies.....	7
2.7 Other Approvals.....	8
3. Decommissioning During Construction (Abandonment)	8
3.1 Equipment Dismantling and Removal	8
3.2 Site Restoration	8
3.3 Management of Wastes and Excess Materials	8
3.4 Emergency Response and Communications	8
3.5 Other Approvals.....	8
4. Restoration of Land Negatively Affected by the Project.....	9

1. Introduction

1.1 Background

Northland Power Solar Project Burk's Falls West L.P. (hereinafter referred to as "Northland") is proposing to develop a 10-megawatt (MW) (AC) solar photovoltaic project titled Burk's Falls West Solar Project (hereinafter referred to as the "Project"). The Project will be located on approximately 40 hectares (ha) of land, located south of Highway 520 at the border of Armour and Ryerson Townships, in the single tier municipality of Armour Township.

The proposed Project will use solar photovoltaic technology to generate electricity. The solar modules will be mounted on fixed steel supports and arranged in the form of 7 arrays, each of 1.6 MW (DC). Electricity generated by solar photovoltaic modules from each array will be converted from direct current (DC) to alternating current (AC) by an inverter, and subsequently stepped up from a medium voltage to 44 kV in order to connect to the nearby distribution line. The interconnection point will be on the existing distribution line along the western boundary of the Project location.

Construction of the Project will commence once the REA has been obtained and a power purchase agreement is finalized with the Ontario Power Authority. The construction period is estimated to be approximately six months in duration, with Project commissioning anticipated near the end of 2012. It is anticipated that the Project will be operational for at least the duration of the 20-yr power purchase agreement with the Ontario Power Authority, after which it may be decommissioned if no arrangement for further use is determined.

1.2 Objective and Scope

The Decommissioning Plan Report (hereinafter referred to as the "Report") is required as a part of an application all renewable energy projects must submit in order to obtain a REA permit under Ontario Regulation (O. Reg.) 359/09 – *Renewable Energy Approvals Under Part V.01 of the Act*. This Report explains how Northland proposes to restore the Project location to a clean and safe condition at the end of the Project. This includes retiring the elements of the renewable energy generation facility, restoring the land, and managing the excess materials and waste. A draft of the Decommissioning Plan Report must be made public 60 days prior to the second public consultation meeting in accordance with section 16 of O. Reg. 359/09, and provided to the Aboriginal communities more than 60 days prior to the second public consultation meeting.

As per the Guidance for Preparing the Decommissioning Plan Report (MOE, 2010), the Report provides information under the following three scenarios:

- decommissioning activities upon completion of operations
- decommissioning activities should the project be cancelled during construction
- restoring land negatively affected by the facility.

Section 2 of the report describes the plan upon the completion of the operations of the facility and Section 3 describes the decommissioning plan if the Project is cancelled during construction. Section 4 provides the activities to be completed in order to restore the land following decommissioning.

2. Decommissioning After Ceasing Operation

It is anticipated that the Project will have a useful lifetime of at least 20 years, which can be extended with proper maintenance, component replacement and repowering. For this section of the Report, it is assumed that the Project will be decommissioned after the 20-yr power purchase agreement with the Ontario Power Authority concludes. Northland will make sure that the entire site be restored to its baseline condition, or as desired by the land owners, and meet the requirements of applicable local, provincial and federal legislation.

2.1 Equipment Dismantling and Removal

All decommissioning of electrical devices, equipment, and wiring/cabling will be in accordance with local, municipal, provincial and federal agencies standards and guidelines. Any electrical decommissioning will include obtaining the required permits and following lockout/tag out procedures before de-energizing, isolating, and disconnecting electrical devices, equipment and wiring/cabling.

2.1.1 PV Modules

There will be approximately 45,000 PV modules, each weighing approximately 27 kg, with dimensions of approximately 2 m long by 1 m wide by 50 mm thick. The modules will be of traditional crystalline (either mono or multi crystalline) technology. All modules will be disconnected, removed from the racks, packaged and transported to a designated location for resale, recycling or disposal. Any disposal or recycling will be done in accordance with local by-laws and requirements.

The steel racks supporting the modules will be unbolted; the vertical steel post supporting the racks will be removed, as well as the foundation. Foundation demolition and removal will be done by mechanical equipment (backhoe-hydraulic hammer/shovel). Demolition debris will be transported by truck to an approved disposal area. The connecting underground cables and the junction boxes will be de-energized, disconnected and removed. Equipment and material may be salvaged for resale, scrap value or disposal depending on market conditions.

2.1.2 Electrical Equipment

All decommissioning of electrical devices, equipment, and wiring/cabling will be in accordance with local, municipal, provincial and federal agencies standards and guidelines. Any electrical decommissioning will include obtaining the required permits, and following lockout/tag out procedures before de-energizing, isolating, and disconnection of electrical devices, equipment and wiring/cabling.

