SOLAR PROJECT DECOMMISSIONING PLAN

Anoka County Solar Facility

Sept. 2017

SoCore Energy
225 W. Hubbard St., Suite 200
Chicago, Illinois 60654

Introduction

SoCore Energy, LLC, proposes to build, own, and operate an approximately 3.5 megawatt (MW ac) solar electric photovoltaic (PV) generating facility. The Anoka County Solar Facility, a solar generating facility (SGF) will be built in Anoka County, Minnesota on approximately 18 acres that the County owns. This property is currently zoned as R2 - Medium Density Residential, but is being utilized as agricultural. The SGF could produce solar power for up to 35 years. However, for the purposes of this decommissioning plan, SoCore, as the Applicant, assumes 25 years of operation.

The Applicant has developed this decommissioning plan to return the land to agricultural use once the SGF has terminated service after approximately 25 years. The plan will assist in reclaiming the land, as much as feasible, to conditions existing before construction. This will include removal of all: PV modules, support equipment, and support beams foundations or other fixed structures. It will also include the removal of all non-native debris to a recycling facility or to a local landfill. All roads and drainage features constructed on the site for the SGF will be removed and drainages will be restored to approximate pre-construction conditions. This decommissioning plan will be kept on file with the facility owner. The plan will be updated as necessary to keep it current with the SGF site conditions, reclamation technology, and to update the cost estimates for implementation, as required.

Site Ownership and Location

The SGF property is currently privately owned. SoCore will lease the acreage for the SGF development, construction, and operation, until the completion of this decommissioning plan pursuant to a written lease agreement. If the SGF ownership is transferred to another entity, the decommissioning plan requirements shall be included within any such transaction.

Proposed Use of the Land

The SGF will be located on approximately 18 acres. The remaining approximately acreage will be maintained as agricultural land and associated farm residences, which are expected to be maintained by the owner.

Present Use of the Land

The SGF is located on agricultural land in an agricultural area. No buildings, wells, or sewage facilities are located on the approximately SGF site. Based on a review of Google Earth aerial imagery, seasonal crops have been planted on the SGF site for at least the past 25 years.

Documentation of Existing Drainages

Prior to the start of construction, existing drainage information and approximate pre- construction condition information will be preserved in the site plans that will be kept with the site environmental documentation for the life of the SGF.

Determination of Land Use After Closure

After the SGF has been operating for 25 years, a future land use for the property will be established. The property may be used for the following: continued use as a solar energy facility, redeveloped for agricultural purposes, or redeveloped for residential purposes. For the purpose of this decommissioning plan, the future land use is specified as agricultural farmland.

Major Components of the SGF

The SGF is designed for optimum performance and ease of maintenance. The SGF will include construction of a series of PV module arrays mounted on racking systems supported by a pile-driven foundation design. Rows of modules and racks will be organized, each with their own power inverters. To achieve these objectives, the SGF will use PV technology on a fixed- tilt racking mounted system at a 25-degree tilt laid out in a PV block design to allow for maintenance and access.

The energy from the PV arrays will be collected, converted from direct current (DC) to alternating current (AC) at the inverters, and combined. The electrons will be routed through an

AC collection system. The system will be designed to minimize cable routing and trenching thereby ensuring minimal electrical losses.

The final output from the SGF will be processed through a step-up transformer to match the interconnection voltage and to comply with utility interconnection requirements. Electrical safety and protection systems will be provided to meet utility and regulatory codes and standards. The energy will be delivered to the Connexus Energy electrical distribution network.

A security perimeter fence with appropriate signage for public protection will be installed. Points of ingress/egress will be accessed by locked gates for facility services and maintenance. Additional information on specific elements of the SGF is provided in the following sections.

PV MODULES

The SGF will require installation of approximately 14,000 PV modules. Any unanticipated adjustment to this number will depend upon the final selected technology decided after an optimization evaluation and detailed design. The evaluation, design, and selected technology will take into account market conditions, economic considerations, and environmental factors.

