NEWBORO 1 SOLAR

SunE Newboro 1 Solar Farm

Design and Operations Report

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GENIVAR

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1. Site Plans and Facility Design Plan

1.1 Overview

SunEdison is proposing a single Class 3 Solar Facility with a nameplate capacity of 10 MW (AC) near the villages of Newboro and Crosby in the Township of Rideau Lakes, Ontario. If approved, this facility will convert solar energy into electricity to be fed into the Hydro One distribution grid. The defined Project Location, presented as Figure 1 (Appendix A), covers approximately 142 hectares (ha).

The major components of the projects are as follows:

- → Approximately 40,000 x MEMC solar modules (260 to 300-watt generation capacity)
- → Approximately 320 disconnect combiners
- → 44 kV Substation including pole-top motor-operated disconnect; 44 kV switchgear; revenue grade PT's, CT's and metering; 10 MVA oil filled pad-mount transformer; interrupter switches, communication equipment, etc.
- → Approximately 20 x 500-MW inverters (two inverters for each 1-MW block) and 10 corresponding 1000-kVA transformer
- → Internal access driveways
- → Temporary staging areas for the installation of the solar panels
- → A 25-m tall communications tower (to be confirmed with Hydro One)

1.2 Project Components

1.2.1 Solar Photovoltaic Modules

The solar PV technology to be used on this project will be MEMC module, between 260 to 300-watt capacity. There will be a total of approximately 40,000 modules, each approximately 2 m long x 1 m wide. The modules will be held by a single-axis tracking or fixed rack system which is supported off the ground by vertical posts. Racks will be arranged into north-south rows (tracking) each approximately 111 m long and 3 m wide.

All components are certified for application in a solar farm generation configuration.

1.2.2 Electrical System

The solar farm will connect to the Hydro One 44-kV distribution line (the M26 Feeder) running east-west along Narrows Lock Road. This will involve the construction of a 44 kV electrical line running from the project to the connection point. Hydro One will construct and own this line.

DC power collected from modules will be directed to approximately 20 inverter/step-up transformer units placed on concrete pads (2 inverters per pad). The AC power from the step-up transformers will be collected via 12.47-kV buried lines and connected to the main substation. This substation will include a transformer (12.47 kV to 44 kV) and associated switchgear and will be on a concrete pad. Hydro One will construct and own the tap line running from the substation.

The project will be designed in full conformance with all applicable electrical, building and other codes.

1.2.3 Access Roads

Gravel driveways within the project site will be constructed to provide access to the equipment during the construction phase and later for maintenance access over the project's 20-year minimum life.

1.2.4 Communications and SCADA

It is proposed to provide Supervisory Control and Data Acquisition (SCADA) functions for remote supervisory monitoring and control. This system allows data on performance of the arrays, inverters, substation and weather conditions to be recorded and displayed at a control station, and also provides warnings if there are abnormal conditions. If required, a single 25-m tall communications tower will be constructed to facilitate communications.

1.2.5 Construction Laydown Area

One area (< 2 hectares) will be used for construction activities and will be located in the southwest end of the Project Location close to Narrows Lock Road. The topsoil at the Construction Laydown Areas will be removed and approximately 600 mm of clean compacted crushed gravel will be imported on an as-needed basis. The excavated topsoil will be re-used on site as feasible.

1.3 Consideration of Natural Features and Watercourses

The layout of the solar farm took many factors into consideration including: environmental features in the project area, watercourses, noise, and archaeological resources. To better understand these factors, background studies were undertaken and the results of these studies were used in the design of the layout to minimize any potential environmental impacts. These background studies are presented in the appendices and summarized in the following sections.

1.3.1 Natural Heritage and Water Features

A Natural Heritage Assessment (NHA) has been conducted and submitted as part of the REA package. This assessment included a records review, site investigation, evaluation of significance and environmental impact study of all potentially significant natural features within 120 m of the project location. Details of these studies can be found in Appendix C.

