

Project Description Report



**Canadian Solar Developers Ltd.
Solar Project Description Report - L.P #1**



Legal Notification

This report was prepared by **exp** Services Inc. for the account of **Canadian Solar Developers Ltd.**

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. **Exp** Services Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this project.

Table of Contents

1.	Introduction.....	1
2.	General Information	1
2.1	Project Name, Applicant and Location	1
2.2	Energy Source, Nameplate Capacity and Class of Facility	2
2.3	Other Approvals Required	2
2.4	Federal Involvement	2
3.	Project Information.....	3
3.1	Facility Components	3
3.2	Project Activities	3
3.2.1	Construction.....	3
3.2.2	Operation	4
3.2.3	Decommissioning	4
3.2.4	Other Activities.....	4
3.3	Land Ownership	5
4.	Environmental Effects that May Result from the Project	5
	Appendix 1 – Project Location Map.....	8

List of Tables

Table 1. Facility Specifications.	3
Table 2. Environmental and Social effects and mitigation measures.....	5

List of Figures

Figure 1. Aerial photo of the Project location.	1
Figure 2. Project location road map.....	2

1. Introduction.

As part of an application for a Renewable Energy Approval (REA) from the Ontario Ministry of Environment (MOE), any renewal energy projects are required to submit a Project Description Report (PDR). This PDR will address and describe the following in relation to a proposed solar power project by Canadian Solar Developers Ltd.:

- any energy sources to be used to generate electricity at the renewable energy generation facility;
- the nameplate capacity of the renewable energy generation facility;
- the class of the renewable energy generation facility;
- the facilities, equipment or technology that will be used to convert the renewable energy source or any other energy source to electricity;
- the activities that will be engaged in as part of the renewable energy project;
- the ownership of the land on which the project location is to be situated; and
- map showing the project location and the land within 200 meters of the project location.

2. General Information

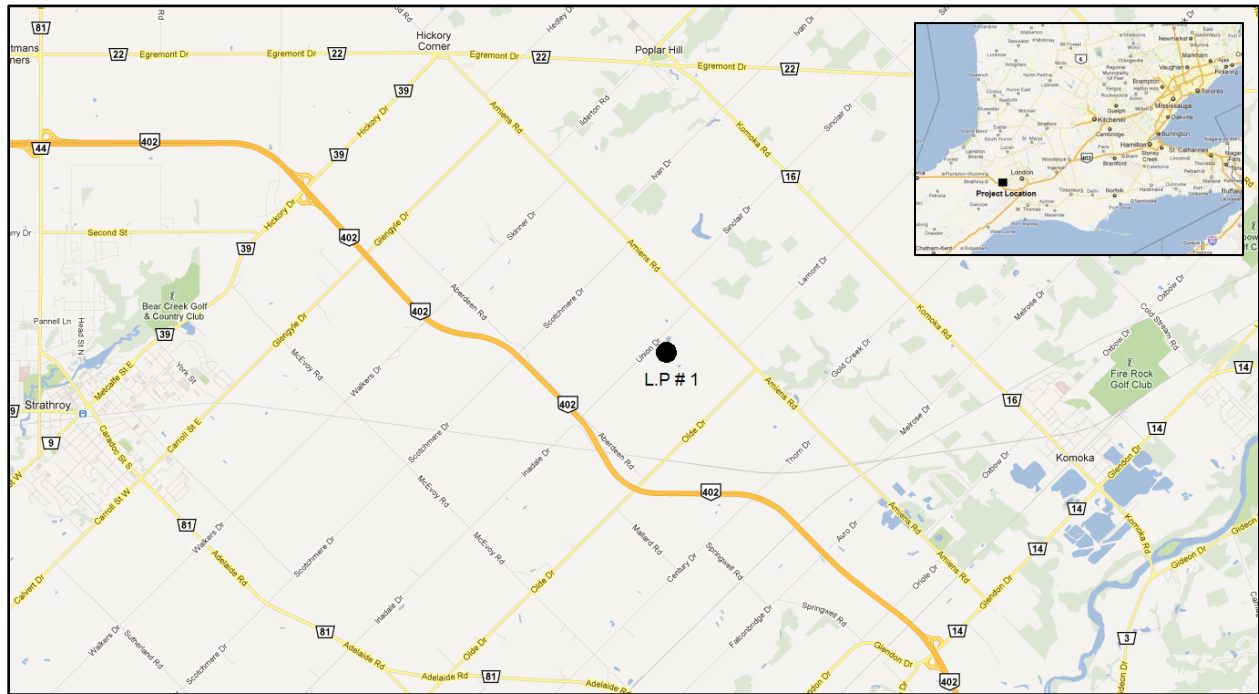
2.1 Project Name, Applicant and Location

The proposed solar power project is named Ground Mount Solar PV Power Project – L.P #1 (the Project). It is being initiated by Canadian Solar Developers Ltd, based in Barrie, Ontario. Exp Services Inc will be representing Canadian Solar Developers Ltd during the application and approval process. The Project is located in the Township of Strathroy-Caradoc, which is located approximately 25km west of the City of London. The project address is L.P #1 9307 Union Drive, Strathroy-Caradoc, Ontario, N0L 1W0. The Project area and local road maps are illustrated in Figure 1 and 2:

Figure 1. Aerial photo of the Project location.