The current design for the SGF proposes to use PV crystalline silicon technology, in the form of 72 solar cell panels rated to produce between 315 watts per panel. The modules will be installed at a 25-degree angle in a fixed-tilt configuration facing south.

STANDARD INSTALLATION, ARRAY ASSEMBLY, AND RACKING

There are various solar module mounting systems that can be mounted on several different types of foundations. The SGF will use a fixed-tilt mounting system.

The module mounting system provides the structure that supports the PV module arrays. The foundations are typically beam piles, which are driven into the soil using pneumatic techniques, similar to hydraulic pile driving. The final foundation design will be determined based on the geotechnical survey for the SGF location. Once the foundation has been installed, the module mounting system will be installed to support the PV modules. For the fixed-tilt configuration, a rigged structure will be installed and design to support wind and snow loads, as well as meet local design criteria.

The PV modules will be delivered to the SGF site during construction to support the installation schedule. The module mounting system will orient the PV panels in rows, reflecting a standard and uniform appearance across the facility. The panel configuration will be uniform in height and width.

SOLAR COLLECTION, INVERTERS, AC COLLECTION, AND TRANSFORMERS

The PV modules will be electrically connected into a series of strings. A string inverter will be installed for each string located throughout the solar field. The module strings will be wired to string inverters (DC-to-AC conversion equipment) on the SGF site.

The inverter output power cables will be combined in five distributed AC panel boards located throughout the SGF. The outputs of the AC panels will be combined at a centrally located AC switchgear station installed on a concrete pad. A step-up transformer will also be located at this central location and the output of the transformer will feed to the utility, Connexus Energy.

Underground electrical cables will be installed in PVC (polyvinyl chloride) conduit using ordinary trenching techniques, which includes excavation of trenches to accommodate PVC conduit. The PVC electrical conduits and wires will be installed at varying depths across the SGF. The depths for the PVC conduit and trench backfill will be in accordance with local, state, and federal codes. The AC energy will be stepped up to the appropriate interconnection voltage by the system transformer to match the voltage at the grid interconnection. Required switchgear cabinetry will be provided as necessary for circuit control. The electrical inverters will be H- frame mounted and the AC collection panel, switchgear, and step-up transformers will be placed on poured concrete foundations.

SGF INTERCONNECTION DESCRIPTION

Each inverter will be outdoor rated and mounted on a steel, rigid frame. The AC output of the inverters will be fed to the distributed AC panel boards. The AC collection system cables will be connected in parallel and collected at the site switchgear. The switchgear includes the main circuit breaker and utility metering equipment. It will be enclosed separately but pad-mounted together with the set-up transformer.

GENERATOR-TIE LINE

The power generated by the SGF will be connected to the existing Connexus Energy network using the voltage transformation equipment and system safety equipment to be constructed at the SGF.

Timeline for Decommissioning Plan

As stated above, the proposed SGF will operate for no less than 25 years. After operations cease at the facility, equipment removal will take approximately one month, and reclamation will take an additional two weeks.

Removal of Hazardous Materials

Based on the use of the site, hazardous materials will not be present in significant quantities and the risk of spill or release is considered low. Once the SGF ceases operations, all potential hazardous materials (i.e., transformer coolant) and wastes (i.e., broken PV panels) will be removed from the site and disposed of in accordance with local, state, and federal laws.

Removal of Equipment

After SGF operations cease, all equipment, module mounting systems, and foundations will be removed from the site so it can be restored, as much as possible, to its original condition. Bids will be taken from potential vendors, whose costs will include purchasing the SGF equipment and materials, mobilizing to the site, loading it onto trucks, and transporting it from the site for off- site recycling or disposal at designated facilities, in accordance with local, state, and federal laws.

PV modules will be unbolted from the support structures and consolidated in a designated "lay down" area. The PV modules will be sold to an off-site recycler, loaded onto trucks, and moved offsite by the selected vendor.

