

EXHIBIT C



Commercial Solar PV Consulting

Solar Glare Hazard Analysis Report Glenmere Lake Solar Goshen County, NY Ground Mount Solar PV System



September 19th, 2018

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September 19, 2018

Ryan Irwin
Project Developer
Community Energy Solar
100 Matsonford Road
Suite 300
Radnor, PA 19087
communityenergysolar.com

Dear Ryan,

Per your request, Namaste Solar has completed a solar glare hazard analysis for the 2MW ground mount solar PV project located in Goshen County, NY known as Glenmere Lake Solar.

Namaste Solar performed this analysis using ForgeSolar software (forgesolar.com). This software is based on the R&D 100 Award-winning Solar Glare Hazard Analysis Tool (SGHAT) software, which was developed jointly with Sandia National Laboratories.

In the following pages you will see the impact of solar glare on the seven observation points provided to Namaste Solar by Community Energy Solar.

Please let us know if you have any questions about this report result.

Thank you,

Stephen Kane

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FORGESOLAR GLARE ANALYSIS

Project: **CES_Glenmere Lake Solar Project**

2 MW-AC Ground-mounted solar project in Goshen County, NY.

Site configuration: **Single-axis Tracker**

Analysis conducted by Ankit Sharma (ankit.sharma@namastesolar.com) at 20:13 on 19 Sep, 2018.

U.S. FAA 2013 Policy Adherence

The following table summarizes the policy adherence of the glare analysis based on the 2013 U.S. Federal Aviation Administration Interim Policy 78 FR 63276. This policy requires the following criteria be met for solar energy systems on airport property:

- No "yellow" glare (potential for after-image) for any flight path from threshold to 2 miles
- No glare of any kind for Air Traffic Control Tower(s) ("ATCT") at cab height.
- Default analysis and observer characteristics (see list below)

ForgeSolar does not represent or speak officially for the FAA and cannot approve or deny projects. Results are informational only.

COMPONENT	STATUS	DESCRIPTION
Analysis parameters	PASS	Analysis time interval and eye characteristics used are acceptable
Flight path(s)	N/A	No flight paths analyzed
ATCT(s)	N/A	No ATCT receptors designated

Default glare analysis and observer eye characteristics are as follows:

- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

FAA Policy 78 FR 63276 can be read at <https://www.federalregister.gov/d/2013-24729>

SITE CONFIGURATION

Analysis Parameters

DNI: peaks at 1,000.0 W/m²
 Time interval: 1 min
 Ocular transmission coefficient: 0.5
 Pupil diameter: 0.002 m
 Eye focal length: 0.017 m
 Sun subtended angle: 9.3 mrad
 Site Config ID: 21194.3615



PV Array(s)

Name: Array Field
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 52.0°
Resting angle: 52.0°
Rated power: 2000.0 kW
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

PV google static map

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	41.371099	-74.366679	502.58	8.00	510.58
2	41.369706	-74.364319	431.09	8.00	439.09
3	41.369231	-74.364802	418.91	8.00	426.91
4	41.369150	-74.365199	422.95	8.00	430.95
5	41.367854	-74.366454	421.44	8.00	429.44
6	41.367685	-74.366143	411.88	8.00	419.88
7	41.366638	-74.367151	404.85	8.00	412.85
8	41.366638	-74.368600	412.40	8.00	420.40
9	41.367322	-74.368546	418.01	8.00	426.01
10	41.367604	-74.368235	422.43	8.00	430.43
11	41.367725	-74.368492	430.87	8.00	438.87
12	41.367628	-74.369104	438.02	8.00	446.02
13	41.367105	-74.369705	434.36	8.00	442.36
14	41.367637	-74.370499	452.26	8.00	460.26
15	41.368490	-74.369597	456.16	8.00	464.16
16	41.368361	-74.369393	452.33	8.00	460.33