The property vegetation on and within 120 m of the Project Location is typically characterized by cultural meadow with cultural thickets in the north and southeast portions of the property, and dry-fresh sugar maple deciduous forests along the north portion of the Project Location. There is a watercourse (minor agricultural drain (man-made)) located within the Project Location that extends southwest to County Rd 14. The main woodland has been heavily logged which has influenced structure and composition, resulting in a patch species assemblage that is mostly dominated by young sugar maple.

Greater than 120 m from the Project Location is an unnamed watercourse with an associated wetland which lies to the northeast of the Project Location. There is an unnamed intermittent watercourse that lies in the western half of the project location and is located approximately 15 m from the western boundary of the development footprint. The watercourse appears to be a man-made farm ditch dug to facilitate drainage on the adjacent fields. The watercourse does not provide fish habitat and is thought to have little ecological value. The watercourse is under the jurisdiction of the Cataraqui Region Conservation Authority and is regulated for its hydraulic function.

The natural features were evaluated for their significance (*Natural Heritage Assessment Evaluation of Significance Report*, Appendix C) and the following significant natural features were identified:

- Significant woodland which includes woodland raptor wintering area; and
- Woodland Amphibian breeding habitat

The project has been designed to avoid natural features and wildlife habitat as much as possible and to minimize impacts on natural features and wildlife habitat may be affected during construction due to site grading or other earth-moving activities, accidental spills, removal of vegetation or direct loss of areas. In order to prevent and/or minimize adverse effects on these features the mitigation measures proposed are shown in the following table and detailed in the *Natural Heritage Assessment Environmental Impact Study Report*, Appendix C and *Water Body Environmental Impact Study Report*, Appendix C.

Significant Natural Feature	Proposed Mitigation Measures
Significant Woodland Woodland Raptor wintering area	No vegetation clearing adjacent between early April and late June Ensure no loss of woodland outside of Project Location Standard BMPs for dust control, road construction and erosion control Site will be re-vegetated as an open meadow after construction Mowing of grass during operation will be delayed until mid-July
Woodland Amphibian breeding habitat	No vegetation clearing of pond areas (if present) between early April to late June Ensure no loss of woodland outside of Project Location Standard BMPs for dust control, road construction and erosion control Site will be re-vegetated as an open meadow after construction Mowing of grass during operation will be after construction Mowing of grass during operation will be delayed until mid-July

1.3.2 Noise Study

Noise caused by inverters and transformers are cited as potential concerns by local residents. In order to determine the potential impacts of these effects on the study area, modelling studies have been completed in accordance with the MOE guidelines. The noise study indicates that the 40 dBA limit will not be exceeded at any receptor.

1.4 Consideration of Archaeological Resources, Heritage Resources and Protected Properties

Consideration must be given to the potential impact which the project may have on Archaeological and Heritage resources as well as Protected Properties. Stage 1 & 2 archaeological surveys have been completed with the results reported in Appendix D. There were 3 significant archaeological finds (H1, H2 and H3) were identified within the project location. However, only H1 is located in close proximity to the project development area. A Stage 3 site-specific assessment was conducted in August-September 2012. Site H1 is located close to the proposed solar infrastructure. Stage 3 findings were used to determine the extent of the affected area surrounding H1 and the modifications needed for the solar panel layout. Based on the findings it was determined that the layout should be modified with a shift of some of the solar panels north on the site to provide a greater buffer between the infrastructure and the archaeological site. The Project Layout remained the same between the previous and revised layouts.

1.5 Design Constraints and Setbacks

The results of the background studies were used to aid in the layout of the solar array, roads and electrical collector systems. The Renewable Energy Approvals Regulation (O.Reg. 359/09) provided generic setback distances which are summarized in the table below.