The pier foundations supporting the mounting system have been driven to a supporting depth. They will be excavated from the ground and the entire length of column will be moved to the lay down area where they will be cleaned off and consolidated. The columns will be sold to an off-site recycler. They will be loaded onto trucks and moved offsite by the selected vendor.

The PVC electrical conduits and wires have been installed at varying depths across the SGF. Those located at depths between 0 to 3 feet below ground surface (bgs) will be removed during decommissioning, while those at depths greater than 3 feet bgs will be left in place. During decommissioning the overburden layer of soil will be removed from the targeted buried electrical trenches with a backhoe, and the PVC electrical conduits and wires from 0 to 3 feet bgs will be excavated from the ground, as appropriate. All extracted PVC electrical conduits and wires will be moved to the lay down area and consolidated. The PVC conduits and wires will be sold to an off-site recycler. They will be loaded onto trucks and moved offsite by the selected vendor.
The inverters will be removed and temporarily stored on an impermeable base (i.e., concrete pad) in the lay down area. The inverters will be sold to an off-site recycler. They will be loaded onto trucks in batches and moved offsite by the selected vendor.

The electrical switchgear and step-up transformer will be removed and temporarily stored in the lay down area. Best management practices (i.e., berms, plastic sheeting) will be implemented to minimize potential leaks or spills from occurring in the lay down area. The equipment will be sold to an off-site recycler. This equipment will be loaded onto trucks and moved offsite. The concrete foundation for the switchgear and transformer will also be removed and properly disposed of offsite by the selected vendor.

The fencing will be dismantled and sold with other scrap material. Any other miscellaneous equipment will be removed properly disposed of offsite by the selected vendor.

Any roads and access pathways within the SGF site will be grubbed, graded, and soil will be spread for restoration. Any aggregate at the site will be hauled away for disposal by the selected vendor.

Contouring, Erosion, and Sediment Control

Contouring the site will be conducted using standard grading and farming equipment to return the land to approximately match the pre-construction surface conditions. All aggregate base will be removed from access roads and removed from the site, as required. The site drainage features will be restored to their pre-construction condition. Temporary erosion and sediment control measures such as sediment fences, hay bales, mulch, and soil stabilizers and other best management practices will be used as needed. As noted above, the pre-construction site conditions will be recorded prior to beginning construction for the SGF.

Types of Crops to be Planted

After reclamation of the site, the type of crop(s) to be planted will be determined by then- prevailing market conditions. Details of ground treatments, erosion control, fertilization, planting methods, weed control, and irrigation systems will be added to the plan, once the crops are selected. This information will be summarized in a revised version of this decommissioning plan before it is implemented.

N

0 30 60 120

(IN FEET)

SCALE: 1" = 60'

LEGEND AND ABBREVIATIONS:

EXISTING PROPERTY LINE

PROPOSED SECURITY FENCE

NATIVE POLLINATOR MEADOW MIX

NOTES FOR GENERAL CONTRACTOR:

1. ALL FINAL SITE SEEDING SHALL BE CONTRACTED BY SOCORE ENERGY, LLC. THIS WORK SHOULD NOT BE INCLUDED IN THE GENERAL CONTRACTORS PRICING.
2. CONTRACTOR SHALL COORDINATE SITE ACCESS WITH SOCORE'S SEEDING AND LANDSCAPE CONTRACTORS.
3. ALL EQUIPMENT AND DEBRIS SHALL BE REMOVED FROM THE AREAS REQUIRING SEEDING AND LANDSCAPE PLANTING.

