

ORTECH Power

**Consultation Report
to the Ministry of the Environment**

*Exhibit D
Project No. 70287*

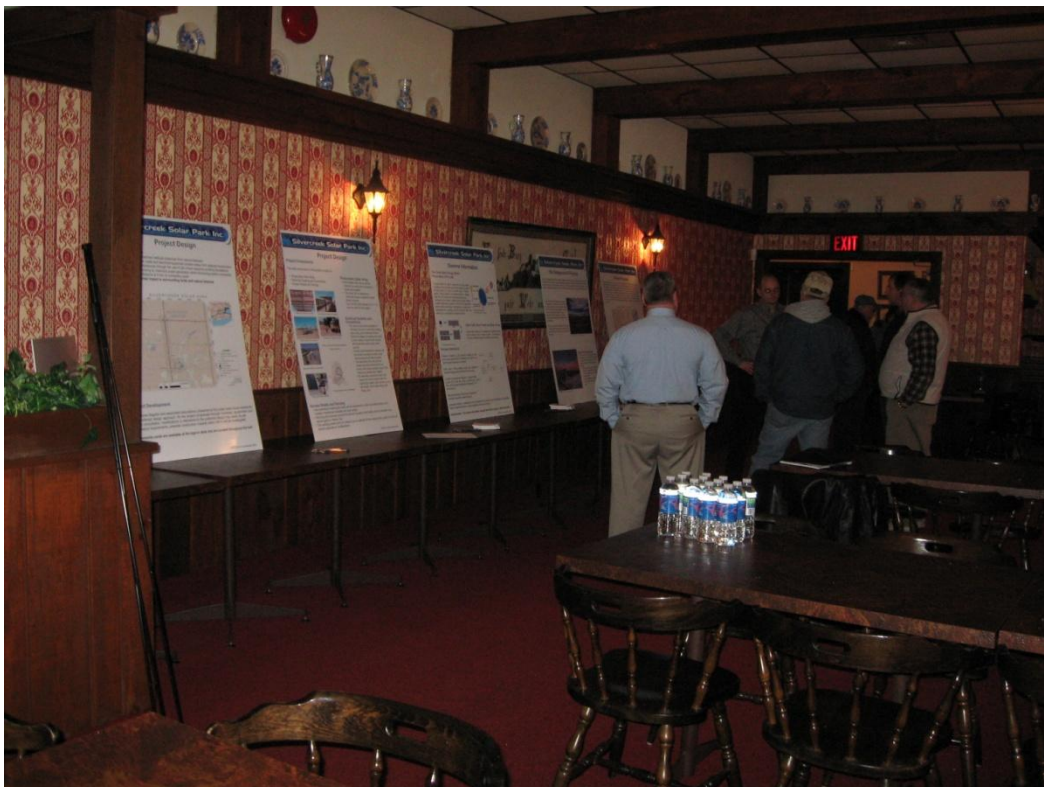
Exhibit D: Open House #1 Dec 18, 2009

(17 pages)

Silvercreek Solar Open House #1

December 18, 2009









Silvercreek Solar Park Inc.

Welcome

Silvercreek Solar Park Inc.

