Glyntaff Solar Farm

Glyntaff Solar Farm Rail 25 Degrees

Created Feb 13, 2025
Updated Feb 25, 2025
Time-step 1 minute
Timezone offset UTC0
Minimum sun altitude 0.0 deg
Site ID 141222.23859

Project type Advanced
Project status: active
Category 10 MW to 100 MW

Misc. Analysis Settings

DNI: **varies (1,000.0 W/m^2 peak)**
Ocular transmission coefficient: **0.5**
Pupil diameter: **0.002 m**
Eye focal length: **0.017 m**
Sun subtended angle: **9.3 mrad**

PV Analysis Methodology: **Version 2**
Enhanced subtended angle calculation: **On**

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	3,095	0	-
PV array 2	25.0	180.0	4,013	0	-
PV array 3	25.0	180.0	4,413	0	-
PV array 4	25.0	180.0	4,838	0	-
PV array 5	25.0	180.0	5,124	0	-

Component Data

PV Array(s)

Total PV footprint area: 424,331 m^2

Name: PV array 1
Footprint area: 17,880 m^2
Axis tracking: Fixed (no rotation)
Tilt: 25.0 deg
Orientation: 180.0 deg

Rated power: -
Panel material: Light textured glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 9.16 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	m	m	m
1	51.601938	-3.313555	265.09	3.00	268.09
2	51.601611	-3.314070	259.47	3.00	262.47
3	51.600658	-3.313716	254.63	3.00	257.63
4	51.600565	-3.313266	256.31	3.00	259.31
5	51.600705	-3.311184	256.66	3.00	259.66
6	51.601965	-3.313169	266.61	3.00	269.61

Name: PV array 2
Footprint area: 49,551 m^2
Axis tracking: Fixed (no rotation)
Tilt: 25.0 deg
Orientation: 180.0 deg

Rated power: -
Panel material: Light textured glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 9.16 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	m	m	m
1	51.601265	-3.314843	244.83	3.00	247.83
2	51.600558	-3.314854	236.32	3.00	239.32
3	51.600339	-3.314671	235.55	3.00	238.55
4	51.599725	-3.315519	226.27	3.00	229.27
5	51.599466	-3.314800	226.21	3.00	229.21
6	51.599812	-3.314478	230.46	3.00	233.46
7	51.599606	-3.313491	234.07	3.00	237.07
8	51.599172	-3.313277	228.27	3.00	231.27
9	51.599112	-3.313062	228.90	3.00	231.90
10	51.599472	-3.312665	240.65	3.00	243.65
11	51.599279	-3.312193	238.25	3.00	241.25
12	51.598366	-3.312772	215.54	3.00	218.54
13	51.598613	-3.314285	217.43	3.00	220.43
14	51.600099	-3.317729	223.93	3.00	226.93
15	51.600439	-3.316828	230.35	3.00	233.35
16	51.600792	-3.316957	231.71	3.00	234.71
17	51.600925	-3.317150	232.30	3.00	235.30
18	51.601192	-3.317107	234.16	3.00	237.16

Name: PV array 3
Footprint area: 149,753 m^2
Axis tracking: Fixed (no rotation)
Tilt: 25.0 deg
Orientation: 180.0 deg

Rated power: -
Panel material: Light textured glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 9.16 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	m	m	m
1	51.605456	-3.314339	282.26	3.00	285.26
2	51.605503	-3.308062	317.40	3.00	320.40
3	51.605236	-3.308116	315.98	3.00	318.98
4	51.605090	-3.308159	315.21	3.00	318.21
5	51.605043	-3.307687	319.87	3.00	322.87
6	51.603977	-3.306914	319.05	3.00	322.05
7	51.602578	-3.308846	300.16	3.00	303.16
8	51.602398	-3.309618	297.80	3.00	300.80
9	51.602211	-3.309897	295.43	3.00	298.43
10	51.602165	-3.309532	294.68	3.00	297.68
11	51.601691	-3.309221	289.06	3.00	292.06
12	51.601018	-3.309028	283.77	3.00	286.77
13	51.601018	-3.309307	283.85	3.00	286.85
14	51.602118	-3.311131	292.67	3.00	295.67
15	51.603171	-3.313105	292.60	3.00	295.60
16	51.603870	-3.314135	286.52	3.00	289.52
17	51.604637	-3.314467	283.17	3.00	286.17

Name: PV array 4
Footprint area: 106,771 m^2
Axis tracking: Fixed (no rotation)
Tilt: 25.0 deg
Orientation: 180.0 deg

Rated power: -
Panel material: Light textured glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 9.16 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	m	m	m
1	51.602218	-3.309039	295.46	3.00	298.46
2	51.602418	-3.308041	301.51	3.00	304.51
3	51.602824	-3.307537	304.80	3.00	307.80
4	51.602844	-3.307118	307.70	3.00	310.70
5	51.602804	-3.305101	317.41	3.00	320.41
6	51.602518	-3.304822	314.60	3.00	317.60
7	51.602324	-3.302623	322.20	3.00	325.20
8	51.602111	-3.302505	319.44	3.00	322.44
9	51.600439	-3.303320	299.07	3.00	302.07
10	51.600132	-3.306024	284.88	3.00	287.88
11	51.599872	-3.306260	280.94	3.00	283.94
12	51.599885	-3.306796	279.08	3.00	282.08
13	51.599646	-3.306893	276.48	3.00	279.48
14	51.599699	-3.307794	274.05	3.00	277.05
15	51.599932	-3.308180	273.69	3.00	276.69
16	51.600105	-3.308234	275.93	3.00	278.93
17	51.600465	-3.307633	281.09	3.00	284.09
18	51.600592	-3.306764	286.62	3.00	289.62
19	51.600885	-3.306732	289.59	3.00	292.59
20	51.600778	-3.308513	281.54	3.00	284.54
21	51.601651	-3.308749	288.49	3.00	291.49