Discrete Observation Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
OP 1	1	41.369158	-74.369297	459.65	6.00
OP 2	2	41.369464	-74.369672	454.12	6.00
OP 3	3	41.369891	-74.369125	459.01	6.00
OP 4	4	41.370269	-74.368717	467.23	6.00
OP 5	5	41.370551	-74.368342	475.00	6.00
OP 6	6	41.363900	-74.365617	393.91	6.00
OP 7	7	41.365591	-74.362945	400.50	6.00

GLARE ANALYSIS RESULTS

Summary of Glare

PV Array Name	Tilt (°)	Orient (°)	"Green" Glare min	"Yellow" Glare min	Energy kWh
Array Field	SA tracking	SA tracking	0	0	6,009,000.0

Total annual glare received by each receptor

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0

Results for: Array Field

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0

Point Receptor: OP 1

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare

0 minutes of green glare

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.

"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.

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 based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.

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FORGESOLAR GLARE ANALYSIS

Project: **CES_Glenmere Lake Solar Project**

2 MW-AC Ground-mounted solar project in Goshen County, NY.

Site configuration: **Fixed Tilt-25deg**

Analysis conducted by Ankit Sharma (ankit.sharma@namastesolar.com) at 20:10 on 19 Sep, 2018.

U.S. FAA 2013 Policy Adherence

The following table summarizes the policy adherence of the glare analysis based on the 2013 U.S. Federal Aviation Administration Interim Policy 78 FR 63276. This policy requires the following criteria be met for solar energy systems on airport property:

- No "yellow" glare (potential for after-image) for any flight path from threshold to 2 miles
- No glare of any kind for Air Traffic Control Tower(s) ("ATCT") at cab height.
- Default analysis and observer characteristics (see list below)

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COMPONENT	STATUS	DESCRIPTION
Analysis parameters	PASS	Analysis time interval and eye characteristics used are acceptable
Flight path(s)	N/A	No flight paths analyzed
ATCT(s)	N/A	No ATCT receptors designated

Default glare analysis and observer eye characteristics are as follows:

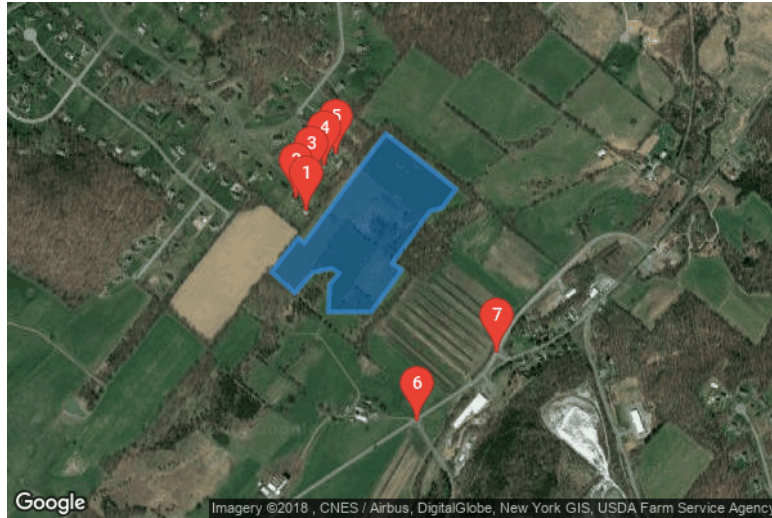
- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

FAA Policy 78 FR 63276 can be read at <https://www.federalregister.gov/d/2013-24729>

SITE CONFIGURATION

Analysis Parameters

DNI: peaks at 1,000.0 W/m²
Time interval: 1 min
Ocular transmission
coefficient: 0.5
Pupil diameter: 0.002 m
Eye focal length: 0.017 m
Sun subtended angle: 9.3
mrad
Site Config ID: 21191.3615



PV Array(s)