Open House

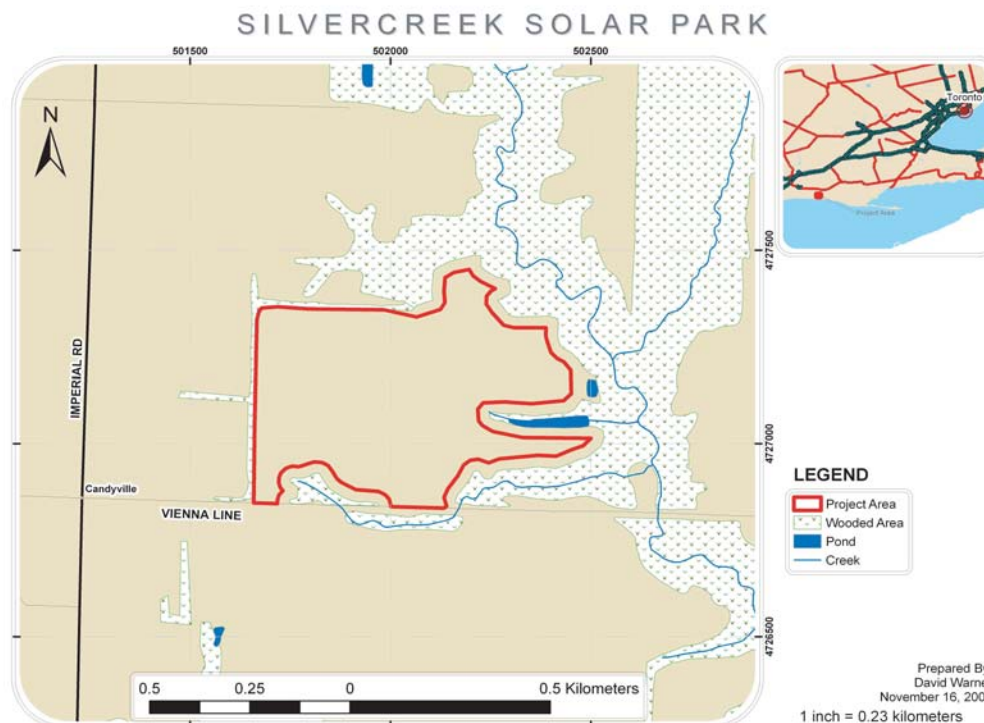
4pm - 8pm

Hosted By



Project Proposal

Silvercreek Solar Park Inc. (SSPI) is proposing to develop a 10 MW ground mounted solar photovoltaic (PV) facility on private property in the township of Malahide. This will be a sun following facility utilizing a single axis tracker system. The trackers will rotate the panels towards the sun during daylight hours to maximize energy production. The panels will be grouped in 10 separate clusters, each with their own power inverters and transformers. Panels will be connected together using an underground 27.6 kv cable, connecting to transformers, switch box and power meter located on the project site. A distribution line will run approximately 4.5 km from the site location to the Dunboyne Distribution Station at Imperial Road and John Wise Line in the existing hydro right-of-way.



Project Team



Silvercreek Solar Park Inc. - Aylmer; Owner



ORTECH Environmental – Mississauga; Coordination of Technical Consultants, REA Project Coordination, Permitting, Correspondence, REA Reporting



Natural Resource Solutions Inc. – Waterloo; Natural Heritage assessment



MVA Engineering Group Ltd. – London; Structural engineering, site layout



Timmins Martelle Heritage Consultants Inc. – London; Cultural Assessment

Site Background & Purpose

The Silvercreek Solar Park consists of approximately 39.5 ha of privately owned Class 3 and 4 land just off Vienna Line. This land has been active agricultural land for over 100 years, and until recently was used to grow tobacco. Currently, it has been planted with soybean and wheat. This project is being developed in conjunction with the property owner, providing a direct local benefit.

The Ontario Green Energy Act, proclaimed on September 24, 2009 has paved the way for projects such as the Silvercreek Solar Park. This program was developed to allow for new commercial generation, while empowering local residents to become involved in the generation of power through renewables.

The proponent has applied to the Ontario Feed-In Tariff Program and, if approved, will generate power for over 1,500 households per year.



Hooper Colorado, Photo Courtesy of Array Technologies



Hooper Colorado, Photo Courtesy of Array Technologies

Solar PV and Agriculture

The Canadian Solar Industry Association has released a backgrounder discussing the advantages of placing Solar PV on agricultural fields. These advantages include:

- Farmland tends to be flat, free of obstruction, competitively priced and close to distribution lines making them ideally suited
- Solar installations are low impact, and can be easily decommissioned after use

Provincial Approvals

Renewable Energy Approval – O.Reg 359/09

The Renewable Energy Approval (REA) came in to force in September of 2009. This approvals process replaces the previous environmental screening process for renewable projects. In Ontario, Ground Mounted Solar PV greater than 10 kW are required to undergo the REA process.



