# Glyntaff Solar Farm

## Glyntaff Solar Farm Byways 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** 141224.23859

**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 | 3,402 | 0 | - |
| PV array 2 | 25.0 | 180.0 | 4,255 | 0 | - |
| PV array 3 | 25.0 | 180.0 | 1,855 | 0 | - |
| PV array 4 | 25.0 | 180.0 | 3,147 | 0 | - |
| PV array 5 | 25.0 | 180.0 | 8,413 | 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 | 51.595013 | -3.292581 | 236.77 | 2.50 | 239.27 |
| OP 2 | 51.596706 | -3.292120 | 255.96 | 2.50 | 258.46 |

# 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 | 3,402 | 0 | - | - |
| PV array 2 | 25.0 | 180.0 | 4,255 | 0 | - | - |
| PV array 3 | 25.0 | 180.0 | 1,855 | 0 | - | - |
| PV array 4 | 25.0 | 180.0 | 3,147 | 0 | - | - |
| PV array 5 | 25.0 | 180.0 | 8,413 | 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 | 81 | 609 | 630 | 624 | 302 | 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 | 543 | 598 | 575 | 600 | 594 | 170 | 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 | 0 | 393 | 777 | 685 | 0 | 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 | 48 | 785 | 811 | 818 | 333 | 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 | 272 | 688 | 761 | 787 | 790 | 723 | 510 | 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*

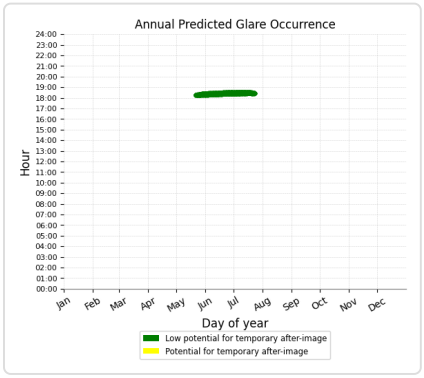
## PV array 1 low potential for temporary after-image

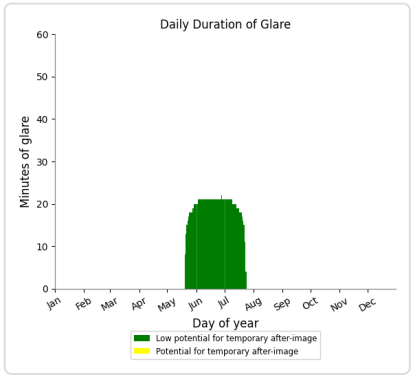
| Component | Green glare (min) | Yellow glare (min) |
|---|---|---|
| OP: OP 1 | 1273 | 0 |
| OP: OP 2 | 2129 | 0 |

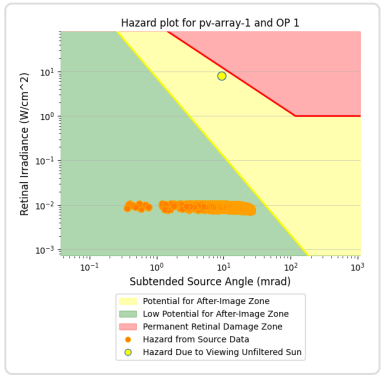
## PV array 1: OP 1

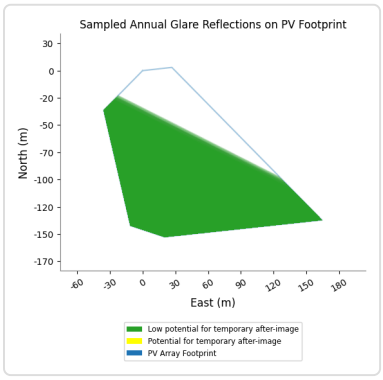
PV array is expected to produce the following glare for this receptor:

- 1,273 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



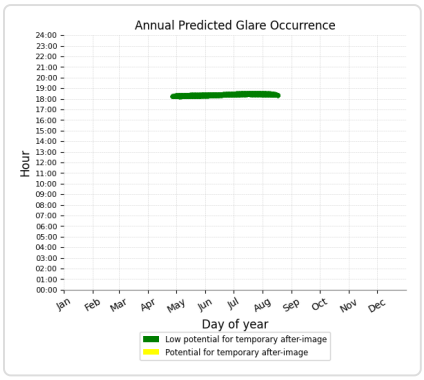



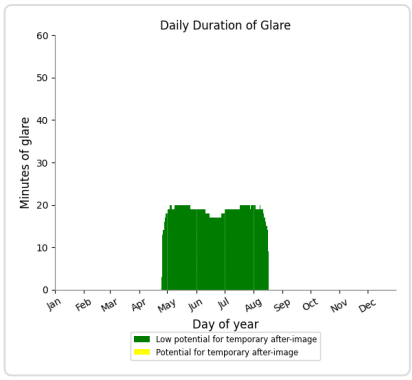



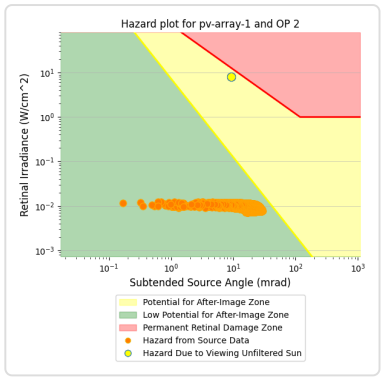

## PV array 1: OP 2

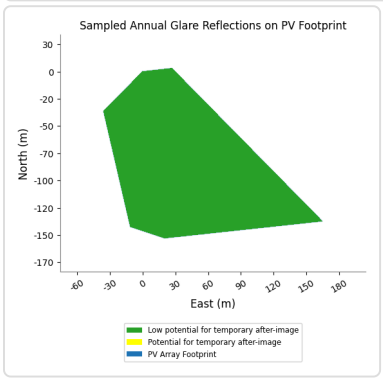
PV array is expected to produce the following glare for this receptor:

- 2,129 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 low potential for temporary after-image

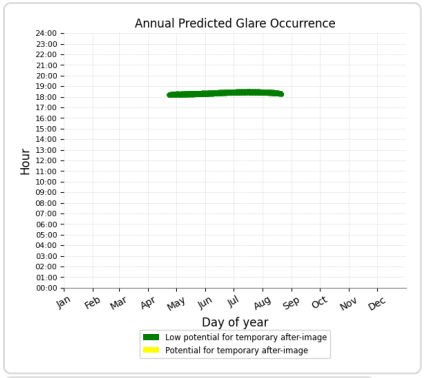
| Component | Green glare (min) | Yellow glare (min) |
|---|---|---|

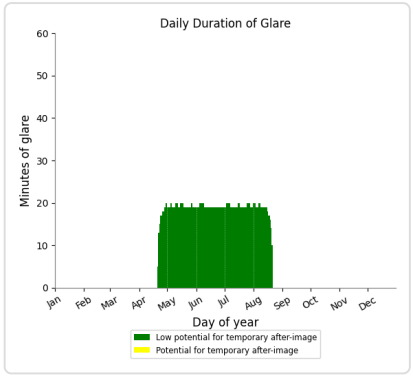
| | | |
|---|---|---|
| OP: OP 1 | 2316 | 0 |
| OP: OP 2 | 1939 | 0 |

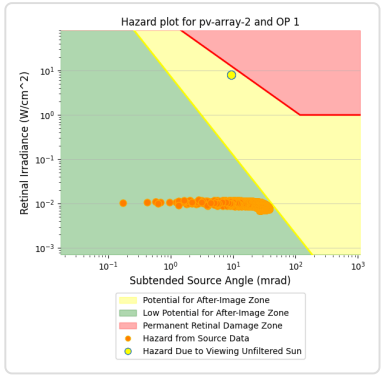
## PV array 2: OP 1

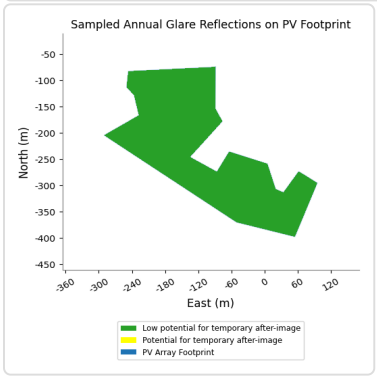
PV array is expected to produce the following glare for this receptor:

- 2,316 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



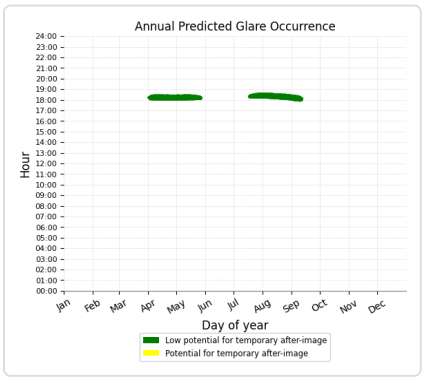



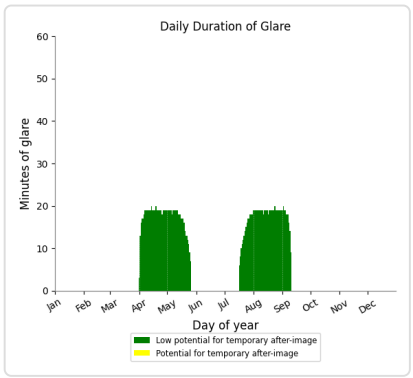



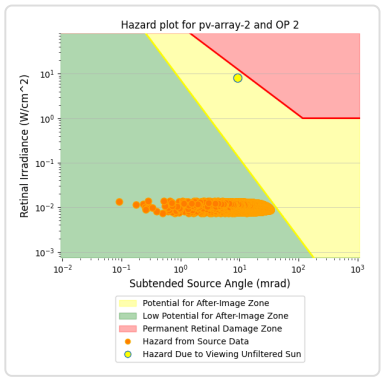

## PV array 2: OP 2

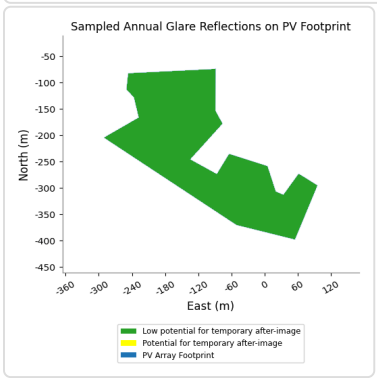
PV array is expected to produce the following glare for this receptor:

- 1,939 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 low potential for temporary after-image

| Component | Green glare (min) | Yellow glare (min) |
|---|---|---|
| OP: OP 1 | 0 | 0 |
| OP: OP 2 | 1855 | 0 |

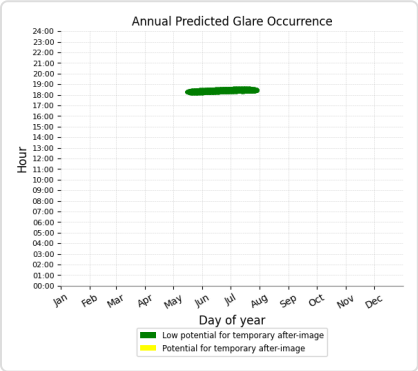
### PV array 3: OP 1

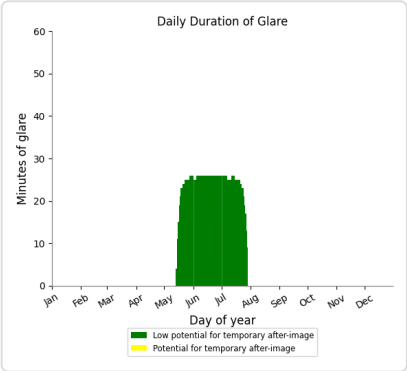
*No glare found*

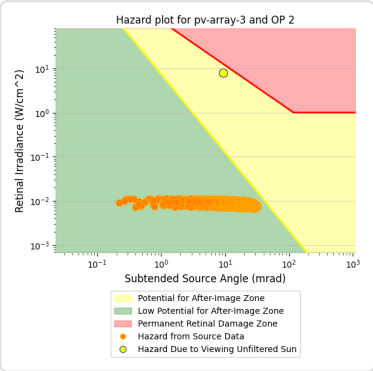
### PV array 3: OP 2

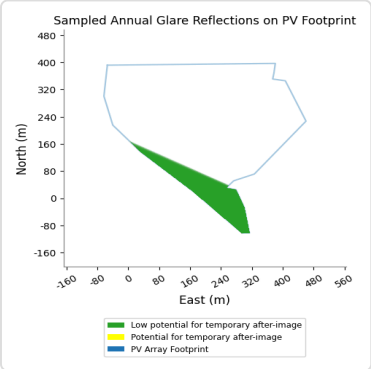
PV array is expected to produce the following glare for this receptor:

- 1,855 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



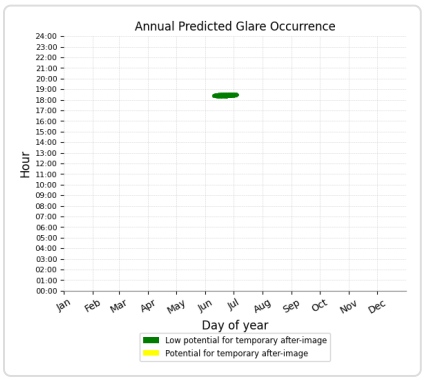

## PV array 4 low potential for temporary after-image

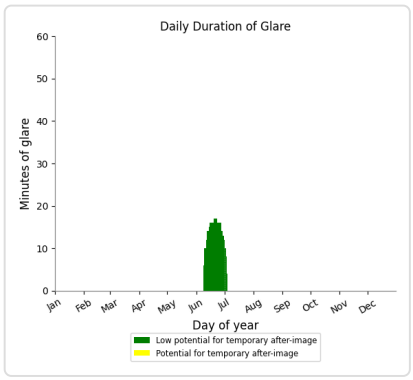
| Component | Green glare (min) | Yellow glare (min) |
|---|---|---|
| OP: OP 1 | 352 | 0 |
| OP: OP 2 | 2795 | 0 |

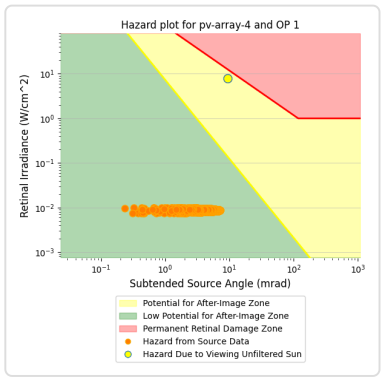
## PV array 4: OP 1

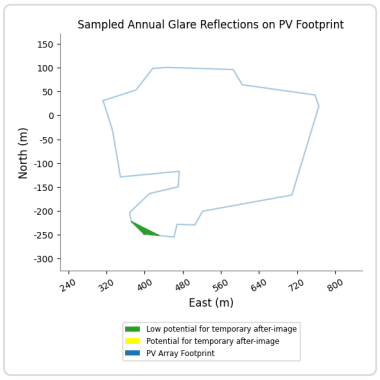
PV array is expected to produce the following glare for this receptor:

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



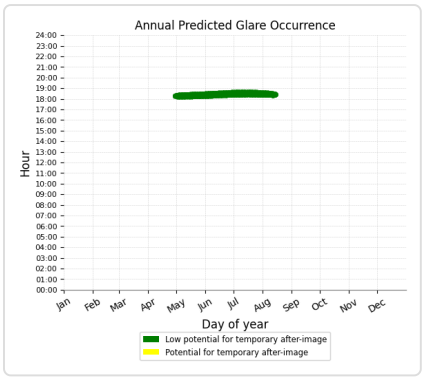



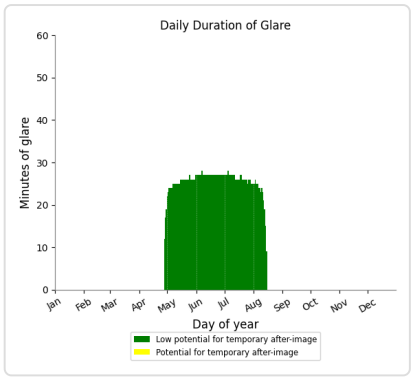



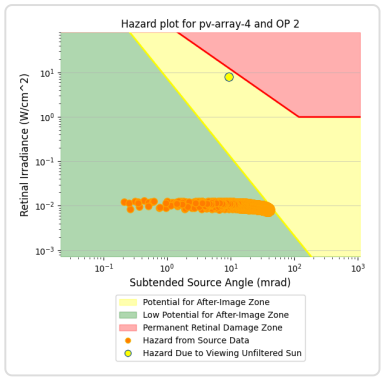

## PV array 4: OP 2

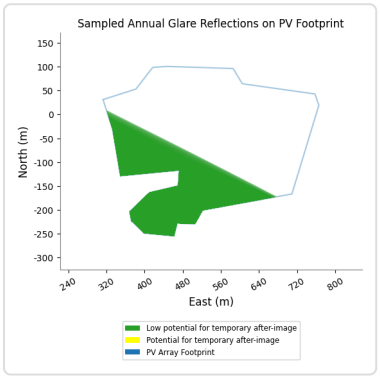
PV array is expected to produce the following glare for this receptor:

- 2,795 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 low potential for temporary after-image

