

Operation and Maintenance Plan

Hawthorn Solar

Pine Valley Road and Fords Road

Town of Hoosick, NY

Hawthorn Solar, LLC

2045 Lincoln Highway

Edison, NJ 08817

1 Facility Description

Hawthorn Solar (the “Project”) is an approximately 20MW AC solar project proposed for land along Pine Valley and Fords Road in the Town of Hoosick. The Project is to be constructed on approximately 130 acres of land now and formerly being used for agricultural and forest purposes by the current landowners. The purpose of the facility is the generation of solar electricity. The facility will be interconnected to the National Grid 115 kV transmission line which runs through the project area.

The project is a ground mounted single axis tracking system solar array. The solar panels are mounted on steel structures consisting of posts, beams, rails and bracing. Vertical steel posts will be driven in the ground to a depth of approximately 5-8 feet to anchor the structures. The solar panels will be electrically connected to combiner boxes which will be combined into central inverters which will be mounted on concrete foundation pads. The inverters will be electrically connected to step-up transformers which will transform the voltage to 34.5kV. The transformers will be loop fed together and a single generator tie-line will be installed to the 115 kV transmission line. The site will be accessed via new and improved gravel access roads on Pine Valley and Fords Road.

The estimated useful project life-time is 20 to 40 years. The following list is a summary of the site features:

- 20MW AC Solar array consisting of silicon based solar panels (modules)
- Driven post steel and aluminum racking system
- Chain link (or similar) security fence surrounding the array perimeter.
- 8 central inverters mounted on concrete pad
- 8 step-up transformers mounted on concrete pad
- 1 Collector 34.5 kV / 115 kV electrical substation
- Copper and aluminum wire
- Underground conduit at the array location and connecting the array to the point of interconnection.
- Gravel access roads
- Metal security fence and gates at array location.

2 Property Operation

During the project’s operational lifetime, very little hands-on maintenance is required to allow the project to successfully operate. While the project will likely employ up to two full-time employees, much of the work required to operate and maintain the project consists of remote monitoring of the project’s data collection systems. The monitoring focuses on the system and analysis of resulting data to maintain visibility on system status, metering for revenue purposes, alarms, diagnostics, and security monitoring.

Additional operations activities include any day-to-day operation of the system to maximize power delivery, assess performance and trends, operate the grid interface, manage curtailments, or adjust settings such as power factor or other ancillary services.

During operation, the community will benefit financially from payments that the project will be paying to the local taxing jurisdictions.

3 System Maintenance

Scheduling and frequency of preventive maintenance is influenced by a number of factors, such as equipment type, environmental conditions at the site and warranty terms. Scheduled maintenance is often carried out at intervals to conform to the manufacturers' recommendations, as required by the equipment warranties. Periodically, on-site electrical testing will be performed which will require a number of technicians to enter the site and physically test some of the connections and equipment to verify the accuracy of the remotely collected data.

Approximately once every 10 years, the inverters will need to be replaced, which will involve temporarily shutting down the facility, removing the existing inverters, and replacing them with new or refurbished inverters. Other major equipment may similarly require replacement during the project's lifetime.

Outside of any solar modules which may be damaged during the project's lifetime, no panels should need replacement during the project's useful life.

Several times a year, depending on the rate of vegetation growth, the grass and other vegetation on the project site will be cut as needed to prevent overgrowth, fire hazard, and shading of the panels. Local landscaping contractors will be employed to manage vegetation on the property and mow grasses growing beneath the solar panels. The Project will also explore opportunities to partner with local sheep farmers to utilize grazing as an alternative form of vegetation management.

As needed, the landscaping on site will be watered and otherwise maintained by a local landscaping contractor, to ensure that all landscaping intended for visual screening continues to effectively screen the project from view.