Name: PV array 5
Footprint area: 100,376 m^2
Axis tracking: Fixed (no rotation)
Tilt: 25.0 deg
Orientation: 180.0 deg

Rated power: -
Panel material: Light textured glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 9.16 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	m	m	m
1	51.600205	-3.303385	294.90	3.00	297.90
2	51.599945	-3.303513	290.50	3.00	293.50
3	51.599745	-3.305852	282.14	3.00	285.14
4	51.598906	-3.306614	269.30	3.00	272.30
5	51.598566	-3.306710	263.61	3.00	266.61
6	51.598233	-3.306474	257.58	3.00	260.58
7	51.597766	-3.306657	245.68	3.00	248.68
8	51.596740	-3.306067	230.77	3.00	233.77
9	51.596587	-3.306646	229.73	3.00	232.73
10	51.596820	-3.307419	229.75	3.00	232.75
11	51.596626	-3.307655	225.39	3.00	228.39
12	51.596007	-3.305691	215.67	3.00	218.67
13	51.595787	-3.305509	211.16	3.00	214.16
14	51.595773	-3.306131	209.75	3.00	212.75
15	51.596213	-3.307783	216.75	3.00	219.75
16	51.596613	-3.308148	221.38	3.00	224.38
17	51.596806	-3.308009	225.93	3.00	228.93
18	51.597086	-3.308899	221.68	3.00	224.68
19	51.596300	-3.309049	203.96	3.00	206.96
20	51.596033	-3.308373	204.56	3.00	207.56
21	51.594560	-3.308953	170.18	3.00	173.18
22	51.594180	-3.309811	160.65	3.00	163.65
23	51.594547	-3.310884	160.99	3.00	163.99
24	51.594387	-3.311378	157.73	3.00	160.73
25	51.594360	-3.312000	154.10	3.00	157.10
26	51.595314	-3.312021	171.30	3.00	174.30
27	51.595507	-3.311753	175.53	3.00	178.53
28	51.595613	-3.312204	174.41	3.00	177.41
29	51.596533	-3.312686	187.07	3.00	190.07
30	51.596493	-3.312354	189.19	3.00	192.19
31	51.595800	-3.311839	180.50	3.00	183.50
32	51.595693	-3.311313	180.82	3.00	183.82
33	51.595887	-3.311023	185.16	3.00	188.16
34	51.595180	-3.309918	180.13	3.00	183.13
35	51.595893	-3.309457	195.26	3.00	198.26
36	51.597226	-3.309328	219.20	3.00	222.20
37	51.597703	-3.309666	224.92	3.00	227.92
38	51.598126	-3.310492	226.04	3.00	229.04
39	51.598839	-3.309071	247.64	3.00	250.64
40	51.598363	-3.308652	242.13	3.00	245.13
41	51.598176	-3.308304	242.91	3.00	245.91
42	51.598176	-3.307494	250.43	3.00	253.43
43	51.598732	-3.307086	265.32	3.00	268.32
44	51.598872	-3.307864	264.95	3.00	267.95
45	51.599396	-3.307681	271.60	3.00	274.60
46	51.599479	-3.306415	276.33	3.00	279.33
47	51.599942	-3.305723	285.01	3.00	288.01

Discrete Observation Receptors

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	m	m	m
OP 1	51.597599	-3.331769	65.52	2.75	68.27
OP 2	51.596580	-3.329591	64.17	2.75	66.92
OP 3	51.595267	-3.327542	63.71	2.75	66.46
OP 4	51.593674	-3.325772	64.34	2.75	67.09
OP 5	51.591978	-3.324964	63.41	2.75	66.16

Summary of PV Glare Analysis

PV configuration and total predicted glare

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced	Data File
	deg	deg	min	min	kWh	
PV array 1	25.0	180.0	3,095	0	-	-
PV array 2	25.0	180.0	4,013	0	-	-
PV array 3	25.0	180.0	4,413	0	-	-
PV array 4	25.0	180.0	4,838	0	-	-
PV array 5	25.0	180.0	5,124	0	-	-

Distinct glare per month

Excludes overlapping glare from PV array for multiple receptors at matching time(s)

PV	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
pv-array-1 (green)	0	0	0	0	411	642	564	82	0	0	0	0
pv-array-1 (yellow)	0	0	0	0	0	0	0	0	0	0	0	0
pv-array-2 (green)	0	0	0	0	326	551	463	65	0	0	0	0
pv-array-2 (yellow)	0	0	0	0	0	0	0	0	0	0	0	0
pv-array-3 (green)	0	0	0	7	532	821	706	134	0	0	0	0
pv-array-3 (yellow)	0	0	0	0	0	0	0	0	0	0	0	0
pv-array-4 (green)	0	0	0	18	403	614	529	121	0	0	0	0
pv-array-4 (yellow)	0	0	0	0	0	0	0	0	0	0	0	0
pv-array-5 (green)	0	0	0	215	768	747	793	482	0	0	0	0
pv-array-5 (yellow)	0	0	0	0	0	0	0	0	0	0	0	0

PV & Receptor Analysis Results

Results for each PV array and receptor

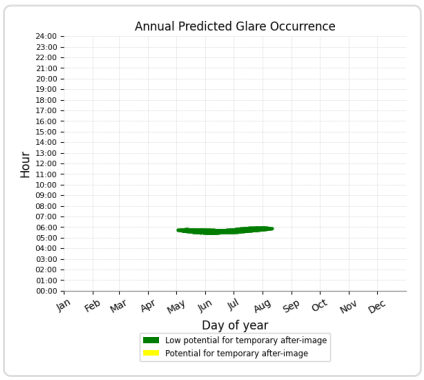
PV array 1 low potential for temporary after-image