Name: Array Field
Axis tracking: Fixed (no rotation)
Tilt: 25.0°
Orientation: 180.0°
Rated power: 2000.0 kW
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	41.371099	-74.366679	502.58	8.00	510.58
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5	41.367854	-74.366454	421.44	8.00	429.44
6	41.367685	-74.366143	411.88	8.00	419.88
7	41.366638	-74.367151	404.85	8.00	412.85
8	41.366638	-74.368600	412.40	8.00	420.40
9	41.367322	-74.368546	418.01	8.00	426.01
10	41.367604	-74.368235	422.43	8.00	430.43
11	41.367725	-74.368492	430.87	8.00	438.87
12	41.367628	-74.369104	438.02	8.00	446.02
13	41.367105	-74.369705	434.36	8.00	442.36
14	41.367637	-74.370499	452.26	8.00	460.26
15	41.368490	-74.369597	456.16	8.00	464.16
16	41.368361	-74.369393	452.33	8.00	460.33

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OP 6	6	41.363900	-74.365617	393.91	6.00
OP 7	7	41.365591	-74.362945	400.50	6.00

GLARE ANALYSIS RESULTS

Summary of Glare

PV Array Name	Tilt (°)	Orient (°)	"Green" Glare min	"Yellow" Glare min	Energy kWh
Array Field	25.0	180.0	0	25,312	4,644,000.0

Total annual glare received by each receptor

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
OP 1	0	4808
OP 2	0	4535
OP 3	0	4663
OP 4	0	4484
OP 5	0	4156
OP 6	0	0
OP 7	0	2666

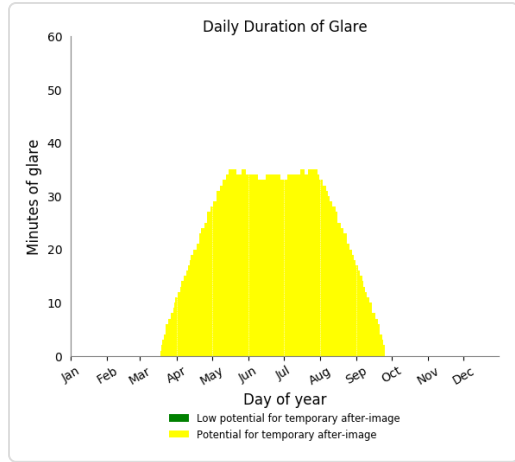
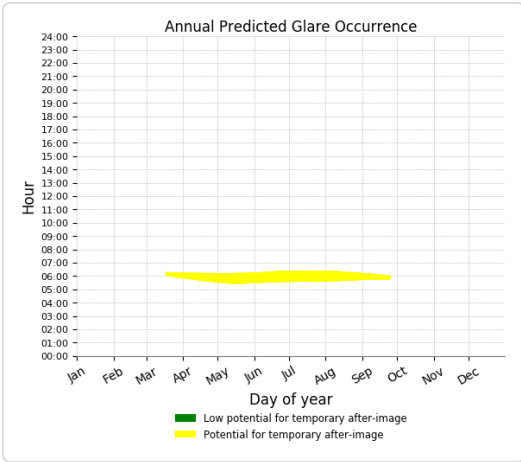
Results for: Array Field

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	4808
OP 2	0	4535
OP 3	0	4663
OP 4	0	4484
OP 5	0	4156
OP 6	0	0
OP 7	0	2666

Point Receptor: OP 1

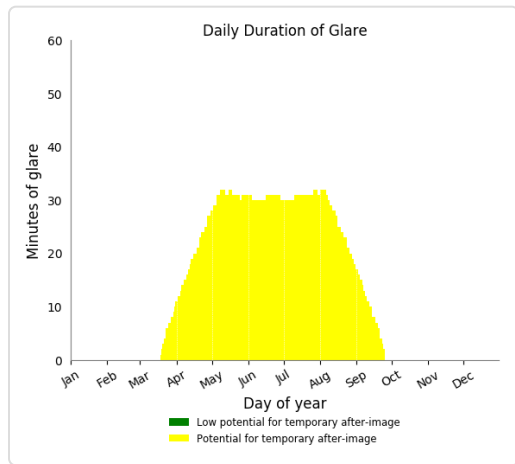
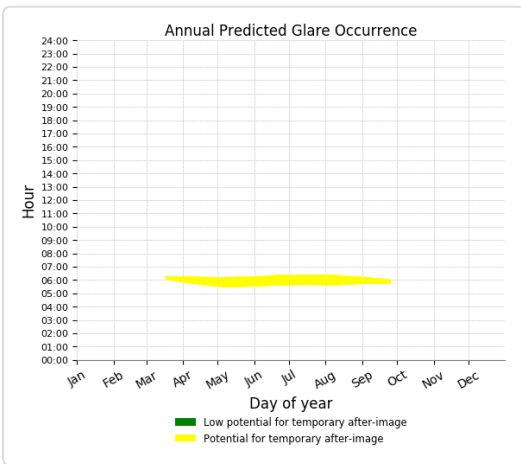
4808 minutes of yellow glare