Les Borges Spain, Photo Courtesy of Array Technologies



Next Steps

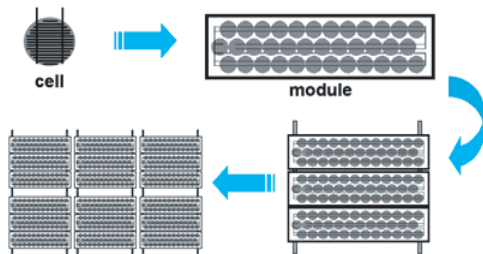
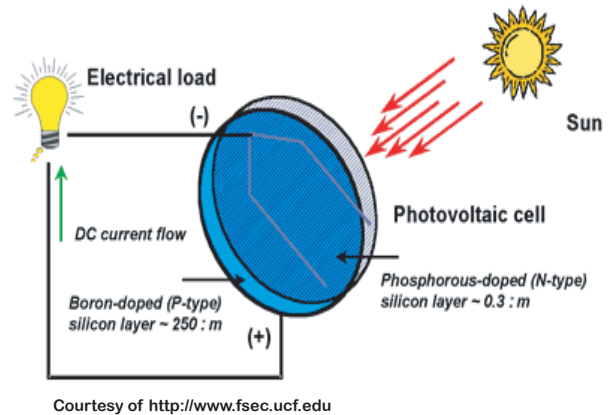
- Issuance of Draft Studies; January 2010
- Follow-up Open House; Spring 2010
- Finalize studies and reports; Spring 2010
- Issuance of Final Reports; Spring 2010
- REA Submission; Spring 2010
- 30 day comment period; Spring/Summer 2010
- Plant Construction; Summer/Fall 2010
- Plant Commissioning; Winter 2010

The Project Team will examine the comments received and heard throughout this public consultation process in order to focus their studies where necessary.

General Information

How Does Solar Energy Work? Photovoltaic (PV) Cells

A typical silicon PV cell is composed of a thin wafer consisting of an ultra-thin layer of phosphorus-doped (N-type) silicon on top of a thicker layer of boron-doped (P-type) silicon. An electrical field is created near the top surface of the cell where these two materials are in contact, called the P-N junction. When sunlight strikes the surface of a PV cell, this electrical field provides momentum and direction to light-stimulated electrons, resulting in a flow of current when the solar cell is connected to an electrical load.



Courtesy of <http://www.fsec.ucf.edu>

Solar Cells, Solar Panels and Solar Arrays

Several solar cells are connected both in series and parallel to create a solar module or panel. Solar panels in turn are connected together, creating a solar array.

Process Operations

Process monitoring: Light sensors located on the solar arrays will provide information to a control unit, optimizing the exposure to sunlight.

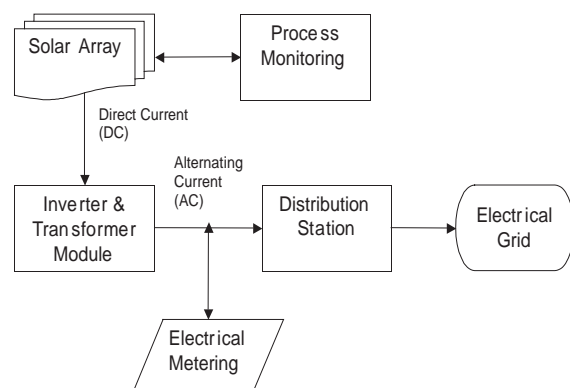
Solar array: Polycrystalline solar cells capable of maintaining generating efficiency for 25 years.

Inverter & Transformer Module: Converts direct current (DC) from the array to alternating current (AC) at the desired distribution voltage of 27.6 kilovolts (kV).

Electrical Metering: Monitors and measures electricity supplied to electrical grid.

Distribution Station: A distribution line running from the project site to the Dunboyne Distribution Station where electricity is made available to the electrical grid.