Decommissioning will require dismantling and removal of the electrical equipment, including inverters, transformers, underground collection system and overhead lines. The equipment will be de-energized, disconnected and transported off site by truck. Prior to the removal of the main step-up transformer, the oil will be pumped into a separate industry approved disposal container and sealed to prevent any spill during storage and/or transportation. Equipment and material may be salvaged for resale or scrap value depending on the market conditions.

2.1.3 *Other Components*

Removal of all other facility components from the site will be completed, including but not limited to access roads, drains and culverts, concrete foundations, and fences. Upon request from the land owner, access roads, culverts and ditches may remain. Equipment and material may be salvaged for resale, scrap value or disposal, depending on market conditions. For safety and security, the security fence will be the final component dismantled and removed from the site.

2.2 **Site Restoration**

The proposed Project area will be restored to its pre-development state, subject to environmental requirements and the wishes of the landowner. The following will be undertaken:

- any trenches/drains excavated will be filled with suitable materials and leveled
- any roads or embankments will be removed completely, filled with suitable subgrade material and leveled
- any compacted ground will be tilled, mixed with suitable sub-grade materials and leveled
- any damage to any existing tile drainage system caused by the Project will be repaired/restored
- prepared soil, with all the nutrients required by the crop to grow, will be spread wherever necessary.

See also Section 4, for the restoration of lands negatively affected by the Project.

2.3 **Management of Waste and Excess Materials**

All waste and excess materials will be disposed of in accordance with municipal, provincial and federal regulations. Soil removed for construction purposes will be relocated on the site and used for landscaping after Project completion. Waste that can be recycled under municipal programs will be done accordingly. Waste that requires disposal will be disposed of in a provincially licensed facility by a provincially licensed hauler. Although hazardous waste is not anticipated on site (with the exception of the aforementioned transformer oil), any hazardous waste will be removed from site and disposed of in accordance with federal, provincial and municipal requirements.

2.4 **Emergency Response and Communications**

2.4.1 *Emergency Response*

The Project Emergency Response Plan will be implemented through all phases of the Project. This report focuses on the implementation of the plan during the decommissioning phase of the Project. The purpose of the plan is to establish and maintain emergency procedures required for effectively responding to accidents and other emergency situations, and for minimizing associated losses.

Potential emergency scenarios which could occur during the decommissioning phase include fire, personal injury and spills incidents. The following provides the emergency response and communications procedures to be used in response to these three potential emergency scenarios.

All Project personnel will be trained in the following emergency response and communications procedures.

Note that during the operation of the Project, Northland will establish a 24-7 remote monitoring system to react to any Project specific emergencies. In the event of an emergency, Northland will mobilize its resources to the site to respond to the event.

2.4.2 Fire

Fire extinguishers will be located in strategic locations, such as Project vehicles and the substation electrical building. If a fire occurs, Project personnel will attempt to extinguish it, only if it is safe to do so. If there is any risk of personal injury, extinguishing the fire will not be attempted. If a fire can not be extinguished using the hand held extinguishers, the Project area will be evacuated and Project personnel will immediately call 911 to summons the local fire department (and ambulance if required). Project personnel will notify inhabitants at all adjacent properties if the fire appears able to move off of the Project site. All staff on site during the life of the Project will be trained in the procedure to deal with a fire and the use of an extinguisher.

During decommissioning, a visible sign will be erected near the front gate of the facility. The sign will include instructions to call 911 and to call a Project phone number should a passerby notice an emergency. In the event of an emergency, Project personnel at site will contact 911 and the Project Manager.

All incidents will be documented and kept on file. Documentation will include date of incident, date of reporting, name of reporter, description of the incident, cause of the incident, actions taken, communications to outside groups and internal personnel and follow-up required.

2.4.3 Personal Injury

The work during the decommissioning phase will be completed by contractors, who will establish their own Health and Safety (H&S) program in accordance with the Ontario Occupational H&S Act. Should a personal injury occur on site that does not require an ambulance, the injured worker will be taken to the local hospital. First-aid supplies and maps to the local hospitals will be kept in the Project trailer. A listing of the Project personnel trained in first-aid/CPR will also be posted.

Should a personal injury occur on site that does require an ambulance, Project personnel will call 911 and assist the injured worker as required until emergency personnel arrive.

In all cases of personal injury, the decommissioning Project Manager will be notified immediately.

All incidents will be documented and kept on file. Documentation will include date of incident, date of reporting, name of reporter, name of injured, description of the incident, cause of the incident, actions taken, communications to outside groups and internal personnel and follow-up required, as required by the H&S Regulations.

2.4.4 Spills

The following spills procedures are as outlined in the Ministry of Environment's (MOE) "Spills Reporting – A Guide to Reporting Spills and Discharges" dated May 2007. Spills and the types of spills that require reporting are defined in the Ontario Environmental Protection Act and Ontario Regulation 675/98 Classification and Exemption of Spills and Reporting of Discharges.

Spills are the unintended release/discharge of material to air, land or water. The most likely decommissioning spill scenarios include: the release of sediments to water bodies, sewage from

portable washrooms and hazardous materials (e.g. compressed gases and petroleum hydrocarbons) from containers or vehicles.