Setback	Distance (m)	Notes
Natural Heritage Setbacks (Significant woodlots, wetlands,	120 m	From the nearest edge of the construction area (fence line) to the nearest point of the natural

Setback	Distance (m)	Notes
valleylands and ANSIs)		feature. Unless an Environmental Impact Study has been completed.
Water Features	120 m	From the nearest edge of the construction area (fence line) to the nearest point of the water feature. Unless an Environmental Impact Study has been completed.

1.5.1 Provincial Policy Plans

The SunE Newboro 1 Solar Farm project is not located in any of the Provincial Land Use Plan areas (Niagara Escarpment, Lake Simcoe, Oak Ridges Moraine or the Greenbelt).

2. Operations

2.1.1 General

The solar farm will require technical and administrative staff to maintain and operate the facility. Most of the farm's operation will be controlled automatically or remotely, through a central monitoring hub. It is expected that a team of 1-2 full-time workers will be required to keep the facility operating properly and maintained regularly. Generally, a team of maintenance personnel covers a regional territory that houses multiple solar farms. The primary workers will be electricians, grounds keepers and mechanics, as well as software technicians who carry out maintenance on the equipment, along with a general supervisor.

Solar panels should operate during daytime hours, in both direct and diffuse light conditions (although at a lesser power output). Each 1-MW block (i.e., a series of array rows connected to two 500-kW inverters) has a comprehensive control system that monitors the panel and electrical subsystems, as well as the local insolation conditions to determine whether operations should be carried out. If an event occurs which is considered to be outside the normal operating range of the array (such as electrical trips), panel weight overload (e.g., snow, extremely high winds), the array will immediately take itself out of service and report the condition to the SCADA system. A communication line connects each 1-MW block to the monitoring hub, which closely monitors and, as required, controls the operation of the array.

2.1.2 Routine Farm Maintenance

Routine preventative maintenance activities are scheduled at six-month intervals with specific maintenance tasks scheduled for each interval. Maintenance is performed by removing the MW block from service and inspecting the electrical, control and mechanical systems on the array. Consumables are used, such as the various greases used to keep the mechanical components operating at peak performance. Following all maintenance work on the MW block, the area is cleaned. All surplus lubricants and grease-soaked rags are removed and disposed of in a prescribed manner. All maintenance activities will adhere to the same spill prevention industry best practices undertaken during the construction phase. Additional maintenance activities will include grass cutting, vegetation removal and fence repair. No pesticides or herbicides will be used during maintenance activities.

2.1.3 Unplanned Farm Maintenance

Modern solar panels are very reliable and the major components are designed to operate for over 25 years. However, with large numbers of modules it is inevitable that component failures will occur despite the high reliability. Most commonly, the failure of small components such as switches, fans, or sensors will take a MW block, or even the entire farm out of service until the faulty component is replaced. These repairs can usually be carried out by a single technician visiting the farm for several hours.

2.1.4 Electrical System

The collector lines and substation will require periodic preventative maintenance activities. Routine maintenance will include condition assessment and protective relay maintenance of the substation as well as vegetation control.

2.2 Operational Activities – Environmental Effects

The following discussion on the potential environmental effects has been provided for the operational activities associated with the solar farm. This discussion will help to put into perspective the environmental effects monitoring plan provided in the next section.

2.2.1 Solar Farm Operation

2.2.1.1 Visual Impacts

Activities	Solar Farm operation
Environmental Component Affected	Visual Landscape
Potential Impacts	Passersby may be able to see the solar panels and some may perceive this to be a reduction in the aesthetic quality of the landscape.
Mitigation Measures	Siting of the array away from residents reduces the visual impact. The layout has the solar panels sited away from Narrows Lock Road to minimize the potential impact. Working directly with affected neighbours, and where appropriate, developing suitable landscaping plans to mitigate the visual impact of the solar farm in the rural environment. Examples of mitigation could include wooden fences, vegetative buffers on neighbours properties, SunEdison's, or both, depending on the situation and needs.
Residual Impacts	Minimal residual impacts are anticipated. A change to the landscape will occur for the duration of the project and the site will be somewhat visible to the public.