0 minutes of green glare



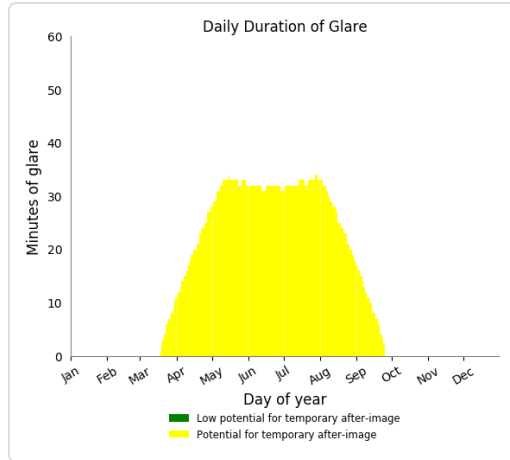
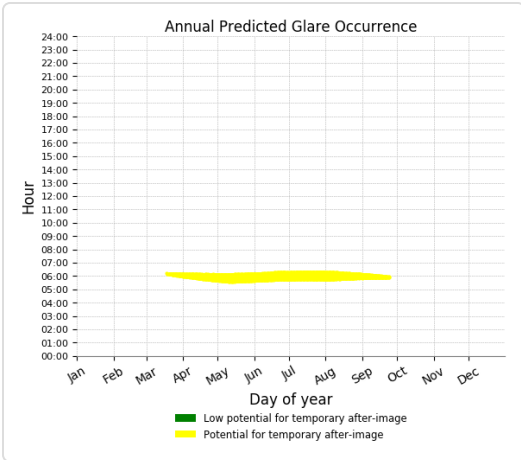
Point Receptor: OP 2

4535 minutes of yellow glare
 0 minutes of green glare



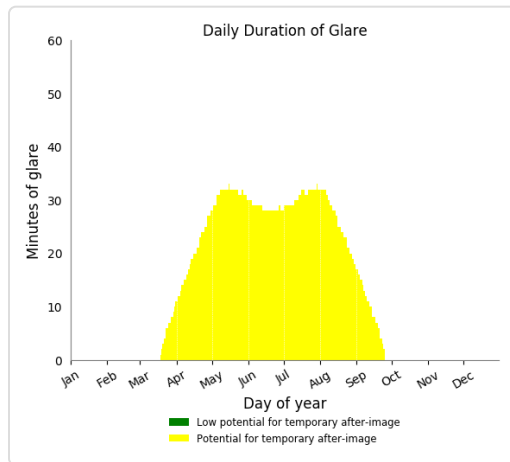
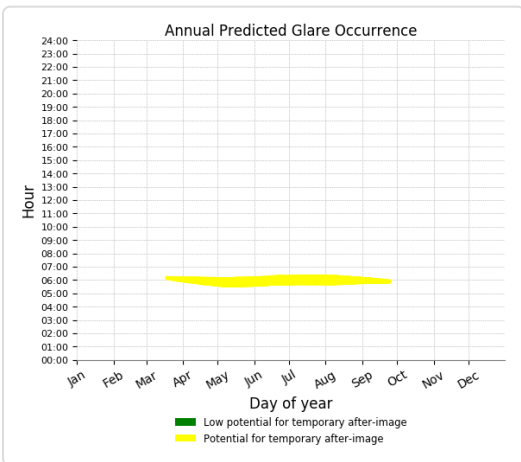
Point Receptor: OP 3