Electrical Grid: The project will produce enough electricity to supply 1,500 households.



Project Design

Project Components

The main components of this project consists of:

- Photovoltaic Solar Array
- Electrical Systems and Connections
- Access Roads and Fencing



Solar array mounted on racks



Solar arrays connected to supports



Support beams and columns



Installation of Support Columns

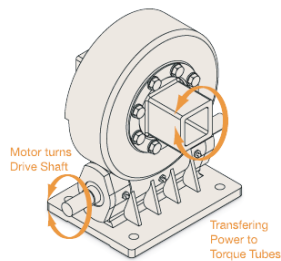


Electrical Inverter and transformer



Solar array tracking module

Photos courtesy of the National Renewable Energy Laboratory



Photos courtesy of Array Technologies

Photovoltaic Solar Array

- Photovoltaic solar arrays will be mounted on racks and connected in series and parallel
- The racks will be attached to horizontal beams supported by pile driven columns
- Up to 44,520 solar panels (2 m x 1 m) may be used for this project

Electrical Systems and Connections

- The solar arrays will be capable of “tracking” the sun to maximize energy yield using small electrical motors
- Electrical cables connecting the array to the inverter & transformer module will be trenched and buried under ground
- Inverter and transformer modules will be located alongside access roads and connect at the site entrance
- The distribution line will exit the project site along Vienna line and travel north along Imperial road to the Dunboyne Distribution Station
- An alternate connection point may require the line to extend past the distribution station and connect to the M4 feeder 100 m west along John Wise Line)