SEEDING NOTES:

1. A COVER CROP SHALL BE PROVIDED WITHIN THE LIMITS OF CONSTRUCTION (APPROX. 16.0 ACRES) AND INSTALLED BY THE CONTRACTOR FOLLOWING THE CONSTRUCTION SEQUENCING INDICATED ON SHEET C4.00. A COVER CROP IS AN ANNUAL GRASS SPECIES THAT GERMINATES QUICKLY AND WILL REDUCE THE RISK OF ON-SITE SOIL EROSION AND DETER THE ESTABLISHMENT OF WEEDS PRIOR TO PERMANENT SEEDING. THE COVER CROP SHOULD BE SOWN AT A RATE OF APPROXIMATELY 25 LBS/ACRE. OATS SHOULD BE USED FOR A SPRING OR SUMMER SEEDING, AND WINTER WHEAT WILL BE USED FOR ALL FALL SEEDING.
2. ALL OTHER AREAS DISTURBED OUTSIDE OF THE "LIMITS OF CONSTRUCTION" SHALL BE REPAIRED TO THEIR PREVIOUS CONDITIONS. SEEDING SHALL MATCH THE EXISTING ADJACENT GRASS SPECIES.
3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ESTABLISH FINAL GRADE ELEVATIONS (I.E. FINISH GRADING) WITHIN THE AREA ALLOCATED FOR THE "NATIVE POLLINATOR MEADOW MIX".
4. FINAL SITE PREPARATIONS, SEED, AND SEEDING OF THE "NATIVE POLLINATOR MEADOW MIX" WILL BE PROVIDED BY SOCORE. THE CONTRACTOR WILL NEED TO COORDINATE SITE ACCESS FOR THE INSTALLATION OF THE PERMANENT VEGETATION.

Know what's below. Call before you dig

SoCore Engineering
225 West Hubbard St, Suite 200
Chicago, IL 60654
1-877-SOCORE1

REV.	DATE	ISSUE FOR

PROJECT NAME
ANOKA COUNTY SOLAR
14469 LLAMA ST. NW
RAMSEY, MN 55303
(45.2347220,-93.4829570)

SHEET NAME
SITE RESTORATION PLAN

DESIGNER	MSA
DRAFTER	MSA
CHECK	GCM
DATE	09.05.2017
SCALE	AS NOTED
SHEET SIZE	24" X 36"

STAMP

EOR: CIVIL
GAVIN MEINSCHEIN, PE

SHEET NUMBER
C5.00

FILE PATH: S:_NEW FOLDER STRUCTURE\PROJECTS\ANOKA COUNTY_MN_CONX\ENGINEERING AND DESIGN\DRAWINGS\C5.00 - SITE RESTORATION PLAN.DWG 9/7/2017 BY: MARK.ALBERY

GlareGauge Glare Analysis Results

Site Configuration: Site 1

Project site configuration details and results.

Created **Aug. 22, 2017 10:58 a.m.**
DNI **varies** and peaks at **1,000.0 W/m^2**
Analyze every **1** minute(s)
0.5 ocular transmission coefficient
0.002 ft pupil diameter
0.017 ft eye focal length
9.3 mrad sun subtended angle
Site Configuration ID: 9859.1692

Summary of Results

Glare with low potential for temporary after-image predicted

PV name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
PV array 1	25.0	180.0	598	0	-

Component Data

PV Array(s)

Name: PV array 1
Axis tracking: Fixed (no rotation)
Tilt: 25.0 deg
Orientation: 180.0 deg
Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	45.234163	-93.480778	885.40	0.00	885.40
2	45.235825	-93.485649	875.23	0.00	875.23
3	45.233936	-93.485541	868.51	0.00	868.51
4	45.233860	-93.480713	884.62	0.00	884.62

Discrete Observation Receptors

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	ft	ft	ft
1	45.239919	-93.488910	883.91	0.00	883.91
2	45.238680	-93.485155	881.20	0.00	881.20
3	45.237698	-93.482108	874.43	0.00	874.43
4	45.236973	-93.479533	877.22	0.00	877.22
5	45.235734	-93.475842	879.92	0.00	879.92
6	45.233679	-93.473461	873.86	0.00	873.86

PV Array Results

PV array 1 low potential for temporary after-image

Component	Green glare (min)	Yellow glare (min)
OP: 1	0	0
OP: 2	0	0
OP: 3	0	0
OP: 4	0	0
OP: 5	13	0
OP: 6	585	0