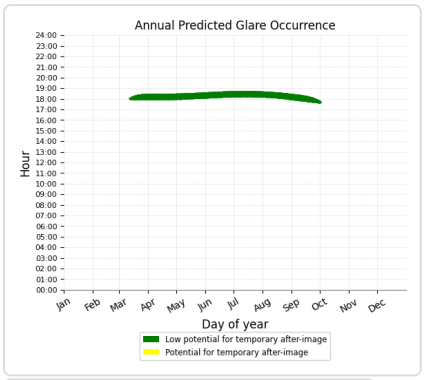
| Component | Green glare (min) | Yellow glare (min) |
|---|---|---|

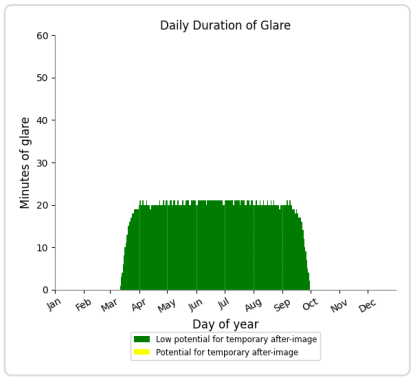
| | | |
|---|---|---|
| OP: OP 1 | 3885 | 0 |
| OP: OP 2 | 4528 | 0 |

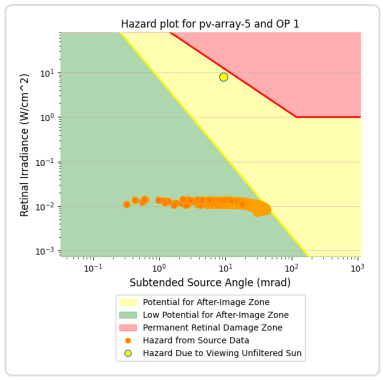
## PV array 5: OP 1

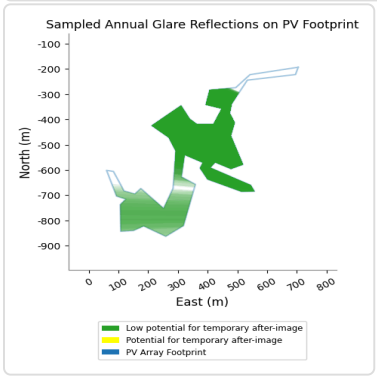
PV array is expected to produce the following glare for this receptor:

- 3,885 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



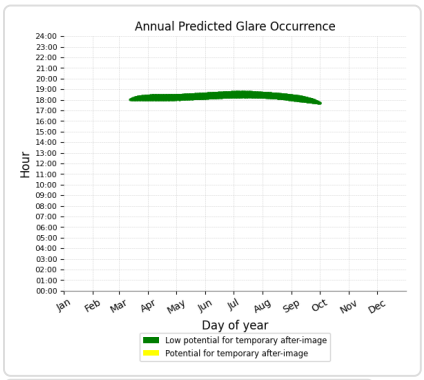



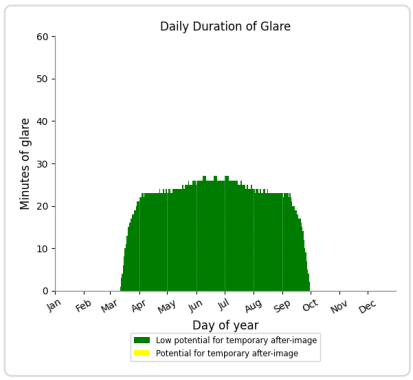



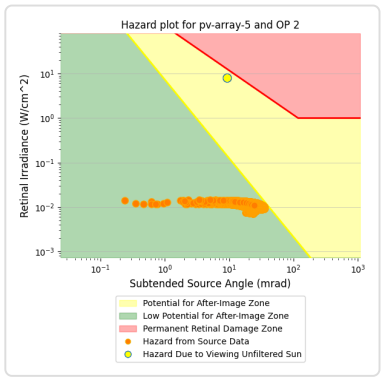

## PV array 5: OP 2

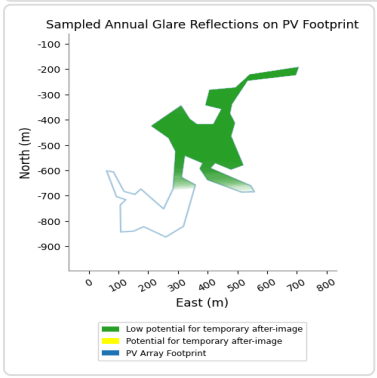
PV array is expected to produce the following glare for this receptor:

- 4,528 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.