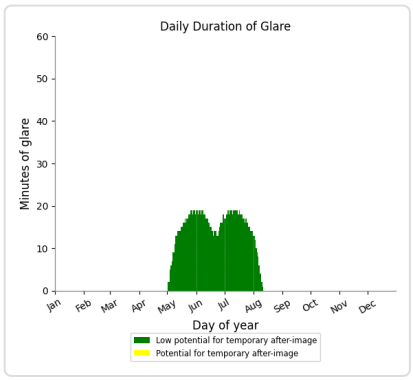
Component	Green glare (min)	Yellow glare (min)
OP: OP 1	1520	0
OP: OP 2	1575	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0

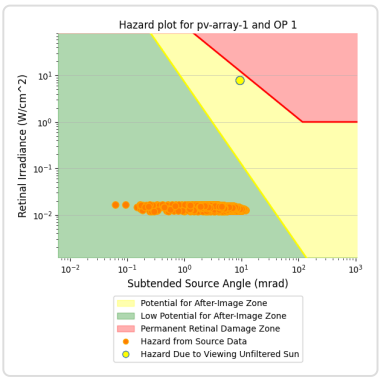
PV array 1: OP 1

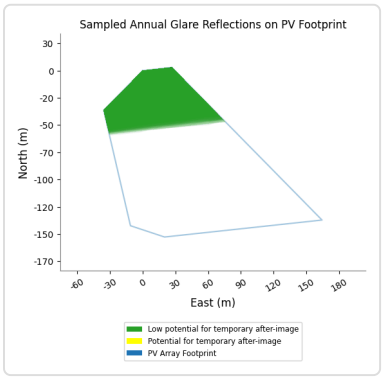
PV array is expected to produce the following glare for this receptor:

- 1,520 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.





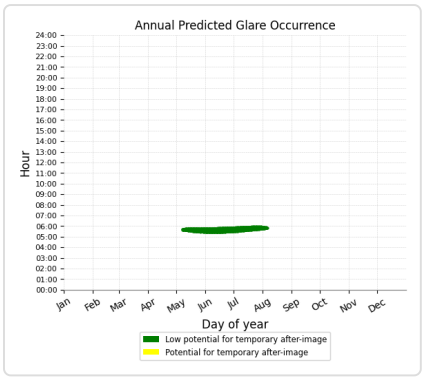


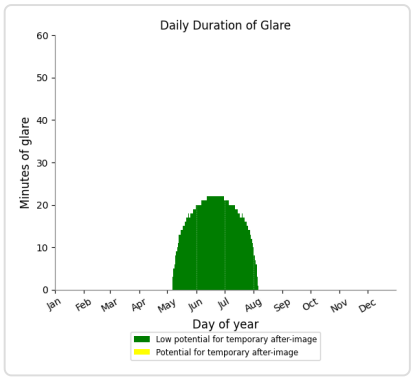


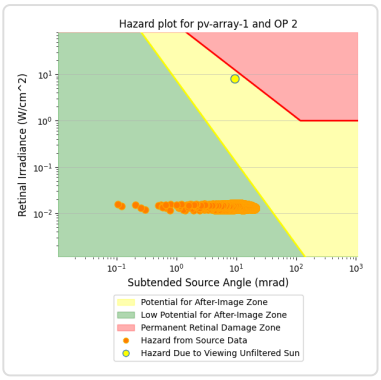
PV array 1: OP 2

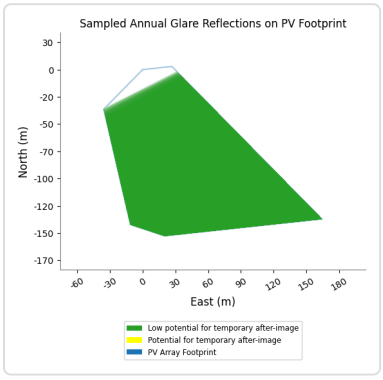
PV array is expected to produce the following glare for this receptor:

- 1,575 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 3

No glare found

PV array 1: OP 4

No glare found

PV array 1: OP 5

No glare found

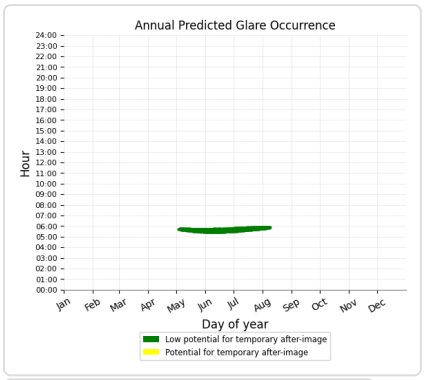
PV array 2 low potential for temporary after-image

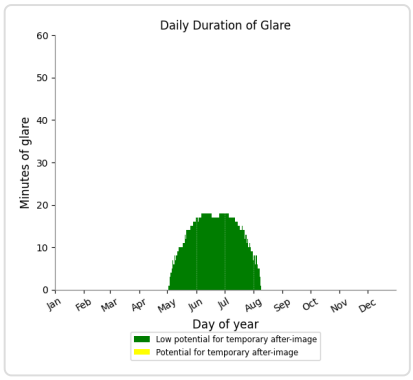
Component	Green glare (min)	Yellow glare (min)
OP: OP 1	1332	0
OP: OP 2	1309	0
OP: OP 3	1372	0
OP: OP 4	0	0
OP: OP 5	0	0