PV array 1 - OP Receptor (1)

No glare found

PV array 1 - OP Receptor (2)

No glare found

PV array 1 - OP Receptor (3)

No glare found

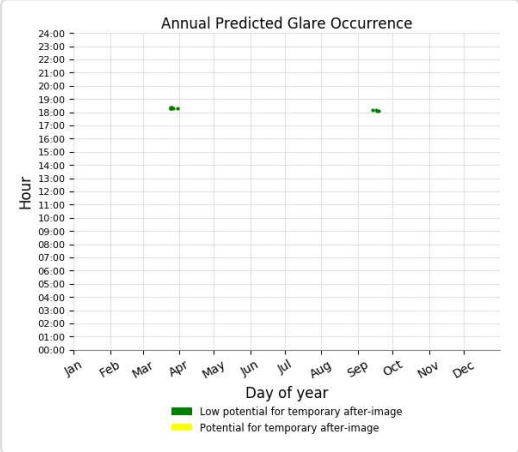
PV array 1 - OP Receptor (4)

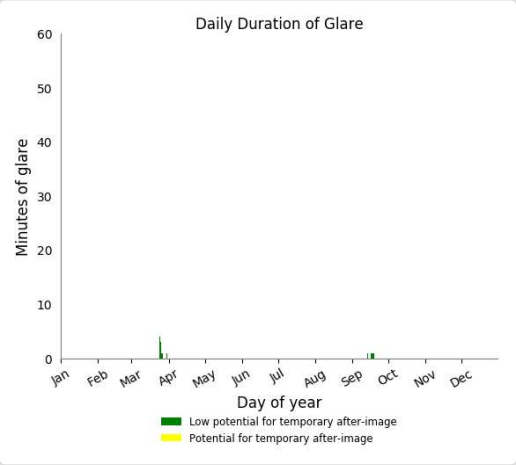
No glare found

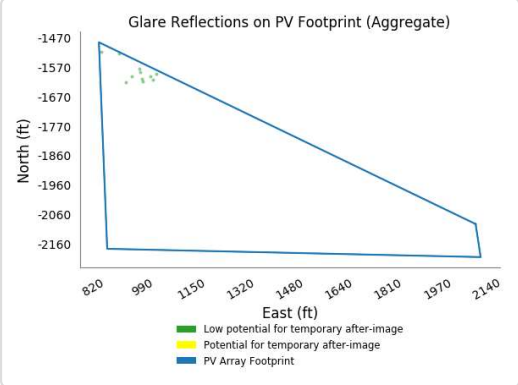
PV array 1 - OP Receptor (5)

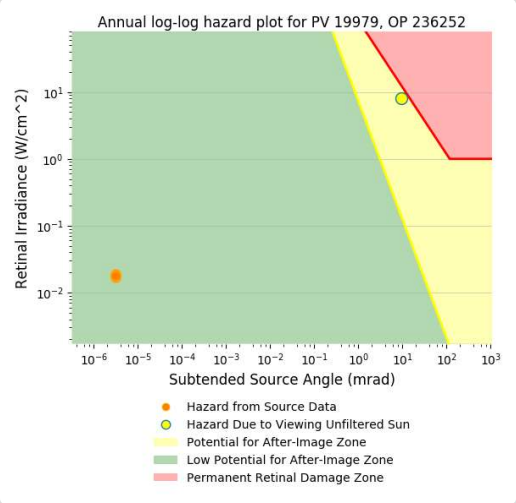
PV array is expected to produce the following glare for receptors at this location:

- 13 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.