Figure 2. Project location road map.



Applicant

Peter McArthur
 Canadian Solar Developers Ltd.
 16 Neelands Street
 Barrie, ON
 L4M 7A1
 (705) 726-8510
 cgp@csolve.net

Project Consultant

John Smith
 exp Services Inc.
 1595 Clark Blvd.
 Brampton, ON
 L6T 4V1
 (905) 793-9800
 john.smith@exp.com

The project website and electronic copies of this PDR are available at:
www.futuresolardevelopments.com/projects.

2.2 Energy Source, Nameplate Capacity and Class of Facility

The project will consist of one ground mounted, solar panel unit used to convert solar energy into electricity using photovoltaic panels (PV). The maximum name plate capacity will be 100 kW and is therefore classified as a Class 3 solar facility. The electricity generated will be connected to the electrical distribution system of Hydro One Networks Inc.

2.3 Other Approvals Required

The project has received the Feed In Tariff approval and it will also require approval from the St.Clair Conservation Authority.

2.4 Federal Involvement

There is no Federal involvement as part of this project.



3. Project Information

3.1 Facility Components

The solar facility will consist of a ground mounted solar panel, transformer, and buried transmission line to connect the facility to the distribution line at Union Drive. Table 1 below illustrates the facility components and their operational details.

Table 1. Facility Specifications.

Specification	Details
Generator connection	Three Phase
Connection point type and name	Feeder, M24
Connection point location	Latitude: 42.964 Longitude: -81.515
Connection voltage level	16 kV
Name of transformer station near feeder	Longwood TS
Nearest roads	Union Drive
Transmission/distribution lines, poles, support structures	TBD
Transformers	TBD
Other electrical conversion, metering and protection equipment	TBD

3.2 Project Activities

The following section provides a short summary of the major project phases as they pertain to construction, operation and decommissioning. Currently, the project is in the planning and design stages. Construction plans have not been completed or approved and construction timelines have not been established. The description of these phases is based on similar solar projects completed and the assumption that similar work will be needed and performed.

3.2.1 Construction

Surveying

All landmarks, access roads, transmission cables and construction area boundaries will be identified and marked using surveying equipment. Buried infrastructure, such as gas lines and cables will also be identified and marked.

Access Road Construction

If access roads are necessary, heavy machinery will be utilized to strip vegetation, top soil, subsoil and create an adequate level surface. Draining structures will be installed in order to provide proper drainage of water from the roads. All vegetation, soil and subsoil will be stockpiled on site and used for remediation when the project is completed.

Site Preparation

Site preparation will include vegetation clearing, grading, pier installation preparations, access points for installing frames and panels, drainage features for the construction site, electrical installations and any other features required for construction of the facility.

Solar Panels

All structural work relating to support and racking of the solar panels will be performed and includes: foundations, construction of array structures and substructures. Once these foundational structures are built and checked for quality, the solar panel will be installed and wired accordingly.

Clean up and reclamation

Once construction has completed, all construction equipment and vehicles will be removed from the site. Debris and waste will be collected and disposed of at approved locations. All soil and sub soils moved during site preparation and construction will be graded and used to repair any areas damaged during construction.

3.2.2 Operation

The solar panels are unattended electricity producing units. They operate year round (365 days a year), given adequate sun exposure. Therefore, operational hours depend on the length of day, which varies throughout the year.

The site will require periodic maintenance during the operation phase. This will require: checking and replacing worn parts, checking electrical connections and cleaning the photovoltaic cells.

3.2.3 Decommissioning

All decommissioning and restoration activities will adhere to provincial, federal and municipal requirements and permits. The decommissioning and restoration process will comprise of the following:

- Removal of ground structures;
- Removal of below ground structure;
- Replacement of topsoil to bring the site back to pre-construction condition.