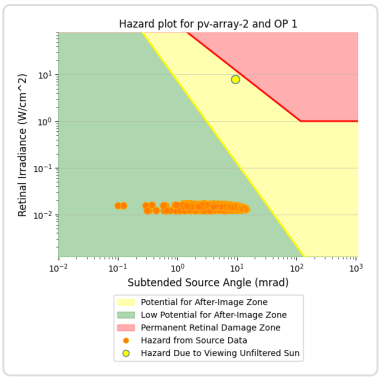
PV array 2: OP 1

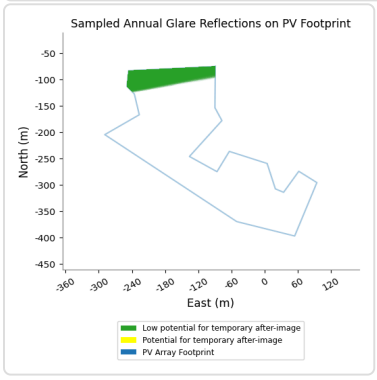
PV array is expected to produce the following glare for this receptor:

- 1,332 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.





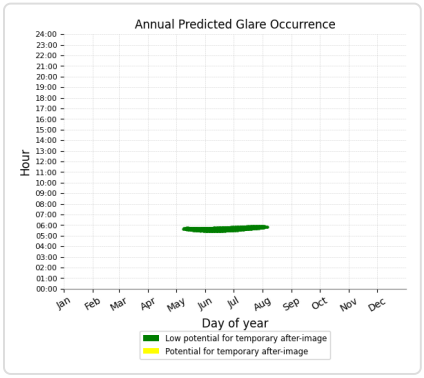


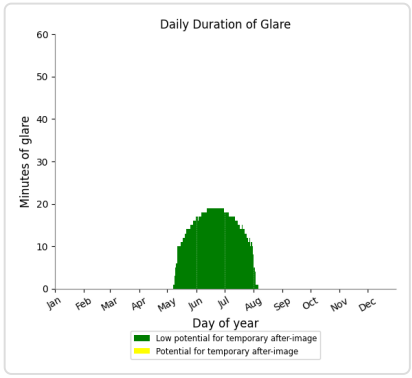


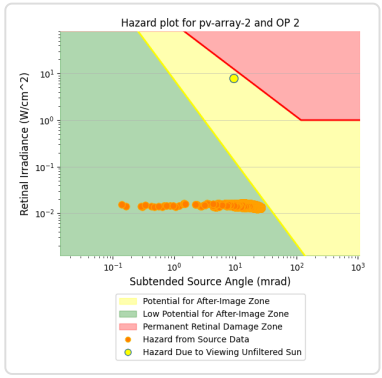
PV array 2: OP 2

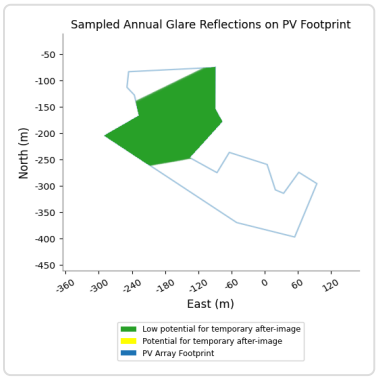
PV array is expected to produce the following glare for this receptor:

- 1,309 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.





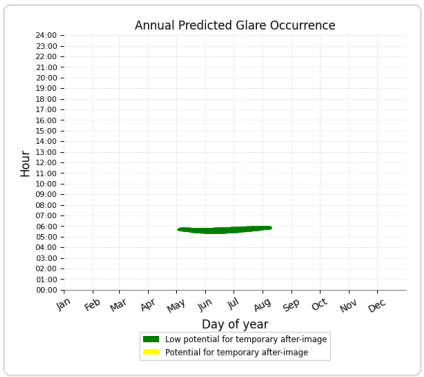


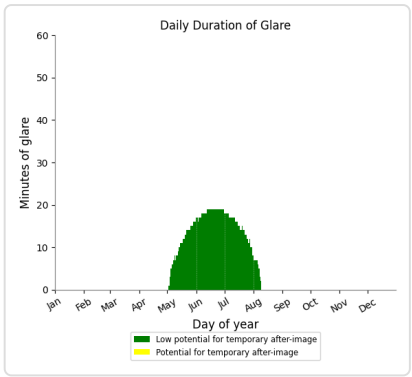


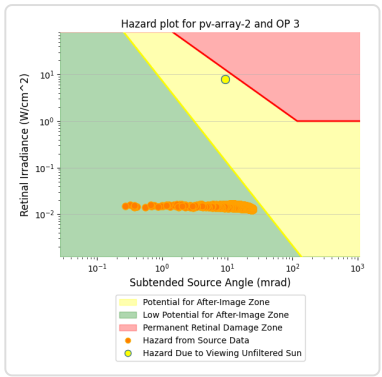
PV array 2: OP 3

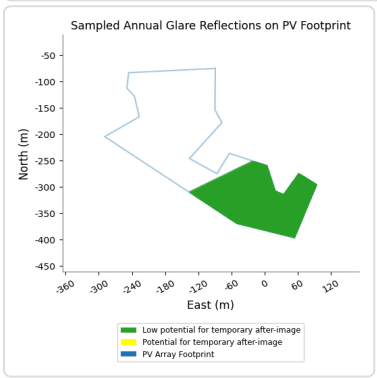
PV array is expected to produce the following glare for this receptor:

- 1,372 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 2: OP 4

No glare found

PV array 2: OP 5

No glare found

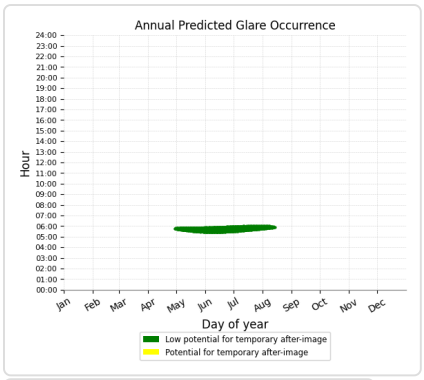
PV array 3 low potential for temporary after-image

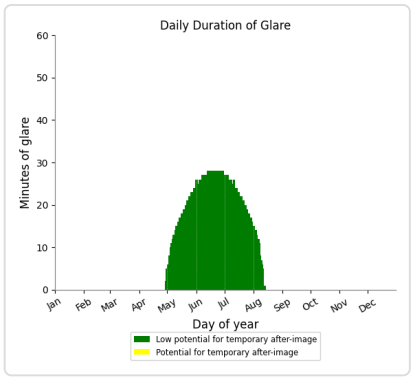
Component	Green glare (min)	Yellow glare (min)
OP: OP 1	2200	0
OP: OP 2	1769	0
OP: OP 3	444	0
OP: OP 4	0	0
OP: OP 5	0	0

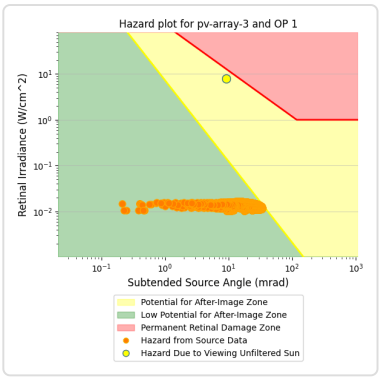
PV array 3: OP 1

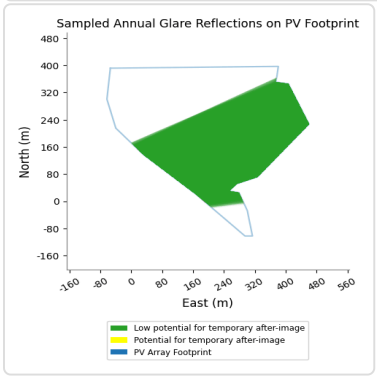
PV array is expected to produce the following glare for this receptor:

- 2,200 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.





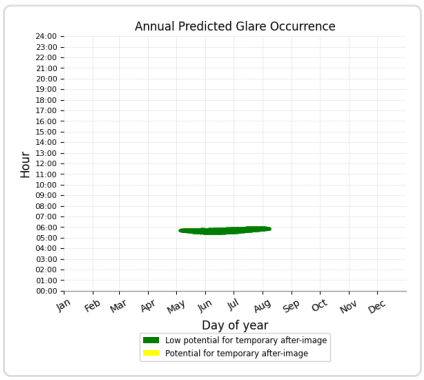


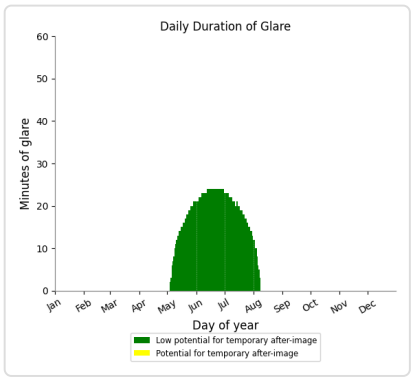


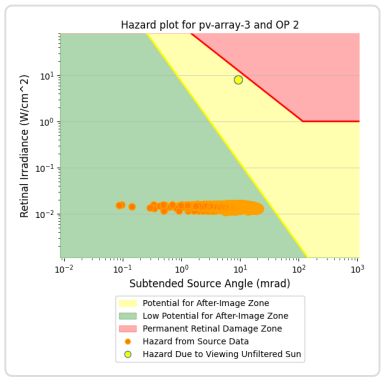
PV array 3: OP 2

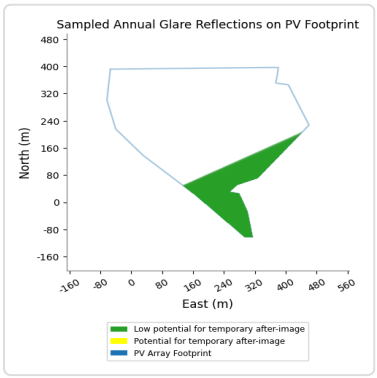
PV array is expected to produce the following glare for this receptor:

- 1,769 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.