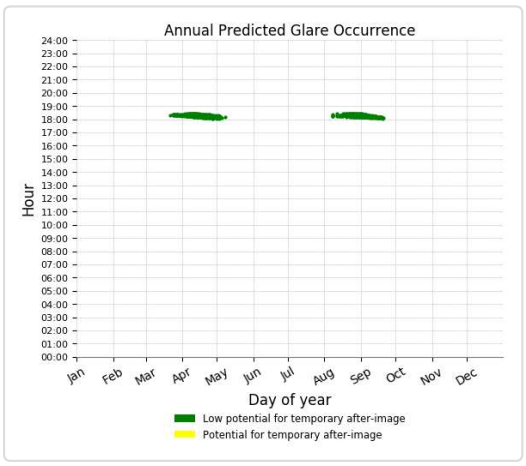


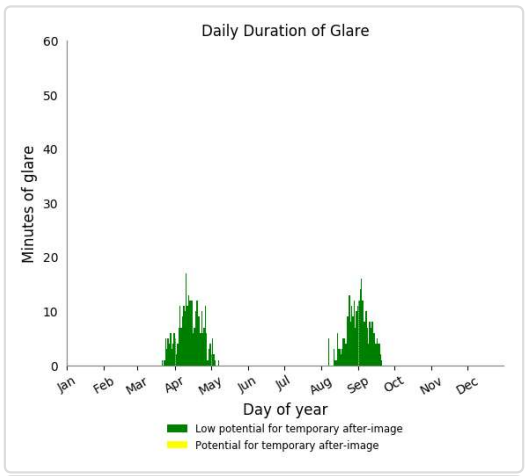


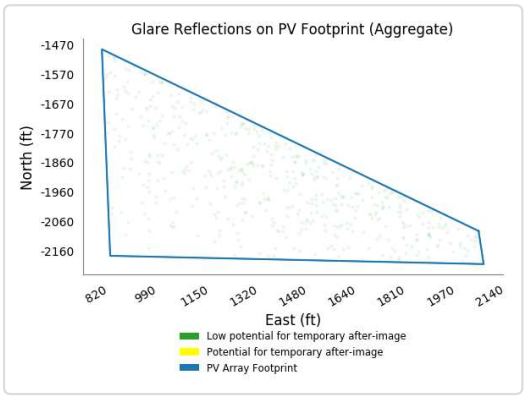
PV array 1 - OP Receptor (6)

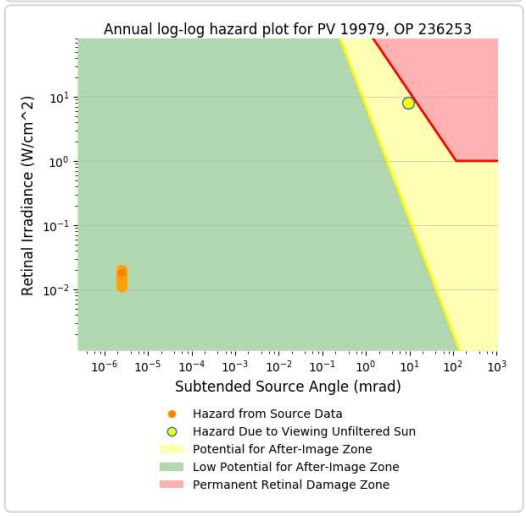
PV array is expected to produce the following glare for receptors at this location:

- 585 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.









Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values may differ.
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.

GlareGauge Glare Analysis Results

Site Configuration: Anoka-temp-0

Project site configuration details and results.

Created **Aug. 31, 2017 4:55 p.m.**
DNI **varies** and peaks at **1,000.0 W/m^2**
Analyze every **1** minute(s)
0.5 ocular transmission coefficient
0.002 ft pupil diameter
0.017 ft eye focal length
9.3 mrad sun subtended angle
Site Configuration ID: 10010.1692

Summary of Results

Glare with potential for temporary after-image predicted

PV name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
PV array 1	25.0	180.0	2,011	851	-

Component Data

PV Array(s)

Name: PV array 1
Axis tracking: Fixed (no rotation)
Tilt: 25.0 deg
Orientation: 180.0 deg
Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	45.234163	-93.480778	885.40	0.00	885.40
2	45.235825	-93.485649	875.23	0.00	875.23
3	45.233936	-93.485541	868.51	0.00	868.51
4	45.233860	-93.480713	884.62	0.00	884.62