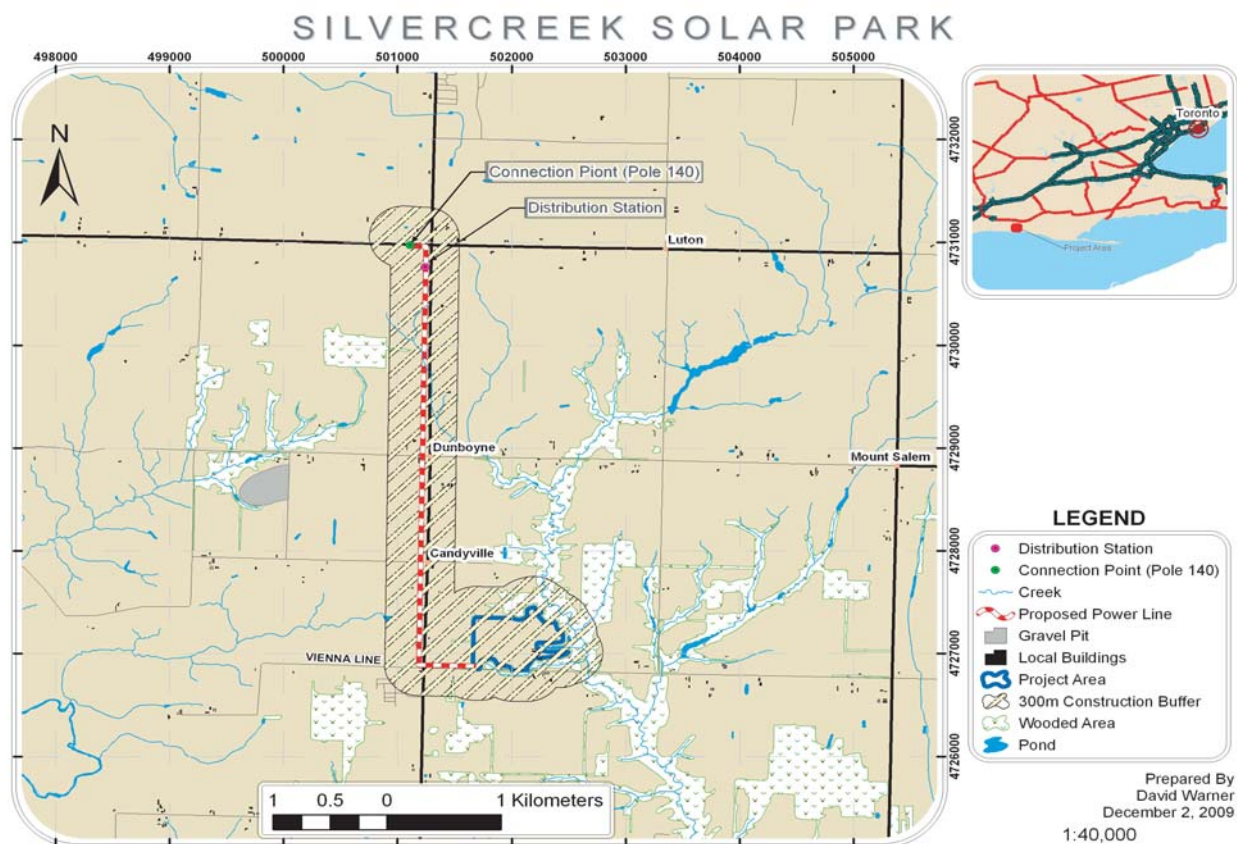
Access Roads and Fencing

- Two centralized north-south roads will be maintained on site to provide access to the inverter/ transformer modules and solar arrays
- Fencing will be erected around the site and access to the facility will be controlled via a secure gate on Vienna Line
- The existing access point on Vienna Line is sufficient for the needs of the project and will not require upgrades or modifications

Project Design

Design Features

- Incorporates development setback distances from natural features
- Centralized access roads and electrical equipment located away from adjacent landowners
- Minimizes site disturbances through the use of pile driven supports avoiding foundations
- Horizontal axis tracking to maximize power generation while minimizing system complexity
- Relatively short distance (4.5 km) to connection point
- **Low environmental impact to surrounding lands and natural features**



Project Development

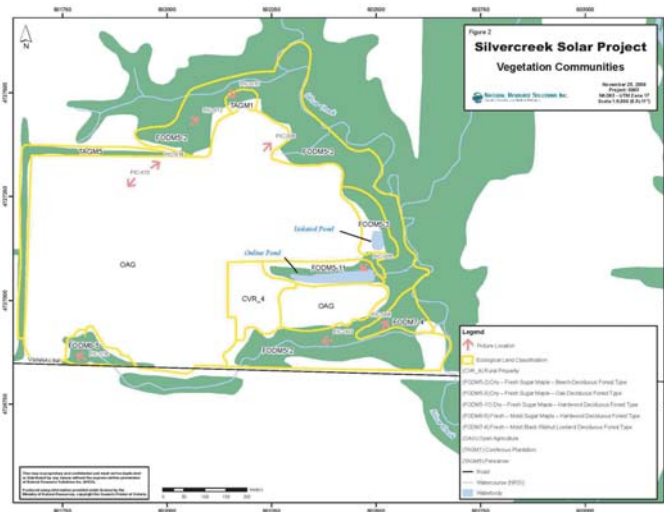
The above diagram and associated descriptions presented at this public open house represents the preferred design approach. As the project progresses through municipal, government and public consultation, modifications or alterations to the preferred design may result. As per regulatory requirements, potential construction impacts within 300 m will be investigated.

Comments cards are available at the sign-in desk and are located throughout the hall

Natural Heritage Assessment *Soil and Vegetation*

Soil

- The project will be located entirely on Class 3 agricultural lands
- The site has been primarily used for production of agricultural crops, such as tobacco, soybeans, wheat and hay
- Consistent with the Renewable Energy Approval Regulation, proper setbacks will be maintained from all natural features including significant natural areas, significant wildlife habitat, and water bodies



Vegetation Communities

Eight vegetation communities, including five naturally occurring communities, were identified within the project area.