2.2.1.2 Noise Impacts

Activities	Solar Farm operation
Environmental Component Affected	Noise Levels – Local Residents
Potential Impacts	No noise above background levels is expected at any nearby neighour (receptor). The anticipated noise comes from the inverter and transformer which results in an electrical hum. No noise will be greater than the prescribed limit, 40 dBA, after 7:00 pm and before 7:00 am. Since there is no sunshine at night, there will be no power running through inverters. Please see the *SunE Newboro 1 Noise Assessment (Appendix E).*
Mitigation Measures	None required.
Residual Impacts	No residual impacts are anticipated.

2.2.1.3 Wildlife Disturbances

Activities	Solar Farm operation

Environmental Component Affected	Wildlife and Birds
Potential Impacts	Based on experience at other operating solar farms, no negative impacts are anticipated during operations.
Mitigation Measures	None required.
Residual Impacts	The small amount of noise associated with inverters and transformers is limited to a small area around each structure, and will not cause any disturbance to birds or other wildlife.

2.2.1.4 Maintenance Activities

Activities	The solar array will be visited by maintenance staff for routine inspections monthly after commissioning.
Environmental Component Affected	Wildlife and Birds
Potential Impacts	Routine maintenance visits will be less of a disturbance than the regularly occurring farming activities now taking place on farmlands surrounding the site. Maintenance activities include regular lubrication of the tracking units which generates some waste material.
Mitigation Measures	Land will remain privately held, limiting access to the sites. Maintenance personnel will be instructed not to disturb wildlife if encountered during activities at the site. Any waste material from the maintenance activities will be properly disposed of by authorized and approved offsite vendors.
Residual Impacts	Infrequent visits by maintenance staff will have little residual impacts.

3. Environmental Effects Monitoring Plan

Monitoring is fundamental to confirming key net effects from the project. The intent of monitoring will be to verify compliance with federal and/or provincial requirements and to assess the actual impacts of the operation. Detailed post-construction monitoring plans, if required, will be developed, following discussions with the applicable agencies (e.g., Environment Canada, Ministry of Natural Resources, and Ministry of the Environment) and in accordance with any conditions attached to the Renewable Energy Approval.

3.1 Construction Staging

The timing and execution of construction activities will be scheduled to minimize the potential impacts on the natural environment. For example, construction activities (including site clearing) may be limited during sensitive breeding bird season (early April to late June) to minimize potential impacts. The staging aspects which will be incorporated include:

- Construction and reclamation activities will be scheduled to be conducted as close to each other as is feasible, in an effort to minimize the time any one area is disturbed.

3.2 Erosion and Sedimentation Control

Erosion and Sediment Control will be used to prevent the release of sediment from construction works within or adjacent to sensitive environmental features, and/or to contain sediments within the work area in cases where erosion is unavoidable. Accepted and proven standard construction best practices will be used to mitigate erosion and provide sediment control. Measures will be implemented so that sediment is prevented from entering any water body. In order for these measures to be effective, it is imperative they are installed correctly in the proper location, inspected, and repaired when necessary. This outcome is achieved through proper coordination by individuals involved in the planning and implementation of these mitigation measures.

The following is a typical list of measures to be implemented for controlling the release of sediments during construction:

- Areas where erosion potential is high will be identified prior to the start of construction activities;
- Sedimentation control measures will be installed prior to any clearing or construction activities;
- Site grading will occur only within demarcated areas within Project Location;
- Stripped material will be stockpiled for future use and these stockpiles will be located away from watercourses or drainage features;
- Stockpiled material will be sloped to a maximum of 2:1 to minimize run-off;
- Light duty sediment fencing will be placed along any unconsolidated slope to prevent sediments from reaching the water feature. Filter fabric is the only acceptable fencing material to be used (i.e., no plastic-braided fencing). Fencing shall be secured along the base by digging in the filter fabric and backfilling with earth to grade, to prevent runoff from flowing underneath the bottom edge. In the area where the work area drains overland flow towards the watercourse, the fencing will be doubled with a row of hay bales installed between the fencing and on the upstream side. The hay bales will be installed in a shallow (~5 cm) trench packed tightly together and staked into position;
- Sediment fencing shall be placed along the base of all spoil piles to prevent sediment-laden runoff from entering ditches or watercourses;
- Rock check dams and/or hay bales shall be installed in project-affected drainage ditches to entrap sediments and reduce water velocities to facilitate sediment deposition. Rock check dams will be installed via a standard sediment fence installed perpendicular to the flow and then filled with fine gravel or filter sand on either side. Alternatively, double sediment fencing and the associated hay bales may be installed to achieve the same result, however additional staking may be required to prevent hay bales from floating in the associated deeper waters;
- All disturbed areas will be stabilized and re-vegetated as soon as feasible; and
- Sedimentation control measures will be left in place until all disturbed areas have been stabilized.

3.3 Vegetation and Wildlife During Construction

The facility has been designed so that the disturbance of native vegetation and wildlife habitat will be minimized. Additional procedures to be employed include:

- Clearly marked work areas with vehicle traffic being restricted to the work areas;
- Visual monitoring of work area to ensure compliance (no encroachment beyond Project Location);
- Vegetation clearing will not take place during the early April to late June time period;
- Wildlife will not be harassed or fed;

- Nuisance wildlife will be reported to the environmental inspector. If the situation poses a danger to the crew or animals, the Ministry of Natural Resources will be contacted; and
- Vehicle traffic will be limited to 30 km/h or less on access driveways to reduce the potential for collisions with wildlife.

3.4 Soil Quality and Agricultural Capacity

The project will attempt to minimize any impacts to the agricultural capacity of the land. Procedures to ensure this include:

- Spill clean-up equipment will be on-site at all times and any spills will be reported to the environmental inspector and, if the spill is of sufficient size, to the MOE spill response centre;
- All work areas will be clearly marked;
- Stripped topsoil will be stockpiled during construction; and
- Upon completion of the construction work, the work areas and access driveways will be reduced to the minimum size needed, de-compacted and the topsoil will be used to restore all non-used work areas to productive capacity.

3.5 Archaeological Resources

Construction activities have the potential to disturb undiscovered archaeological resources. Should any archaeological resources be found during construction, work will suspended within the immediate area of the find site and the MTCS will be contacted immediately. A licensed archaeologist will be contracted to assess the find make recommendations on avoidance or removal should the find be determined to be significant.

3.6 Waste Management

All wastes will be handled and disposed of in accordance with applicable regulatory requirements and in a manner which is protective of the environment. Proposed procedures to ensure this include:

- Compliance with all applicable regulations including the Environmental Protection Act (EPA)'s Regulation 347 (as amended);
- The contractor will implement a re-use and recycling program in accordance with available municipal programs;
- The Contractor will provide sufficient and appropriate waste containers around all active work sites;
- No waste will be buried or otherwise disposed of onsite;
- Good housekeeping practices including daily work site clean-up will be implemented;
- All oil, grease, hydraulic fluids and any hazardous wastes will be stored in a designated and secure area with secondary containments. These materials will be periodically removed by a licensed contractor; and
- All sewage will be collected in holding tanks (portable toilets) and removed from the site by a licensed contractor for disposal at a licensed facility.

3.7 Noise, Air and Dust During Construction

Construction activities have the potential to impact local air quality and increase local noise levels. The following measures will be implemented in order to avoid or minimize these effects.

- Construction traffic will be limited to 30 km/h or less on access driveways to minimize dust generation;
- Dust will be controlled using watering when necessary;
- Construction equipment idling will be minimized;
- All engines (vehicles and generators) will meet all emission requirements specified by the MOE and MTO;
- Stockpiled soil will be covered or wetted during dry and/or windy conditions as needed to minimize dust; and
- SunEdison representatives will respond to any concerns or complaints in an expeditious and courteous manner.

