



Decommissioning Report Silvercreek Solar Park

A Report to: Ministry of the Environment
Renewable Energy Approval Unit
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The following changes have been made to this report to update it from the report released in August of 2012.

1. The proponent has opted to remove the provision for a tracking installation at the solar array due to requirements to meet domestic content provisions. As a result the layout of the solar array and the inverter locations has been altered slightly. The text has been revised to state that a fixed installation will be utilized, and maps of the array location have been updated to reflect the fixed tilt installation
2. As a result of consultations with the Township of Malahide minor changes to access roads on the Solar Array site were changed to allow for better emergency access in case of fire. This is reflected in the updated site layout.
3. As a result of stakeholder consultations the site map was updated to clarify the area between the Solar Array fence and the roadway will continue to be farmed as part of an agricultural operation

1. GENERAL INFORMATION

Silvercreek Solar Park Inc. (Silvercreek) is proposing the installation of a 10 MW ground mounted solar photovoltaic (PV) facility in Elgin County within the Township of Malahide. This project is a Class 3 Solar Facility under the Renewable Energy Approval (REA) requirements. This project was awarded a Feed-in Tariff (FIT) contract in July 2011 as a result of the Bruce to Milton Transmission Line Expansion.

On July 1, 2012 amendments to Ontario Regulation 359/09 (O.Reg 359/09) the Renewable Energy Approvals Regulation came into force. This amendment allowed for projects which were significantly advanced to continue under the previous regulation. Given that the Proponent has completed a significant amount of progress towards completion of the REA, they have opted to continue under the January 2011 requirements.

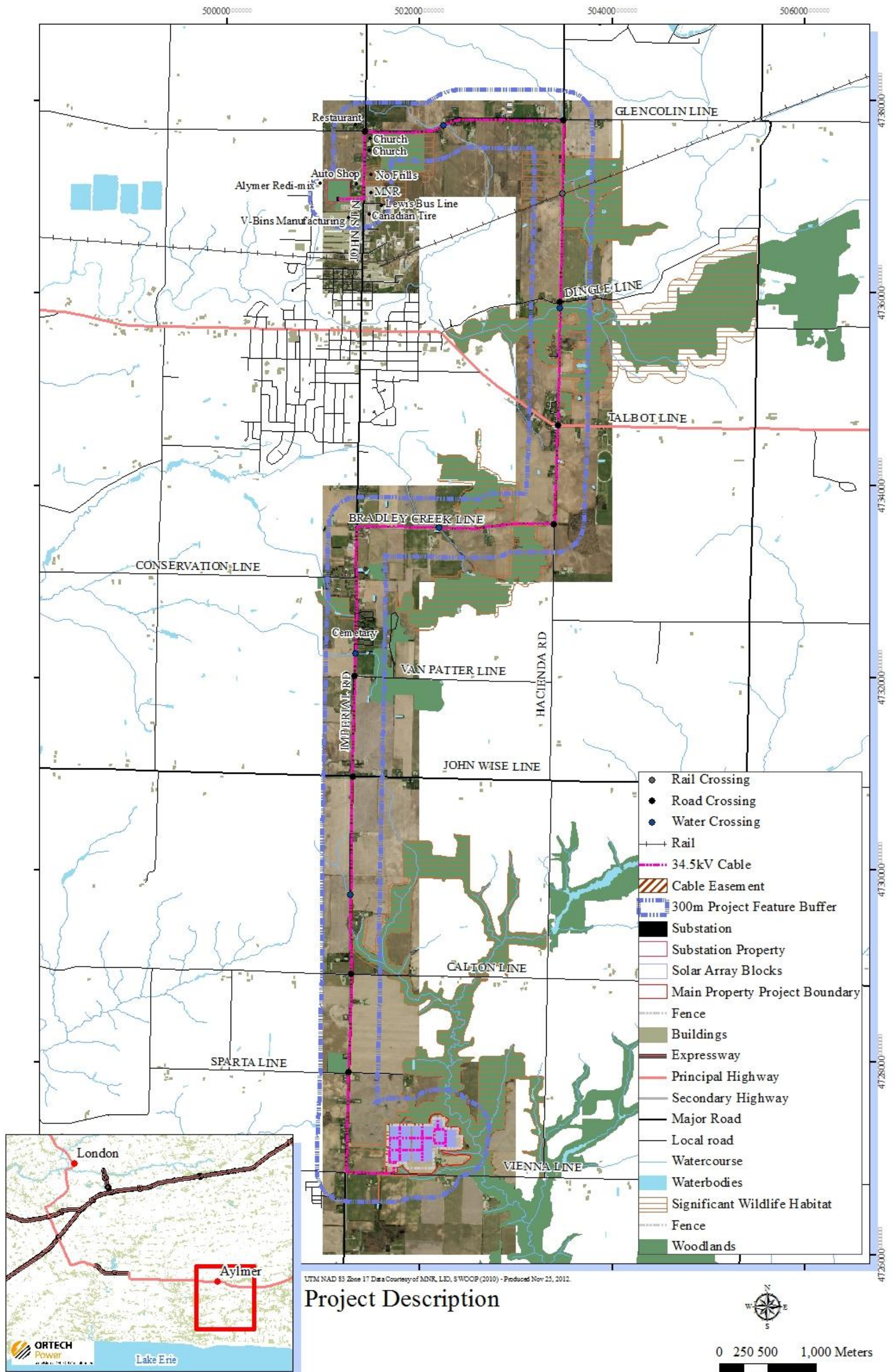
The current design requires up to 46,000 polycrystalline solar photovoltaic panels with a rated power output of 290 W each with a fixed tilt mount. The project will require installation of a new 34.5kV distribution cable run primarily below ground to a new 115kV substation.