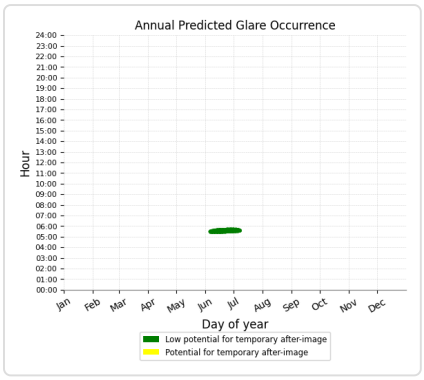


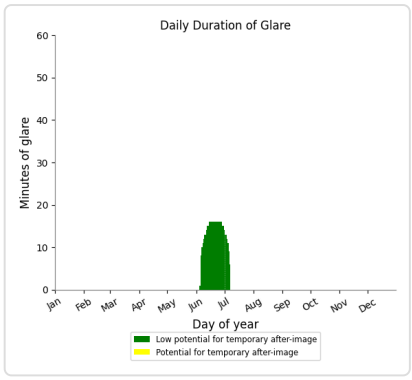


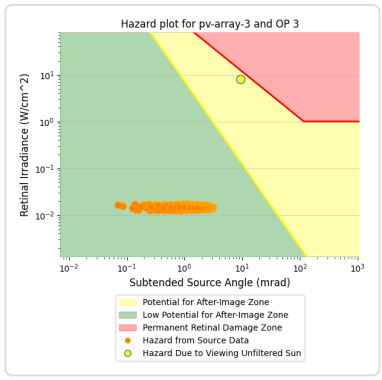
PV array 3: OP 3

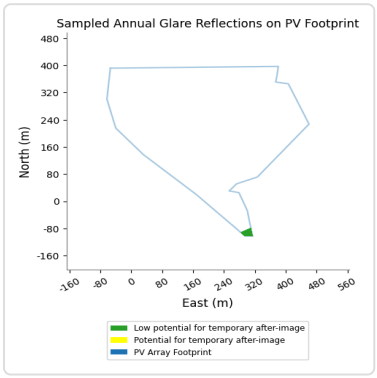
PV array is expected to produce the following glare for this receptor:

- 444 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 3: OP 4

No glare found

PV array 3: OP 5

No glare found

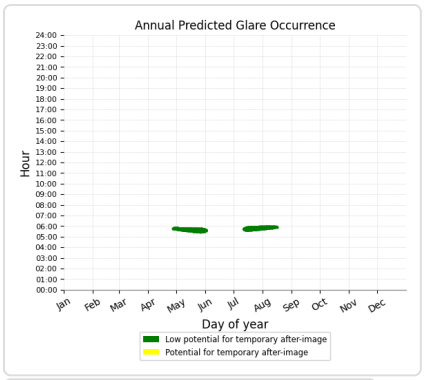
PV array 4 low potential for temporary after-image

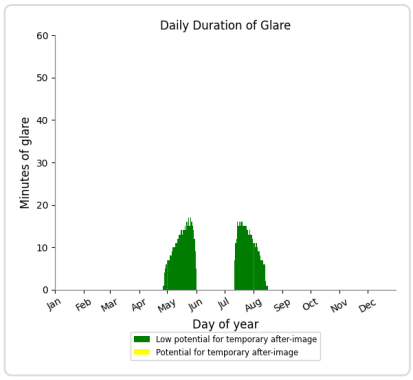
Component	Green glare (min)	Yellow glare (min)
OP: OP 1	792	0
OP: OP 2	1677	0
OP: OP 3	1600	0
OP: OP 4	769	0
OP: OP 5	0	0

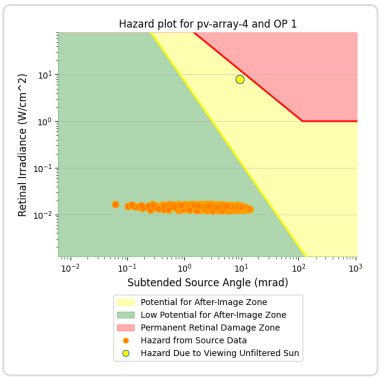
PV array 4: OP 1

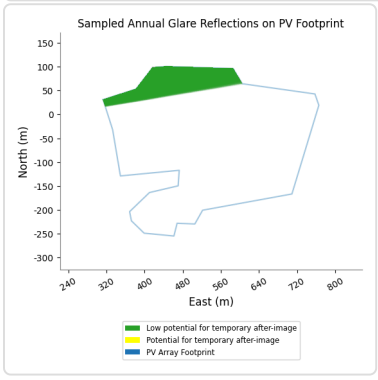
PV array is expected to produce the following glare for this receptor:

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





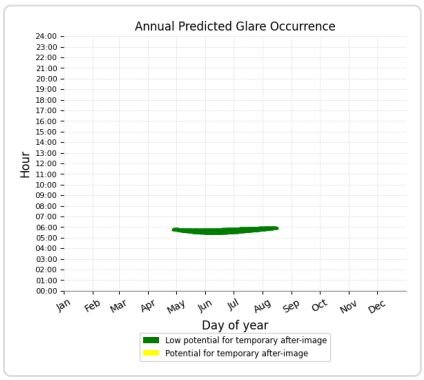


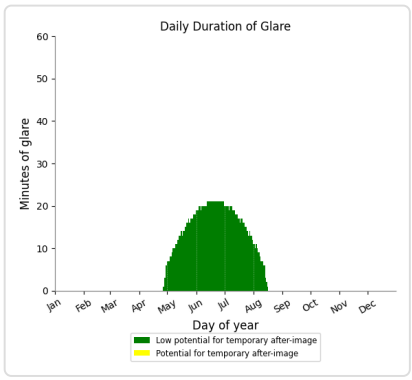


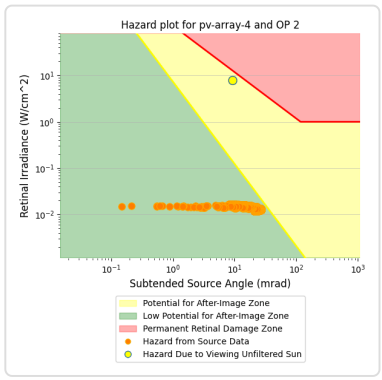
PV array 4: OP 2

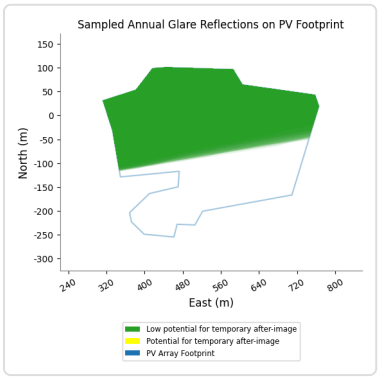
PV array is expected to produce the following glare for this receptor:

- 1,677 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.