3.8 Inspections

An inspector will make frequent site inspections to ensure compliance with all environmental policies and plans. Duties of the inspector(s) will include:

- Daily log and weekly reports completed by the contractor's inspector;
- Prior to construction SunEdison and the inspector will jointly determine that all required permits, licenses and approvals are in place prior to the commencement of construction. The inspector will also review the permits on a weekly basis and report to SunEdison any which may be approaching the expiry date;
- The inspector will make daily inspections of all activities which may cause adverse effects and of any implemented mitigation measures (sediment traps and fencing); and
- Should any activities which may cause an adverse effect be observed, the inspector will make a verbal report to the project manager and the SunEdison representative. This will be followed up with a written report.

3.9 Post-Construction Noise Emission Monitoring

The EPA requires that noise emissions for any new project must not have any adverse effects on the natural environment. The Renewable Energy Approvals process is the means by which this is controlled under the EPA. Prior to construction, a Renewable Energy Approval (REA) will be obtained. Any conditions of approval and follow-up measures that may be identified in the REA will be strictly adhered to.

Prior to construction, a monitoring process to address all complaints, including those dealing with noise levels, will be established. This will include a 1-800 number as well as local contact personnel.

3.10 Potential Environmental Effects, Mitigation Measures and Monitoring

The potential environmental effects, mitigation measures, monitoring objectives and monitoring plan are presented in Table 1.

Table 1: Environmental Effects and Monitoring Requirements

Project Activity	Potential Effects	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures
Construction Activities				
Construction Activities	Disturbances to wildlife & birds due to construction activities	○ No wildlife mortality	○ Ensure no loss of woodland beyond Project Location ○ Clearly marked construction limits ○ Minimal time required to complete activities ○ Site will be re-vegetated as an open meadow after construction	○ Construction inspection and surveying to maintain setbacks <u>Contingency Measures</u> ○ Suspend construction during breeding periods
	Impacts to vegetation and soil through site clearing, grubbing and soil excavation	○ No loss of soil or soil fertility ○ Minimize bird and amphibian habitat loss	○ Site clearing and grubbing will be kept to a minimum area on-site by staking and marking off the areas that define limits of the work to be done ○ Ensure no loss of woodland beyond Project Location ○ No vegetation clearing adjacent between early April and late June ○ Excavated soil will be re-used on-site where feasible, or disposed of in a proper facility off-site. ○ Sedimentation and erosion controls	○ Inspection of top soil separating ○ Construction inspection and surveying <u>Contingency Measures</u> ○ Importation of new topsoil
	Impacts to surface water features from construction	○ No increase in sedimentation in watercourses ○ No changes in drainage / hydrological function	○ Adherence to setback, maintain a vegetated buffer from watercourse, and enhance vegetation within buffer zone where deficient ○ Complete permitting process with the RVCA and/or CRCA, if required ○ Minimize changes to land contours and natural vegetation through appropriate rehabilitation following construction ○ Proper sizing and installation of culverts (if required) ○ Stabilization of disturbed surfaces to prevent erosion ○ Installation of light duty sedimentation fencing installed around work area during construction	○ Routine inspection of erosion control devices ○ Inspection of final restored surfaces to ensure vegetation re-growth <u>Contingency Measures</u> ○ Repair, replacement or installation of additional erosion control measures