The proposed project is subject to Ontario Regulation 359/09 under the Environmental Protection Act and requires a Renewable Energy Approval (REA) as a Class 3 solar facility. Under the REA requirements a decommissioning plan report is required describing the following:

- procedures for dismantling or demolishing the facility;
- activities related to restoration of any land and water negatively affected by the facility; and
- procedures for managing excess materials and waste.

Figure 1 provides a map indicating both the project area and the 300 m construction/decommissioning impact area for the project area, including the proposed connection line and substation. Impacts related to decommissioning the project are considered to be contained within these boundaries.

Figure 1: Location of Construction Activities



2. PROCEDURES FOR DECOMMISSIONING THE PROJECT

The project has applied to the Ontario Power Authority (OPA) for a 20 year electrical supply contract. Upon termination of the OPA contract the proponent may desire to replace the photovoltaic solar panels or the site may be decommissioned and restored to its present use. In addition to this report, a franchise agreement with the Municipality with regards to the road right of way will require additional decommissioning requirements.

2.1 Project Components

The main project components are as follows:

- On-site access roads and fencing;
- Support racks for solar panels;
- On-site electrical equipment;
- 34.5 kV distribution system;
- Substation; and
- Photovoltaic solar panels.

The following sections will outline the decommissioning and restoration activities recommended to bring the project site back to agricultural production.

On-Site Access Roads and Fencing

An existing entranceway located on Vienna Line will be used to access the solar array site from the south. The access point consists of a gravel swale approximately 10 m in width and is sufficient for the project requirements. No modifications or alternations to this access point are required if the site is decommissioned as access for farm equipment will be required.

From the entranceway, access roads will be constructed with a gravel base to allow access to the electrical systems located alongside the roadway during periods where the existing field conditions may prevent motorized access. Wheel loaders or scrapers will be used to remove the gravel material. Depending upon the quality of the material a beneficial re-use will be sought for the material, either as road base material or inert fill. Prior to this action, the site will be inspected for the presence of any staining or discolouration which may indicate the presence of hydrocarbons. This material, if present, will be segregated from the remaining materials and subjected to analysis. Provincial fill quality guidelines will be adhered to in the event of placement off-site. Some minor site grading may be required after the removal of this material, for agricultural purposes. Geotextiles, if used for construction, will be removed and sent off-site for landfill disposal.

Fencing will be erected around the perimeter of the project site and a controlled access gate will be provided and maintained at the Vienna Line entranceway. Fencing and site security will provide a dual purpose of preventing public access to mechanical and electrical equipment and to deter vandalism. Removal of the perimeter fence is not considered a necessary action to return the project site to agricultural production and may present some added advantages to the owner if specialty crops are grown on site.

A gravel road will be constructed to access the substation and will require clearing of pine trees and substrate. The access road will utilize an existing entrance and will be fenced at both the entrance and again at the substation. Removal of this access road will not be required; however, this may be examined depending on the neighbouring land uses at the time.

Support Racks for Solar Panels

Installation of the support structures for the solar arrays will require the placement of pile-driven support columns, installation of horizontal support beams, tracking mechanisms, and solar panel support racks. Removal of these items is considered a straight-forward operation requiring unbolting of the structures and pulling the support posts from the ground. The absence of post foundations simplifies the step and will not require additional fill materials to be used.