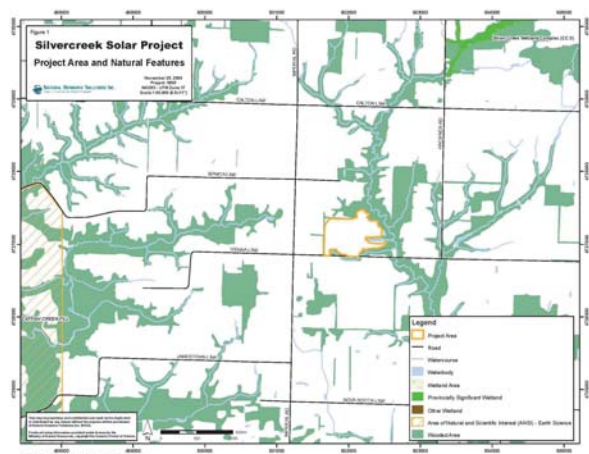
Plant Species

58 plant species were identified mainly along the wooded edge, many of them are non-native or invasive species.

No nationally or provincially listed plant species at risk were found within the project area.

Designated Natural Areas

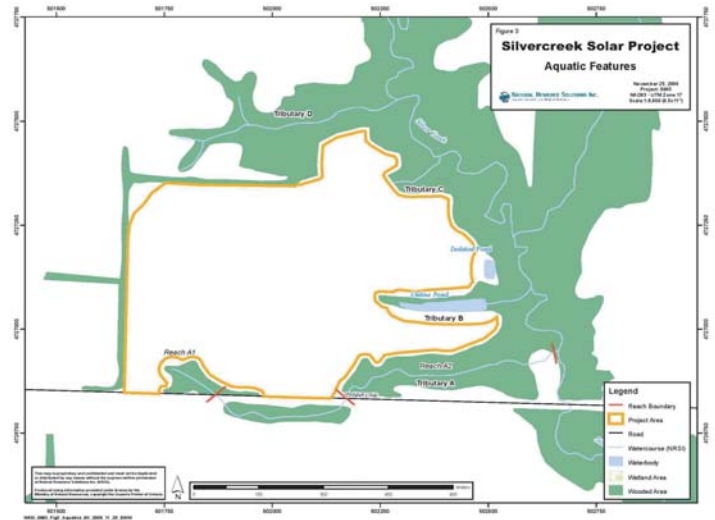
The two closest significant natural areas (EM-12 Wetland and Springwater Forest Area of Natural and Scientific Interest) are located 3 and 6 km from the project site respectively.



Natural Heritage Assessment *Wildlife & Habitat*

Aquatic Habitat

- Silver Creek drains east of the project site and its four unnamed tributaries extend west towards the project area
- Two small man-made ponds are located along the eastern edges of the site
- A minimum setback distance of 30m will be maintained from all water bodies to protect fish habitat and riparian vegetation
- Areas within 30-120m of Silver Creek will undergo an Environmental Impact Study (EIS) to assess potential impacts and need for mitigation measures
- A natural heritage assessment for the project area has been conducted



Terrestrial Habitat

- **No significant mammal, reptile or amphibian species were identified at the project area during the field survey**
- Suitable habitat exists for three species at risk: Snapping Turtle, Eastern Hog-Nosed Snake and Eastern Milksnake in areas surrounding the project site.

Bird Species

- 109 bird species may regularly occur or breed in areas adjacent to the project
- Seven species at risk may be potentially present in limited numbers in areas located nearby the project site, including Henslow's Sparrow (endangered federally and provincially), Louisiana Waterthrush (special concern both federally and provincially), Acadian Flycatcher (endangered federally and provincially), Red-headed Woodpecker (threatened nationally and special concern provincially), Chimney Swift (threatened nationally and provincially), Hooded Warbler (threatened nationally and special concern provincially), and Bald Eagle (special concern provincially)
- Of these seven species, only Henslow's Sparrow may use the agricultural habitat of the project site for breeding. The Ontario Breeding Bird Atlas does not confirm breeding for Henslow's Sparrow in Ontario during the 2001-2005 atlas period



Silvercreek Solar Park Open House
Open House
December 18, 2009

1 of 2

Public Consultation is an important and critical aspect of the Renewable Energy Approval (REA) process. Many of the questions below are based upon information provided today, this information will also be available on the project website. Please take the time to complete and submit this comment sheet. If you wish you can also mail in written comments or questions to the address provided prior to **January 4th, 2009**. For further information or an electronic copy of this survey please refer to **www.silvercreeksolar.com**.