Discrete Observation Receptors

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	ft	ft	ft
1	45.233603	-93.480070	883.08	0.00	883.08
2	45.232017	-93.483396	868.74	0.00	868.74
3	45.230052	-93.486571	890.44	0.00	890.44
4	45.231956	-93.489897	880.09	0.00	880.09

PV Array Results

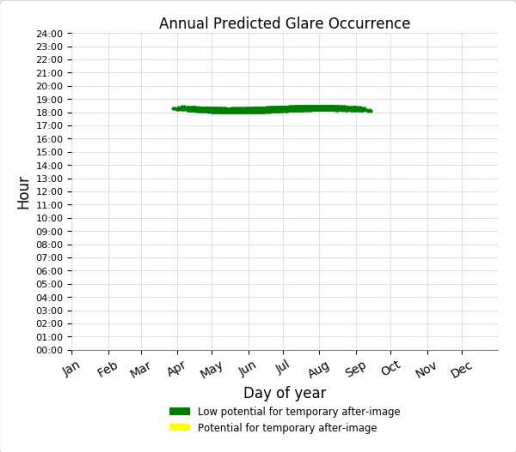
PV array 1 potential temporary after-image

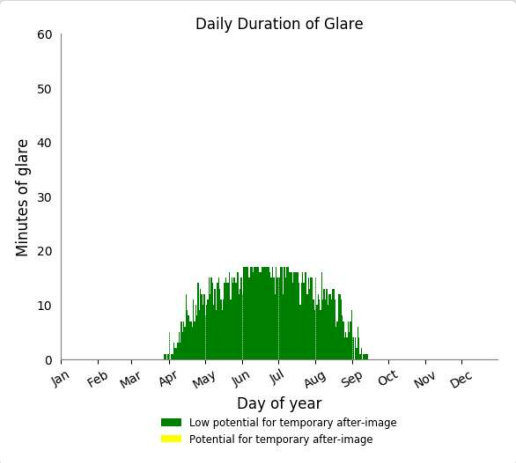
Component	Green glare (min)	Yellow glare (min)
OP: 1	1888	0
OP: 2	0	0
OP: 3	0	0
OP: 4	123	851

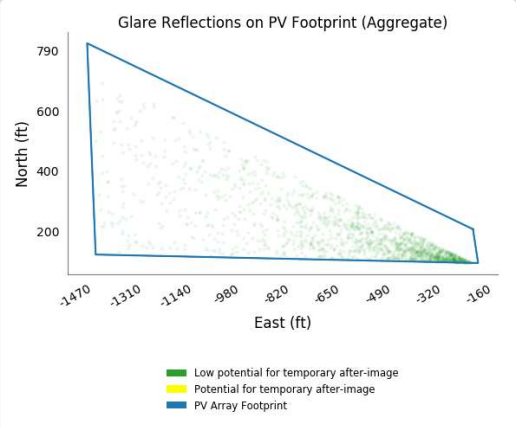
PV array 1 - OP Receptor (1)

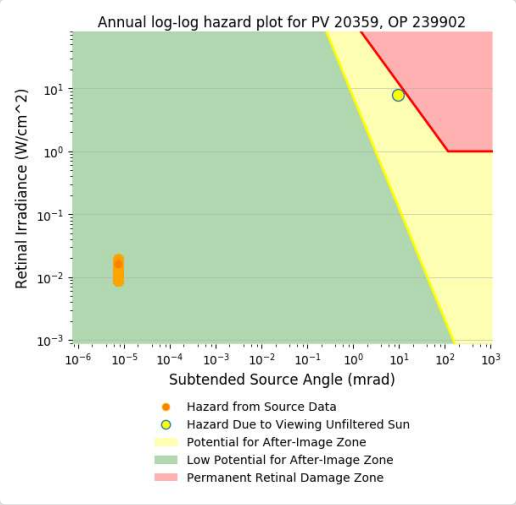
PV array is expected to produce the following glare for receptors at this location:

- 1,888 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.