Upon removal, the metal components will be source separated into their respective material types to maximize their scrap value. Presently the value of these materials is estimated to exceed the cost of decommissioning.

On-Site Electrical Equipment

Generated electricity from the solar panels will be transmitted via underground cables to one of ten inverter/transformer stations located alongside one of the main access roads. The inverter/transformer stations convert Direct Current (DC) to alternating current (AC) and the transformer units will step-up the line voltage to 34.5 kV. The inverter/transformer stations will connect to the main electrical house (e-house) containing electrical switch gears and metering devices prior to connecting to the distribution line exiting the project site along Vienna Line.

The inverter/transformer units are totally enclosed modular units and will be drained of any fluids and shipped off-site either for refurbishment or recycling. Waste fluids will be managed according to provincial regulations in place at that time. Currently a waste generator registration application under Ontario Regulation 347 "General Waste Management" will be required for this action.

Decommissioning of underground electrical cables will require some on-site excavation. The cables may be removed and source separated to maximize the higher value of copper wire. Where the cables are in excess of 1m deep the

removal will be conducted as described in the lease agreement. There will be no off-site removal or disposal of soils required.

34.5 kV Distribution Line

After the required power metering at the main substation, the power from the project site will be distributed by a new 34.5 kV underground distribution line, which runs approximately 15 km from the site location to the existing Hydro One Aylmer Transmission Station located north of the Town of Aylmer, as shown in Figure 1.

Discussions regarding the decommissioning of the distribution line will occur with the Municipality of Malahide, Elgin County and Hydro One to determine if the line should remain and be transferred to a new entity or removed. In the event that removal is the preferred option the electrical cable will be removed and sold for its scrap value. Underground sections of the distribution line (if constructed using these methods) will be filled in or otherwise stabilized to prevent sinkholes from developing. Re-vegetation of the area following decommission will take place to prevent soil erosion of the adjacent drain bank.

Municipal drains are found adjacent to portions of the distribution line routing and decommissioning methods will conform to the Operational Statements produced by the Department of Fisheries and Oceans (DFO) to minimize the potential for negative impacts on the watercourse and associated fish habitat. DFO requires the associated notification form to be completed and sent to the local DFO office, as well as the local Conservation Authority at least 10 days prior to the commencement of such activities.

To provide an independent supply of power to the facility for operations and to meet standby power requirements, the facility will be connected to the existing 3-phase 4.8 kV line located on Vienna Line. The connection point with this line will be removed at the entrance of the facility.

Substation

The project substation located adjacent to the Hydro One WT1A Transmission line will be decommissioned after the project life cycle. Access roads will be decommissioned and managed as described for on-site access roads. Building debris, consisting of concrete and steel, will be inspected for signs of staining or spills and, if deemed clean, segregated and recycled. Suspect material will be landfilled.

The transformer units are totally enclosed modular units and will be drained of any fluids and shipped off-site either for refurbishment or recycling. Waste fluids will be managed according to provincial regulations in place at this time.

Currently a waste generator registration application under Ontario Regulation 347 “General Waste Management” will be required for this action.

Photovoltaic Solar Panels

The project requires up to 46,000 polycrystalline solar photovoltaic panels. The solar panels are designed for modular installations and simple mechanical and electrical connections are used. The panels come with a manufacturer’s 25 year performance guarantee and some installations have exceeded this operating period.

The original equipment manufacturer of the solar panels, Suntech, participates in a voluntary take back and recycle program. Currently 80% of the solar panel components can be recycled, thereby minimizing waste generation. Current Ontario exemptions for recycled materials require the panels to be “wholly utilized” and as such these exemptions may not apply. Waste characterization of the panels will occur at the time of replacement or disposal and licensed carriers will be employed in the event recycling exemptions are not applicable at this time.

3. SUMMARY OF DECOMMISSIONING MEASURES

Decommissioning of the 10 MW ground-mounted solar site can be completed with minimal environmental impacts. The decommissioning costs less the estimated scrap value of the project components have been determined to ensure sufficient funds are allocated for the project end-of-life in the event re-powering is not considered an option. The proponent will retain ownership of the property throughout and after the project, further reducing the liability of an abandoned site.

The recycling and recovery process for support posts, beams, racks, electric cables and motors are well established and have been employed for several years. The original equipment manufacturer of the solar panels, Suntech, realizes the potential impact of discarded panels and offers a voluntary take back and recycling program where 80% or more of the panel will be recycled.

At the end of the project’s generating life the agricultural property will meet the requirements to apply for organic farming, which may increase agricultural opportunities for the landowner.

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