Spills prevention measures are documented in the Environmental Impact Studies report completed for the Project. Should a spill occur, the following will be implemented :

1. Evaluate the scene for risks to human health and safety.
2. Stop the spill, if it is safe to do so.
3. If there is immediate danger to human health, contact 911 for assistance, and notify anyone who may be directly impacted or is in harm's way.
4. During the construction and decommissioning phases, notify the Project Manager of the incident, and notify the "Project Representative" during the operations phase.
5. Contain and clean-up the spill, using on-site spill kit.
6. If required, contact outside spill response contractor for assistance.
7. Document and report the spill to outside agencies, as required.

A spill kit will be available on site during the decommissioning phase and will contain equipment necessary for spills response. This will include absorbent pads, absorbent broom, polyethylene bags, neoprene gloves, protective goggles, plastic bin or metal drum, and multi-purpose granular sorbents.

Spills that could potentially occur during the life of the Project, and may need to be reported to the MOE include:

- non-approved releases/discharges (including those to land, air and water)
- discharge of fluids greater than 100 L from a vehicle
- mineral oil releases greater than 100 L from an electrical transformer
- discharges (including sediment) to waterbodies.

The MOE Spills Action Centre phone number (1-800-268-6060) will be posted at the Project trailer.

Documentation for all spill incidents will be kept on file and sent to the Ministry of the Environment, as required. Documentation will include date of incident, date of reporting, name of reporter, description of the incident, cause of the incident, type and amount spilled, actions taken, disposal of contaminated material, communications to outside groups and internal personnel and follow-up required.

2.5 Communications Plan for Non-Emergencies

During all phases of the Project, including decommissioning, a sign will be erected at the gate of the facility which will include a Project phone number (toll free) and website should the public have any questions, inquiries or complaints. All inquiries will be directed to the Northland Project Representative who will respond to the inquiry accordingly. All questions, inquiries and complaints will be logged electronically with the following information: date of question, inquiry or complaint,

name, phone number, email address of the individual, response, date of response, and any follow-up issues.

During all phases of the Project, including decommissioning, should such conditions arise that the general public requires notification (such as Project changes requiring notifications) the public will be notified through newspaper and direct/general mail-out, if required. Should agencies such as the local municipality or the MOE require notification, they will be sent the information directly by email, mail or telephone conversation. All communications will be documented and kept on file by Northland.

2.6 Other Approvals

Based on the decommissioning activities anticipated, additional approvals from municipal, provincial or federal agencies are not anticipated.

3. Decommissioning During Construction (Abandonment)

In the event that construction and associated work is not completed, all equipment, foundations and imported material (including roads) will be removed from site in accordance with applicable municipal, provincial and federal requirements.

3.1 Equipment Dismantling and Removal

Equipment dismantling and removal will be determined according to the activities completed and components installed at the time of Project cancellation. Therefore, the plan and related activities as outlined in section 2.1 will be the same activities implemented if the Project were to be abandoned prior to commencing operations.

3.2 Site Restoration

Site restoration will be determined according to site development to date. Therefore, the plan and related activities as outlined in Section 2.2 and Section 4 will be the same activities if the Project were to be abandoned prior to commencing operations.

3.3 Management of Wastes and Excess Materials

Management of waste and excess material will be determined by activities completed and components installed to date at time of abandonment. Therefore, the plan and related activities as outlined in Section 2.3 will be the same activities if the Project were to be abandoned prior to commencing operations.

3.4 Emergency Response and Communications

The same procedure as stated in Section 2.4 will be followed if the Project were to be abandoned prior to commencing operations.

3.5 Other Approvals

Based on the decommissioning activities anticipated, other approvals from municipal, provincial or federal agencies are not anticipated for the decommissioning of the Project.

4. Restoration of Land Negatively Affected by the Project

Following decommissioning of the Project, if any lands or water features are negatively affected by the Project, Northland is committed to restoring the site as close to its pre-construction state as feasible. This would be subject to environmental requirements and wishes of the landowner. Note that as per environmental studies completed for the Renewable Energy Approval, negative impacts to water features are not expected.

The following actions are anticipated to be completed:

- All equipment, foundations and imported material (including roads) will be removed from site in accordance to applicable to local, municipal, provincial and federal guidelines and regulations.
- Any excavation and/or trench, not related to the pre-construction drainage, will be backfilled with the appropriate material and graded to original contours, including natural drainage.
- Should the subsoil be negatively affected and compromise the future productive use of the land, the following will be implemented: first the topsoil will be removed and stockpiled; then the subsoil may be ripped and tilled prior to grading it; topsoil will then be replaced to its original condition and, subject to landowner consent, re-vegetated.
- Should the soil be negatively affected and compromise the future productive use of the land, nutrients may be added or fertilizers deployed.
- Topsoil and compost will be blended where required, spread and replaced to original depth.
- Hydroseeding with approved seed mixture and mulching during the appropriate seasonal conditions, as subject to the environmental requirements and to landowner consent.