Project Activity	Potential Effects	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures
	Impact to local groundwater quality	o No decrease in groundwater quality	o Avoid installing piles in bedrock, where possible o Install pile (where required) in bedrock using industry best practice (grout, bentonite, etc.) to prevent the excessive migration of surface water off-site	o Pre-construction groundwater monitoring and geotechnical assessment of soils and/or bedrock o Post-construction groundwater monitoring
	Potential short-term closures on local roads to provide room for trucks to deliver project components. A short-term increase in truck traffic during construction period.	o Minimal delays o No road closures	o Complete Traffic Impact Study with input from the municipality and roads departments o Delivery of equipment will be coordinated with local traffic patterns (e.g., scheduling of large deliveries that could require temporary road closures) o Traffic control plan will be developed (with input from the municipality and roads departments)	o Complaint tracking <u>Contingency Measures</u> Establish alternate delivery routes
	Archaeological resources	o No loss of archaeological resources	o Stage 1 & 2 archaeological field surveys of all areas to be disturbed showed no resources o If any unknown archaeological resources are found then follow MTCS protocols/guidelines (if practical, the resources will be removed and catalogued in accordance with MTCS guidelines)	<u>Contingency Measures</u> Should any archaeological resources be found during construction, work will be suspended within the immediate area of the find site and the MTCS will be contacted immediately. A licensed archaeologist will be contracted to assess the find and make recommendations on avoidance or removal should the find be determined to be significant
	Fuel or transformer oil spill	No spills	o Any leak or spills from trucks or machinery would be contained and site would be properly cleaned up and disposed of at registered disposal facilities o Transformers used in the project are silicone based and do not contain hydrocarbons o Refuelling of all vehicles and equipment will be done away from watercourses during construction	<u>Contingency Measures</u> o Notification of Spills Action Centre, if required o Assess and remediate impact soils

Project Activity	Potential Effects	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures
	May experience annoyance with dust and/or noise		○ Dust suppression measures will be employed, as necessary ○ On-site supervisor to address any noise complaints	○ Recording and communication of complaints to local authorities Contingency Measures ○ Suspension of construction during high winds ○ Suspension of construction during evening hours
Operational Activities				
Solar Farm Operation	Reduction in aesthetic (visual) quality of landscape	None Required	○ Complaints tracking ○ Adherence to noise setbacks will site inverters away from residents, minimizing visual impact from solar farm operation	○ Recording and communication of complaints to MOE ○ Vegetative buffers and site landscape plan
	Noise impacts on receptors (residents located on non-lease properties)	<40 dBA at non-participating receptors No noise complaints	○ Adherence to noise setbacks ○ Noise modelling to predict sound levels ○ Repair equipment in a timely manner ○ Complaints tracking	○ Complaints Tracking ○ Follow up monitoring in response to complaints Contingency Measures ○ Repair damaged components
	Impacts to wildlife from grass cutting	No bird / amphibian mortality	○ Delay grass cutting until mid-July	○ Mortality reporting by maintenance staff Contingency Measures ○ Pre-cutting inspection by a biologist
	Reflection	No public complaints	○ Complete reflectivity study ○ Planting of trees or shrubs near affected houses	○ Complaints Tracking ○ Follow up monitoring in response to complaints Contingency Measures ○ Additional plantings and/or shades
	Spill of fuel or transformer oil	No spills	○ SorbWeb will be installed as a means of handling any spills in transformer sub-station ○ Proper disposal of waste materials ○ No re-fuelling on-site	Contingency Measures ○ Notification of Spills Action Centre, if required ○ Assess and remediate impacted soils
Decommissioning Activities				
Removal of Equipment	Sensory disturbance (sound and visual presence)	None	○ Complaints tracking ○ Impacts from equipment usage & personnel present will be short term	○ Recording and communication of complaints to MOE
	Dust	No offsite impacts	○ Watering of exposed soils ○ Maximum speeds	○ Recording and communication of complaints to local authorities

Project Activity	Potential Effects	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures
	Surficial disturbance	No increase in sedimentation in water bodies	○ Re-grading of site & land use restored after equipment disturbances complete ○ Re-grading of site to open meadow or reforested (at discretion of MNR) ○ Install erosion control measures	○ Frequent inspection of erosion control devices ○ Inspection of final restored surfaces ○ On-going consultation with landowners <u>Contingency Measures</u> ○ Repair, replacement or installation of additional erosion control measures
Removal of Transformer	Spill of transformer oil	No spills	○ SorbWeb will be maintained during decommissioning to prevent soil contamination in the event of a leak ○ Proper disposal of waste materials	<u>Contingency Measures</u> ○ Notification of Spills Action Centre, if required ○ Assess and remediate impacted soils

