



# **Operations and Maintenance Plan**

## ***North Haven Solar One***

**Date:**

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**Prepared By:**

North Haven Solar One, LLC

VCP, LLC d/b/a Verogy





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## Operations and Maintenance Plan

### 1. Introduction

As the owner of the North Haven Solar One solar project, North Haven Solar One, LLC is responsible for maintaining and servicing the photovoltaic (PV) electric system as well as the related facilities during the operational phase of the project. Related facilities include fencing, lighting, grass, roads, storm water devices, etc. This O&M Plan describes the project components, commissioning procedures, monitoring system, Maintenance provisions and emergency response

### 2. Project Description

The proposed Project is a 1.625MW AC ground mounted solar array located in North Haven, CT that will consist of solar modules, inverters, switchgear, transformers, electrical systems interconnected to the utility grid along Mill Road. The Project also includes access roads, security fencing and stormwater management areas.





### 3. Contact Information

Table 1. Project Contact Information

Owner	North Haven Solar One, LLC 150 Trumbull Street Hartford, CT 06103 (860)288-7215 <a href="mailto:sdenino@verogy.com">sdenino@verogy.com</a>
O&M Service Provider	VCP, LLC d/b/a Verogy 150 Trumbull Street Hartford, CT 06103 (860)288-7215 <a href="mailto:sdenino@verogy.com">sdenino@verogy.com</a>

### 4. Commissioning

Prior to the project reaching operation, the following inspections and tests will be performed by the O&M provider. The results will be included in the projects commissioning report.

- Full visual Inspection
- Mechanical inspection including torque verification of critical connections
- String Testing (IV curve test)
- Full System Production Evaluation
- Thermal Scanning





## 5. Monitoring

The O&M provider will utilize a continuous 24/7 remote monitoring system to provide alarm and performance data of the system. The monitoring system will include full site and inverter level production and alarms as well as site weather and irradiance data. The O&M provider will analyze performance data to make sure that the system is performing as designed and will be responsible for dispatching crews for system maintenance and repair related issues. The O&M provider will be contractually obligated to comply with this O&M Plan, as well as the conditions of all permits or regulatory approvals.

## 6. Maintenance

O&M services are outlined below. (The frequency of these services is outlined in Table 2)

### 6.1. Site Access

The solar array and all associated equipment shall be located behind 7-foot chain link fence with gates as depicted on the construction drawings or as directed by permitting authorities. Access to that facility shall be granted to authorized personnel only. Access to that facility shall be arranged with the owner or O&M provider as identified in table 1. Provisions will be in place for Emergency personnel to access the site via a universal key box (i.e. Knox Box) that will have that appropriate key(s) to access the facility.

### 6.2. Equipment Maintenance

Verogy and/or its authorized subcontractors will inspect and maintain electrical and PV equipment in accordance with the manufacturers requirements to maintain proper operation and warranty status.

The O&M provider will also perform the following inspections. The results from these inspections/tests will be provided in an O&M inspection report.

- The operation of all safety devices will be reviewed and corrected to maintain proper function.
- Full visual Inspection of all equipment, subassemblies, wiring, connectors, etc.
- Thermal Scanning of electronic equipment, wiring terminations, connectors, etc.
- Mechanical inspection including torque verification of critical connections
- String Testing (IV curve test)
- Air filter elements





### 6.3. Site Maintenance

Verogy and/or its authorized subcontractors will visit the site monthly to assess site conditions and perform maintenance as needed. Signage and egress functionality will be inspected at this time and repaired, if necessary.

#### 6.3.1. Grass Management

Grass around and under the array will be mowed in accordance with the schedule in Table 2 and will be maintained to a height to reduce the risk of fire. Grass will be re-planted in bare areas to ensure that erosion control is maintained.

#### 6.3.2. Panel Cleaning

Panel Cleaning is rarely necessary in the Northeast, but if that panels are to experience enough soiling to adversely affect production the panels will be cleaned using water and soft bristle brooms. No chemicals will be used.

#### 6.3.3. Snow Maintenance

Verogy and/or its authorized subcontractors will clear snow from the access roads to all the electrical equipment pads. Snow will be plowed or removed in a manner to maintain emergency turnarounds. Verogy does not intend on removing snow from panels

### 6.4. Long-Term Stormwater Maintenance Plan

Currently, the extent of any stormwater management devices is unknown. The O&M team will provide maintenance in accordance with the approved stormwater maintenance plan produced by the engineer of record.

Table 2. Scheduled Maintenance Activity

Task	Frequency
On-Site Ground Inspection	Monthly
Visual Array & Equipment Inspection	1x per year or per equipment manufacturer requirements
Mechanical and Electrical Inspections	1x per year or per equipment manufacturer requirements
Panel Cleaning	As Needed
Mowing and Trimming	2-3 times annually or more as required to maintain a safe site
Snow Removal	As needed
Perimeter Fence Inspection	1x per year
Stormwater Management System Inspection	1x per year or per engineer's stormwater management plan





## 7. Emergency Response

Verogy will coordinate with the Town of North Haven police and fire departments regarding access to the facility and emergency shutoff switches. Table 3 provides an emergency contact list for the Town of North Haven. Each of the entrance gates will have a universal key lock (e.g. Knox lock) for emergency responders.

Table 3. Town of North Haven Emergency Contacts

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Emergencies	Dial 911
North Haven Police Station	Kevin Glenn, Chief of Police 8 Linsley Street North Haven, CT 06473 Emergency Calls: 911 Routine Calls: (203) 239-1618
North Haven Fire Department	Paul Januszewski, Fire Chief 11 Broadway North Haven, CT 06473 Emergency Calls: 911 Routine Calls: (203) 239-5321