PV array 1 - OP Receptor (2)

No glare found

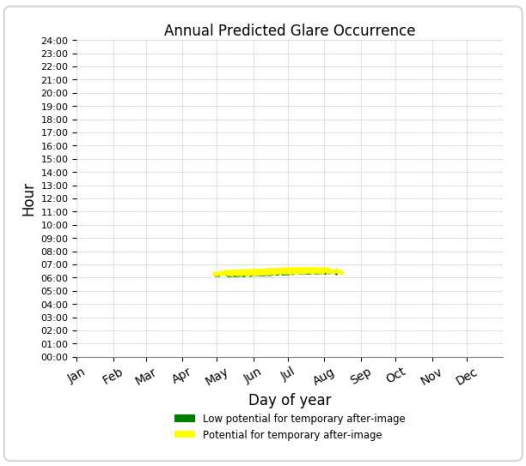
PV array 1 - OP Receptor (3)

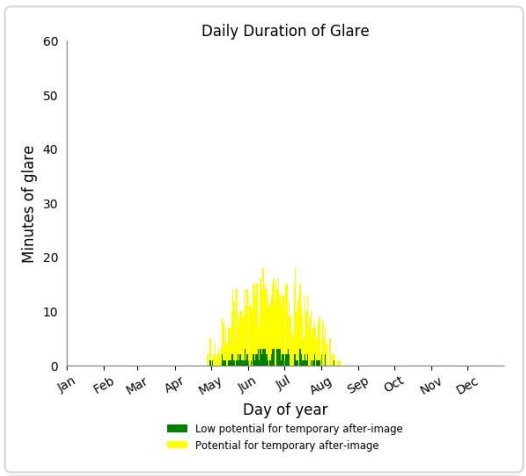
No glare found

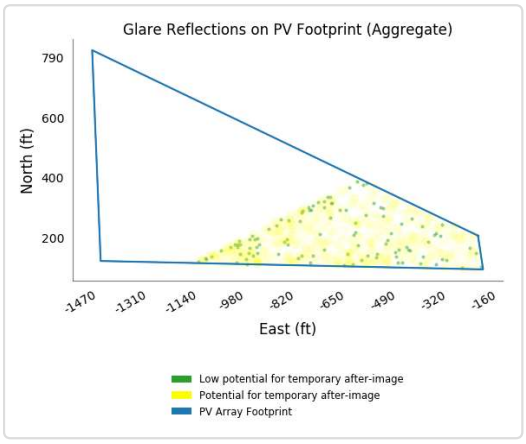
PV array 1 - OP Receptor (4)

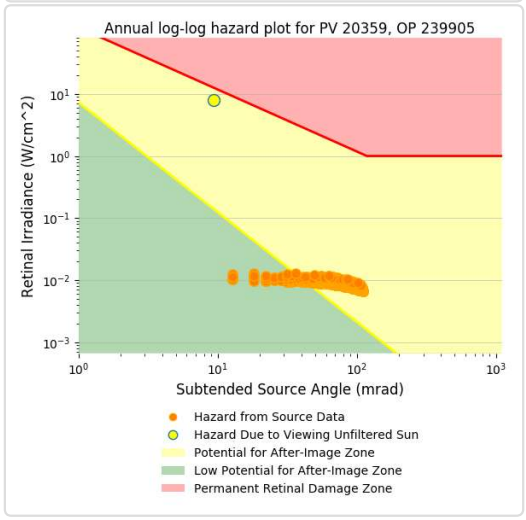
PV array is expected to produce the following glare for receptors at this location:

- 123 minutes of "green" glare with low potential to cause temporary after-image.
- 851 minutes of "yellow" glare with potential to cause temporary after-image.









Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values may differ.
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.