Project Activity	Potential Impacts	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures
Accidents and Malfunctions				
Accidents & Malfunctions	Land contamination from lubricant/transformer fluid leak or spill and lightning strikes	No spills	○ Small quantities of lubricants present in the tracking system ○ Any leak or spills from trucks or machinery would be contained and site would be properly cleaned up and disposed of at registered disposal facilities ○ Transformers used in the project are silicone based and do not contain hydrocarbons and SorbWeb will be installed ○ Refuelling of all vehicles and equipment will be done away from watercourses during construction and no re-fuelling on-site during operation phase ○ Use of lightning protection equipment	<u>Contingency Measures</u> ○ Notification of Spills Action Centre, if required ○ Assess and remediate impact soils
	Public safety	No Accidents	○ Siting on private property which restricts public access to the array ○ Equipment conforms to CSA standards ○ Fencing of the site and substation for security based on standard utility practices and being code compliant	<u>Contingency Measures</u> ○ Activation of emergency response plan

4. Response Plan

4.1 Public Complaints

Contact information for the local operations and maintenance site will be established and communicated to all local residents. The complainant will be asked to provide the following information:

- Name / Address / Phone number / Cell phone number
- E-mail address
- Location of problem
- Problem or complaint
- Time
- Frequency
- Other details

In addition, the District Manager of the Ministry of the Environment will be notified, in writing, of each environmental complaint. The notification will include:

- Description of the nature of the complaint
- Time and date of the incident related to the complaint
- A description of the measures taken to address the cause of the incident and to prevent a similar occurrence in the future
- Specifically for noise related issues, on-site noise analysis may be conducted. If the tests confirm an exceedance of the critical noise value, appropriate mitigation measures will be implemented.

All inquiries will be directed to SunEdison's Project Manager who will respond to the inquiry accordingly. All inquiries 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. SunEdison will acknowledge the complaint with a response to the complainant. Every attempt is made to resolve complaints received within a reasonable amount of time. For complaints received that cannot be resolved quickly the complainant is informed that the issue will take time to resolve and they will be kept updated on the status of the issue.

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 mailout, if required. Should agencies such as the local municipality or the Ministry of the Environment 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 SunEdison.

4.2 External Communications

The results of the project monitoring will be shared with the appropriate regulatory agencies and may be shared with the public. In the rare instance that the solar power facility exceeds operational parameters (e.g., noise levels) or there is an emergency, the appropriate agency will be notified using the following approach. Remedies will be put in place to ensure that any regulatory requirements are adhered to.

Exceedance of Operational Parameters

If, through the Environmental Effects Monitoring Program, exceedances of the operational parameters are discovered, the appropriate regulatory agencies will be notified via e-mail followed by a hard copy report noting:

- The parameter exceeded;
- Magnitude of the exceedance; and
- Mitigation measures to be implemented.

4.3 Emergency Response

Copies of a detailed emergency response plan, developed in conjunction with the local emergency services, will be distributed to the local municipality prior to the commencement of operations. SunEdison has standard Emergency Action Plans for all of its operating facilities. A plan specific to the SunE Newboro 1 Solar Farm will be developed during the construction phase of this project. This plan will include information on the following:

- Designation of Facility Emergency Coordinators
- Process Description
- Objectives
- Local emergency response contact phone numbers
- Administration
- Regulatory References
- Training
- Facility Location Information
- Facility Emergency Procedure
- Immediate Site Evacuation Procedures and Routes
- Delayed Site Evacuation Procedure
- Personnel Injuries/Serious Health Conditions
- Fire Response Plan
- Chemical/Oil Spills and Releases
- MSDS sheets for all chemicals used in construction and maintenance
- Weather-Related Emergencies