A – Demographic Information

1. Do you own property or have rights over property in vicinity to the project area? ☐ Yes ☐ No
- a. If yes do you reside: ☐ Permanently ☐ Seasonally ☐ Other _____
2. If you belong to any local associations please list them: _____
3. What types of activities do you undertake in vicinity to the project?
(Check all that may apply)
- | | | | |
|--|--|---|--------------------------------------|
| <input type="checkbox"/> Agriculture (crops) | <input type="checkbox"/> Agriculture (livestock) | <input type="checkbox"/> Commercial | <input type="checkbox"/> Residential |
| <input type="checkbox"/> ATVing | <input type="checkbox"/> Snowmobiling | <input type="checkbox"/> Bird Watching | <input type="checkbox"/> Cycling |
| <input type="checkbox"/> Recreation | <input type="checkbox"/> Fishing | <input type="checkbox"/> General Interest | <input type="checkbox"/> None |
| <input type="checkbox"/> Research (Type) _____ | | <input type="checkbox"/> Other _____ | |

B – Silvercreek Solar Park General Information

1. The material presented provided a clear understanding regarding the construction, operation and size of the solar park development.
- ☐ Strongly Agree ☐ Agree ☐ Undecided ☐ Disagree ☐ Strongly Disagree
2. The proposed project can be constructed and operated without significant impacts on adjacent municipal properties.
- ☐ Strongly Agree ☐ Agree ☐ Undecided ☐ Disagree ☐ Strongly Disagree
3. The Silvercreek Solar Park can be constructed and operated without significant impacts on the natural environment (water, air and land)
- ☐ Strongly Agree ☐ Agree ☐ Undecided ☐ Disagree ☐ Strongly Disagree
4. At the next open house presentation I would like to see more information presented on:
- | | | |
|--|--|---|
| <input type="checkbox"/> Solar Technologies | <input type="checkbox"/> Project Design | <input type="checkbox"/> Project Operations |
| <input type="checkbox"/> Natural Environment | <input type="checkbox"/> Distribution Line Routing | <input type="checkbox"/> None |

Information will be collected and used in accordance with the Freedom of Information and Protection of Privacy Act, and solely for the purpose of assisting Silvercreek Solar Park Inc. in meeting Renewable Energy Approvals requirements. This material will be maintained on file for use during the study and may be included in project documentation. With the exception of personal information, all comments will become part of the public record.

2 of 2

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Would you like to be added to our mailing list? ☐ Yes (E-mail) ☐ Yes (Standard Mail) ☐ No Mail

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Silvercreek Solar Park: Open House December 18, 2009
Please provide any additional comments or questions in the space below

Name: _____

Address: _____ Town: _____

Phone: _____ Postal Code: _____

Email: _____

Would you like to be added to our mailing list?

☐ Yes (E-mail) ☐ Yes (Standard Mail) ☐ No Mail

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Silvercreek Solar Park Open House– Sign In Sheet

December 18, 2009

Name	Organization	Address	Phone	Email	Would you like to receive project updates?*
					<input type="checkbox"/> Email <input type="checkbox"/> Mail <input type="checkbox"/> None
					<input type="checkbox"/> Email <input type="checkbox"/> Mail <input type="checkbox"/> None
					<input type="checkbox"/> Email <input type="checkbox"/> Mail <input type="checkbox"/> None
					<input type="checkbox"/> Email <input type="checkbox"/> Mail <input type="checkbox"/> None
					<input type="checkbox"/> Email <input type="checkbox"/> Mail <input type="checkbox"/> None

*Please be advised, by selecting 'none' you will receive no updates or project status information at anytime through out project development unless the proponent is obligated to contact you as per the Renewable Energy Approvals process.

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