4663 minutes of yellow glare
 0 minutes of green glare



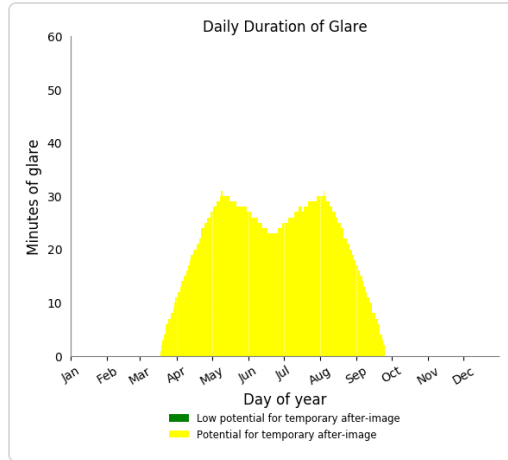
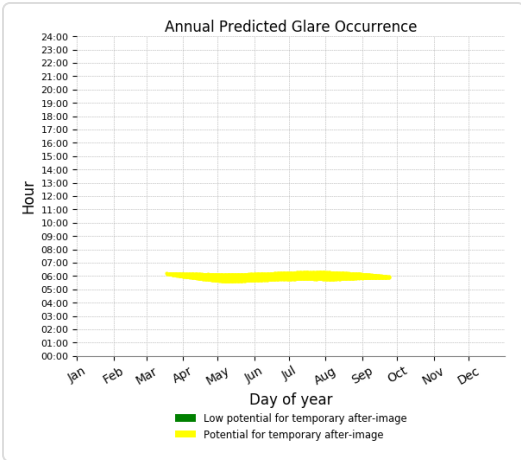
Point Receptor: OP 4

4484 minutes of yellow glare
 0 minutes of green glare



Point Receptor: OP 5

4156 minutes of yellow glare
 0 minutes of green glare

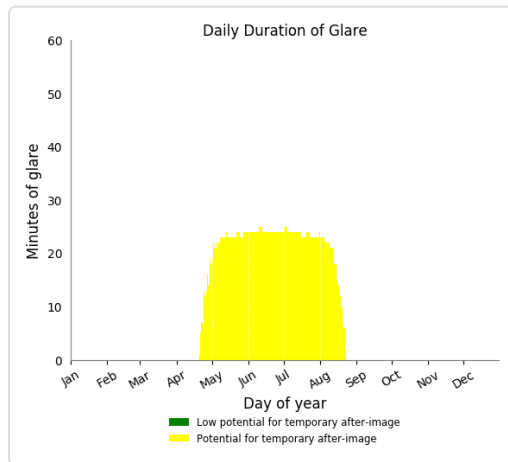
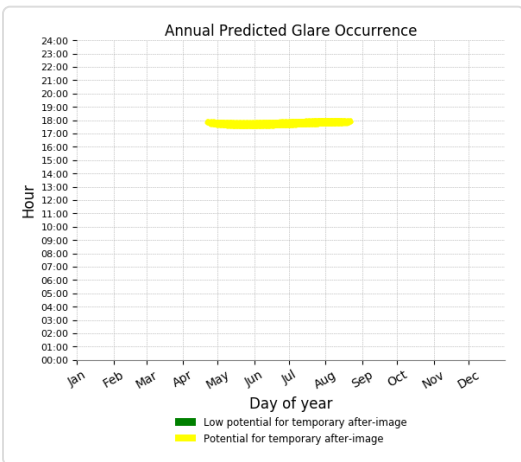


Point Receptor: OP 6

0 minutes of yellow glare
 0 minutes of green glare

Point Receptor: OP 7

2666 minutes of yellow glare
 0 minutes of green glare



Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.

"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.

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.

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