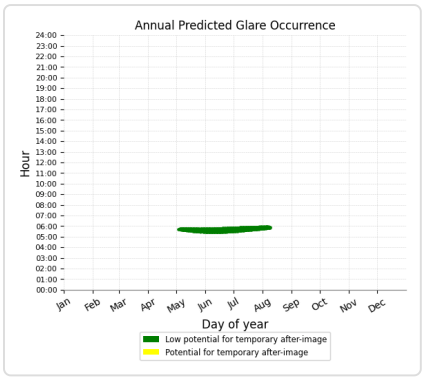


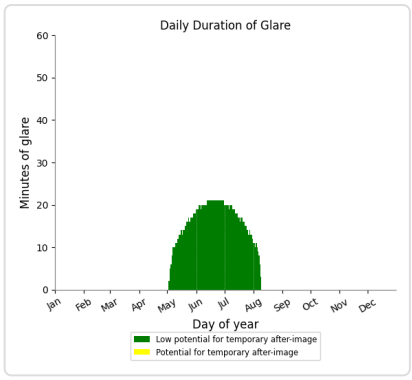


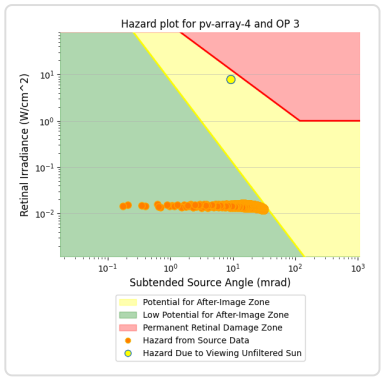
PV array 4: OP 3

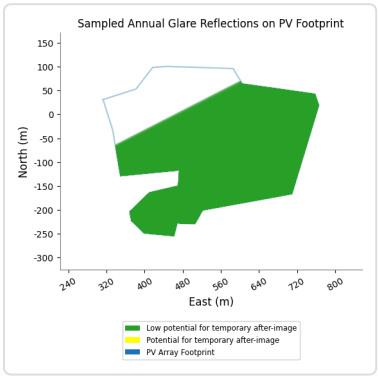
PV array is expected to produce the following glare for this receptor:

- 1,600 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.





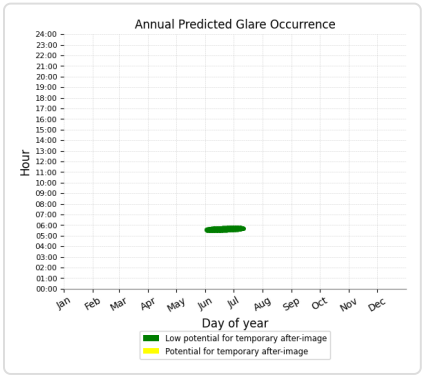


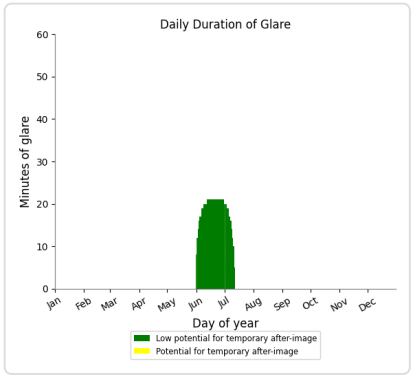


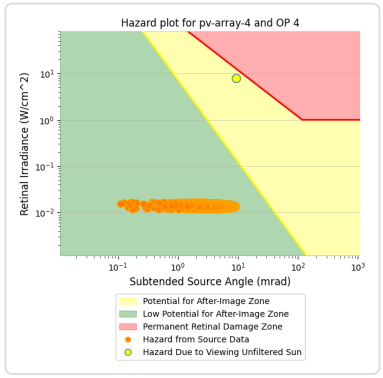
PV array 4: OP 4

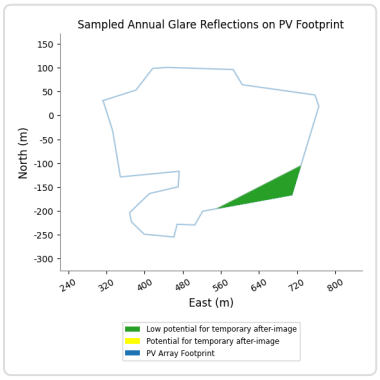
PV array is expected to produce the following glare for this receptor:

- 769 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 4: OP 5

No glare found

PV array 5 low potential for temporary after-image

Component	Green glare (min)	Yellow glare (min)
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	50	0
OP: OP 4	2126	0
OP: OP 5	2948	0