3.2.4 Other Activities

Other studies and activities that will be undertaken as the project progresses are as follows:

- Noise study to determine noise emissions that may be emitted from the project
- Construction Report
- Operational Report
- Decommissioning Report
- Archaeological Assessment Report
- Effluent Management Plan Report
- Environmental Impact Study Report
- Heritage Assessment Report
- Natural Heritage Assessment Report
- Noise Study Report

- Surface Water Assessment Report
- Complete First Nation and Aboriginal consultation
- Meet with Ontario Ministry of Natural Resources (MNR) to discuss the natural heritage features and confirm requirements, review results and then obtain a letter confirming their agreement with methodology and results.
- Complete municipal consultation with the Township of Strathroy-Caradoc, and any service boards in accordance with the consultation form provided by MOE.
- Determine which natural heritage features are within the setbacks identified in Ontario Regulation 359/09 and complete site investigations, if required.
- Complete public consultation process including the first and second public information session in the area of the project.

3.3 Land Ownership

Canadian Solar Developers Ltd. has entered into a long term lease agreement with the landowner.

4. Environmental Effects that May Result from the Project

The operation and construction of the proposed Project could impact the environment relating to: topography, soils, surface water, groundwater, aquatic habitats/biota, vegetation, terrestrial wildlife and air quality. In addition to this, certain social environments and cultural features could be affected, and are not limited to: local traffic, municipal roadways, public safety, sound levels, land use, archaeological resources and cultural heritage resources. These are further described below in Table 2, along with potential mitigation measures and residual, long term effect that may occur.

Table 2. Environmental and Social effects and mitigation measures.

Component	Potential Effect	Mitigation Measures	Residual Effects	
Natural Environment	Topography	During construction, grading and minor alteration to topography could occur	Disturbed areas will be regarded to match surrounding topography as closely as possible	Minor long term topographical changes may occur as a result of construction
	Soils	Soil compaction, erosion, loss of quality as a result of accidental spills during construction	Use construction best management practices and mitigation measures.	No residual effects if proper mitigation is implemented.

	Surface Water	As a result of construction, water turbidity could increase, along with contamination from spills	The solar panel will be at least 100m from any surface water. Sediment berms will be used during construction where required.	No residual effects if proper mitigation is implemented.
	Groundwater	May be contaminated by accidental spills during construction.	Spill prevention and response measures will be implemented through the life of the Project.	No residual effects if proper mitigation is implemented.
	Aquatic Habitat/Biota	Potential negative effects due to construction	The solar panel will be at least 100m from any aquatic feature or habitat	No residual effects if proper mitigation is implemented.
	Vegetation	While the project area is already cleared, some vegetation clearing could occur.	Clearing will be kept at a minimum and not extend beyond the construction perimeter. Replanting native species after construction.	No residual effects if proper mitigation is implemented.
	Terrestrial Wildlife	Loss of wildlife and wildlife habitat could occur during construction.	Wildlife habitat clearing will be kept at a minimum. Best management practices with respect to work during breeding seasons will be implemented.	Some disturbance of wildlife will occur during construction and operation.
	Air Quality	Construction vehicles will cause reductions in air quality. Dust and emissions will increase during construction.	The use of standard construction best management practices and mitigation measures will be implemented to reduce dust.	No residual effects if proper construction standards are followed.
Social Environment	Local Traffic	May increase due to construction vehicles. Temporary distributions in traffic routes and delays will occur during construction.	Effects will be minimized by designating and preparing transportation routes and facilitating traffic flows when necessary.	No residual effects if proper mitigation is implemented.
	Municipal Roadways	Damage to roads near the construction site could occur.	Any damage will be remediated to the satisfaction of the municipality.	No residual effects if proper mitigation is implemented.

Public Safety	Construction will pose risk to the community and workforce.	Proper provincial and federal safety procedures will be adhered to during all phases of the project.	No residual effects if proper mitigation is implemented.
Waste Management and Disposal Sites	Construction will generate construction waste, hazardous waste and sanitary waste.	Proper storage and disposal of wastes will be implemented.	No residual effects if proper management of waste is implemented.
Visual Landscape	Installation of panels will be a permanent fixture and result in a change to the local landscape.	Visual barriers will be considered.	Visual landscape will change for the duration of the Project.
Sound Levels	During construction, disturbance to neighbouring residents will occur. Transformers and inverters may result due to increased ambient sound levels.	A noise study will be conducted to ensure noise levels are within provincial standards.	No residual effects.
Land Use	Land use designation will change for the duration of the Project.	The land use designation will remain unchanged.	A reduction in agricultural land for the duration of the Project.
Archaeological Resources	During construction, archaeological finds may be discovered.	An Archaeological Assessment will be completed to determine potential resources and mitigation requirements.	Construction will cease in the event archaeological evidence is found and the Ministry of Culture will be notified immediately.
Cultural Heritage Resources	Construction could negatively affect cultural heritage landscapes.	As required by the Ministry of Tourism and Culture, potential heritage resources will be determined and assessed.	No residual effects if proper mitigation is implemented.

Appendix 1 – Project Location Map

