

Delaware River Solar, LLC

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Operations & Maintenance Plan

**30 Morris Road
SBL: 24.1-4
5MW AC Solar Facility**

Prepared for:
**Town of Dryden
Tompkins County, New York**

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1. Introduction

NY Dryden III, LLC (“Project Owner”), an affiliate of Delaware River Solar, LLC, proposes to build a photovoltaic (PV) solar facility (“Solar Facility”) at 30 Morris Road in the Town of Dryden (“Town”) under New York State’s Community Solar initiative. The Solar Facility is planned to have a nameplate capacity of approximately 5 megawatts (MW) alternating current (AC) total, to be constructed on private land (“Project Site”) leased by the Project Owner from the property owner (“Property Owner”).

This Operations and Maintenance Plan (“Plan”) is being submitted to the Town as part of the application with respect to the Town of Dryden code Section 270-13.12 (“Solar Law”). The Solar Facility is considered a ground mounted large-scale solar energy system as set forth in the Solar Law.

Prior to commercial operation, the Project Owner will enter an Operation and Maintenance Contract (“O&M Contract”) with an operations and maintenance provider(s) (“O&M Contractor”), the scope of which shall include essential works and services needed for the (a) proper operation and maintenance of the Solar Facility and (b) maintenance of the Project Site. The following is a general overview of the O&M Plan to be covered in the O&M Contract.

2. General Requirements of the O&M Plan

- All scheduled Solar Facility maintenance and all landscaping and vegetation maintenance will occur during normal business hours (8:00 A.M. and 7:00 P.M. Eastern Standard Time).
- Commercially reasonable efforts will be used to ensure minimal limits of disturbance when performing any maintenance work of the Solar Facility or Project Site.
- The Project Owner will not use herbicides to manage vegetation. In the event the use of herbicides becomes necessary, the Project Owner will provide the Town’s Code Official with the proposed herbicide type, manufacturer and application details for approval before any application is made.
- In the event there is any damage to ground cover, vegetation or vegetative screening due to maintenance activities (other than caused by normal maintenance activities), the affected areas and vegetation will be repaired.
- Corrective maintenance of the Solar Facility may require specialists outside the abilities and responsibility of the Project Owner.

3. Solar Facility (Components) Maintenance

3.1 Scheduled Service Visits: Preventative Maintenance and Inspections

- Semi-Annual interim maintenance visit
- Annual full maintenance visit
- System testing and verification of data acquisition systems, at least once per calendar year
- Module cleaning once a year, or as determined by Project Owner
- Solar Facility field inspection: visual, electrical and mechanical once per month, or as determined by Project Owner
- Data acquisition system maintenance as needed
- Inverter cleaning and servicing to ensure proper operation. Scheduled maintenance and testing as required to maintain manufacturer’s warranties.
- Scheduled maintenance and testing required to maintain all manufacturers’ warranties on Solar Facility components.

3.2 Unscheduled Service Visits: Corrective Maintenance and Repairs

Unscheduled maintenance visits will generally occur during “Emergency Situations” that would endanger the health and/or safety of surrounding area or “Major Disruptions” to the Solar Facility that

degrades electricity generation that does not create an Emergency Situation, such as failure of Solar Facility components, vandalism, or fallen trees.

In the event of an Emergency Situation, the O&M Contractor and/or the Project Owner will contact the appropriate personnel (fire department, police department) to inform them of the emergency. The O&M Contractor will then dispatch appropriate personnel to the Project Site as soon as possible.

In the event of a Major Disruption to the Solar Facility, the O&M Contractor will schedule a corrective maintenance visit as soon as possible with all reasonable effort to schedule any such maintenance activities between 8:00 A.M and 7:00 P.M.

3.3 O&M Contract

The scope of the O&M Contract shall include essential works and services needed for the proper operation and maintenance of the Solar Facility. The scope of work shall generally include at least, but not limited to, the following items:

- Compliance with the Local, State and Federal Rules, Codes, Regulations and Laws regarding the health and safety of any operation and maintenance works.
- Performance of a preventive and corrective maintenance plan.
- Control and monitoring of the Solar Facility 24/365, including, CCTV alarms and system failures, and coordination with the local fire department and law enforcement.
- Maintain and operate all the infrastructures, equipment and facilities related to the Solar Facility required for the proper operation.
- Provide reports to Project Owner (monthly and yearly) of any major unexpected event.
- Administer and manage supplier's guarantees and warranties.
- Management the paperwork involved with third party site visits such as insurance, governmental agencies and others related.
- On site annual peak power and degradation performance testing of modules to a representative sample of modules.
- Annual IR thermography field test of modules and connections of the electrical panels. The test will be done in the appropriate weather conditions taking into account that the main purpose is to detect hot spot events.
- Spare parts stock management, including all cost associated like insurance, security or transportation.

3.4 Preventative and Corrective Maintenance Plan

The O&M Contractor shall comply with the preventive and corrective maintenance programs to maintain and operate the Solar Facility in the proper way. These actions shall include:

- Inspect, test, and clean equipment, including a periodically cleaning of the modules.
- Replace all spare parts, supplies and consumables necessary for performance of the O&M Contract according to the Preventive and Corrective Maintenance Program and the manufacturer's user manual.
- Perform annual field tests and fix any potential failures that arise due to the test.
- Provide Project Owner a monthly report including at least the following information: energy estimate, energy production, % of availability, weather station information, preventive maintenance services performed, corrective maintenance services performed including spare parts and consumables used. Monthly report should also include a detailed description of:
 1. Any material failure covered by any warranties, action plan and expected timeframe to cover the incident.
 2. Any violation of any applicable law, applicable permit or prudent industry practice due to the

O&M practices, including environmental laws, rules, or regulations enforced by governmental agencies.

3. Any adverse events or conditions that may affect normal Solar Facility operation.
 4. Record of all tests and reviews performed to maintain systems in compliance with the manufacturer user manual, including name of company involved and nature of service.
- Guaranties and warranties of the manufacturers that arise, including without limitation any claims or remedies against any subcontractors or suppliers; and
 - Comply with all permits and maintain in effect all permits required for operation and maintenance of the Solar Facility.

4. General Project Site Maintenance

Frequency of site visits shall be determined based on season (more in summer, less in winter), but no less than quarterly to monitor vegetation. Any required corrective actions will be taken as soon as practical or warranted by the circumstances.

- Visually inspect and report on all fencing for signs of damage, intrusion, and overgrowth of vegetation.
- Inspect signage to ensure all originally installed signs are present and legible.
- Maintenance of access road, including snow removal as needed.
- Vegetation may need to be trimmed or cut back to avoid shading of the solar arrays. The vegetation within the perimeter fencing shall not exceed thirty-six (36) inches in height. Shading inspections will be done semi-annually, and trimming will occur as needed. This would include ground cover, existing vegetation, and screening vegetation. Ground cover will be either mowed, as needed, or sheep may be utilized to graze the array area.
- In the event that any vegetative plantings are found to be damaged or dying that cause a material change in the effectiveness of the screening, the O&M Contractor shall replace said plantings with similar plantings of equivalent height and diameter to the original plantings within a commercially reasonable timeframe, or as weather and seasonal conditions permit.
- Adherence to any Storm Water Pollution Prevention Plan practices, if any.

5. Summary

This O&M Plan has been submitted as part of the special use permit review for a ground-mounted large scale solar energy system as set forth in the Solar Law.

The Solar Facility is considered a ground-mounted large-scale solar energy system as defined in the Solar Law. The Project Owner will enter into an O&M Contract prior to commercial operation of the Solar Facility with an O&M Contractor taking into consideration any conditions of the Solar Law.