PV array 5: OP 1

No glare found

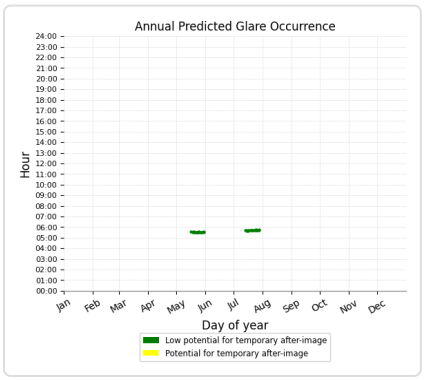
PV array 5: OP 2

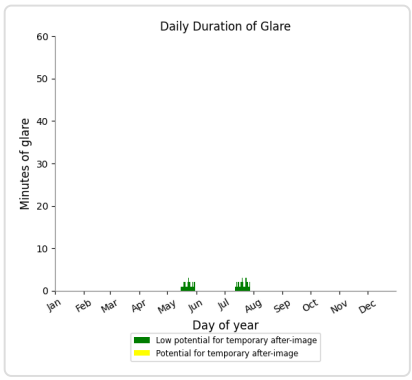
No glare found

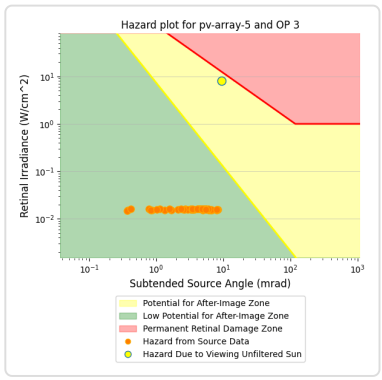
PV array 5: OP 3

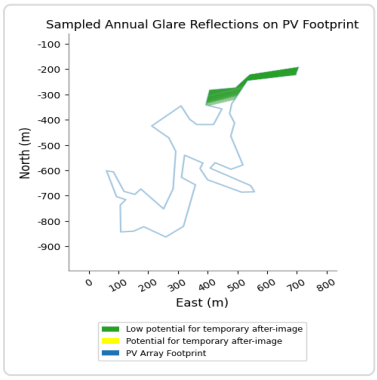
PV array is expected to produce the following glare for this receptor:

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





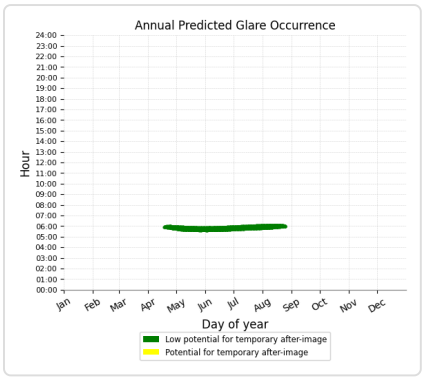


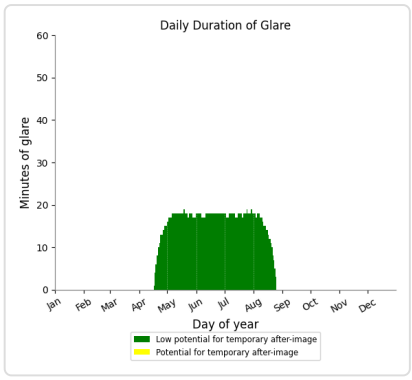


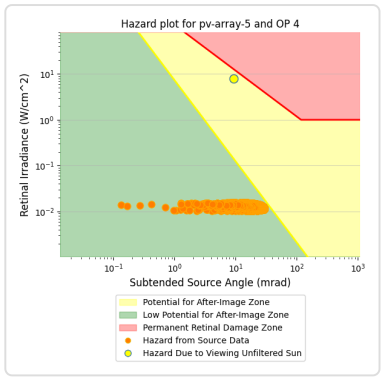
PV array 5: OP 4

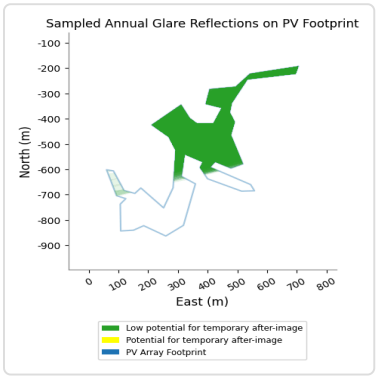
PV array is expected to produce the following glare for this receptor:

- 2,126 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.





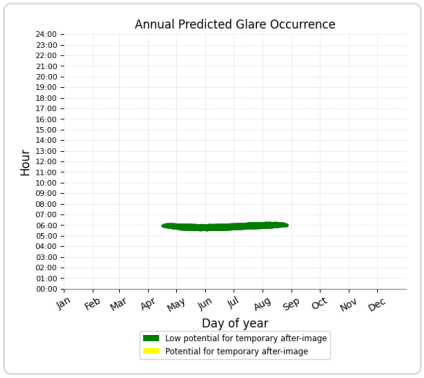


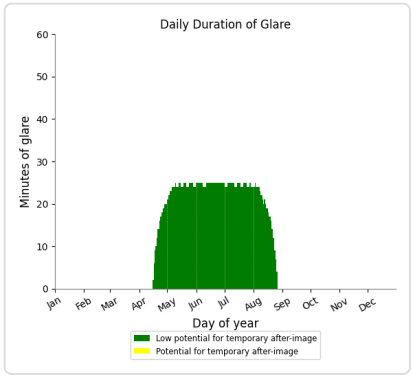


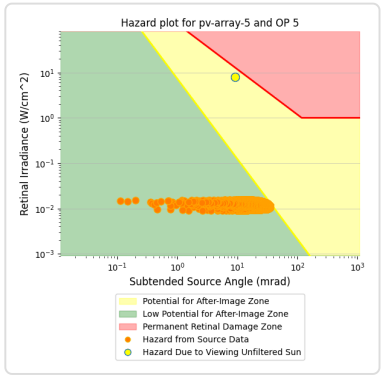
PV array 5: OP 5

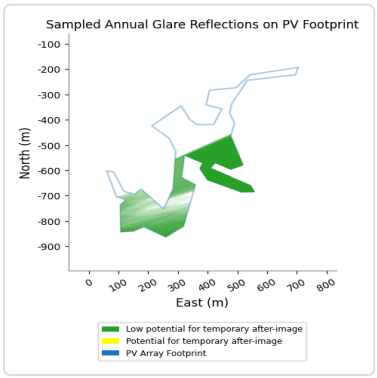
PV array is expected to produce the following glare for this receptor:

- 2,948 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.









Summary of Vertical Surface Glare Analysis

Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not automatically account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions.
- Detailed system geometry is not rigorously simulated.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values and results may vary.
- The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
- Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results fo large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
- The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
- 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.
- Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
- Refer to the **Help page** for detailed assumptions and limitations not listed here.