

PEI Genesis Solar Array

PEI Genesis Solar Array Aviation

Created Aug 17, 2023

Updated Aug 17, 2023

Time-step 1 minute

Timezone offset UTC0

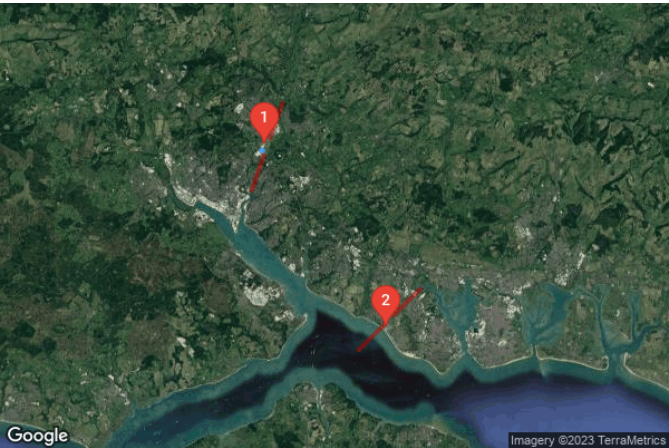
Minimum sun altitude 0.0 deg

Site ID 97808.17110

Project type Advanced

Project status: active

Category 1 MW to 5 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
Large Roof North 1	6.0	19.0	3,813	0	-
Large Roof North 2	6.0	99.0	0	0	-
Large Roof South 1	6.0	199.0	0	0	-
Large Roof South 2	6.0	199.0	0	0	-
Small Roof East	10.0	111.0	0	0	-
Small Roof West	10.0	289.0	0	0	-

Component Data

Total PV footprint area: 1,796 m²

An aerial photograph of a large industrial complex. The facility includes several large buildings, some with blue roofs, and extensive parking areas filled with vehicles. A road runs along the right side of the complex, and a grassy field is visible in the bottom right corner. The Google logo is visible in the bottom left corner of the image.

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	m	m	m
1	50.947426	-1.362302	12.09	11.60	23.69
2	50.947592	-1.363077	11.26	11.60	22.86
3	50.947486	-1.363144	11.41	11.60	23.01
4	50.947315	-1.362377	11.94	11.60	23.54
5	50.947399	-1.362329	12.05	11.60	23.65
6	50.947406	-1.362366	11.99	11.60	23.59
7	50.947344	-1.362401	11.93	11.60	23.53
8	50.947472	-1.362972	11.48	11.60	23.08
9	50.947543	-1.362940	11.37	11.60	22.97
10	50.947407	-1.362316	12.06	11.60	23.66

An aerial photograph of a large industrial or commercial complex. The complex features several large, interconnected buildings with flat roofs. One prominent building has a blue roof section. There are extensive parking lots filled with cars and trucks. The surrounding area includes roads, a railway track, and some green spaces. The image is part of a Google Earth interface, with the Google logo and text visible at the bottom.

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	m	m	m
1	50.947160	-1.362461	11.66	11.60	23.26
2	50.947330	-1.363232	11.51	11.60	23.11
3	50.947216	-1.363299	11.63	11.60	23.23
4	50.947040	-1.362534	11.35	11.60	22.95
5	50.947127	-1.362480	11.58	11.60	23.18
6	50.947133	-1.362508	11.55	11.60	23.15
7	50.947071	-1.362551	11.39	11.60	22.99
8	50.947201	-1.363126	11.51	11.60	23.11
9	50.947265	-1.363086	11.53	11.60	23.13
10	50.947133	-1.362473	11.60	11.60	23.20

An aerial photograph of a large industrial or commercial complex. The complex features several large buildings, including one with a prominent blue roof. There are extensive parking lots filled with vehicles, and various smaller structures and infrastructure are visible within the site. The surrounding area includes roads and green spaces. The image is watermarked with the Google logo and text at the bottom.

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	m	m	m
1	50.947470	-1.363152	11.45	11.60	23.05
2	50.947345	-1.363220	11.50	11.60	23.10
3	50.947174	-1.362457	11.68	11.60	23.28
4	50.947274	-1.362400	11.90	11.60	23.50
5	50.947280	-1.362432	11.86	11.60	23.46
6	50.947213	-1.362473	11.73	11.60	23.33
7	50.947342	-1.363049	11.54	11.60	23.14
8	50.947443	-1.362994	11.50	11.60	23.10

Name: Large Roof South 2
Footprint area: 260 m^2
Axis tracking: Fixed (no rotation)
Tilt: 6.0 deg
Orientation: 199.0 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	50.947139	-1.363144	11.47	11.60	23.07
2	50.947010	-1.362574	11.27	11.60	22.87
3	50.946941	-1.362618	11.07	11.60	22.67
4	50.947070	-1.363188	11.46	11.60	23.06
5	50.947050	-1.363199	11.46	11.60	23.06
6	50.946916	-1.362594	11.07	11.60	22.67
7	50.947034	-1.362535	11.33	11.60	22.93
8	50.947166	-1.363133	11.49	11.60	23.09

Name: Small Roof East
Footprint area: 212 m^2
Axis tracking: Fixed (no rotation)
Tilt: 10.0 deg
Orientation: 111.0 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	50.947626	-1.362323	11.94	6.40	18.34
2	50.947482	-1.362409	11.94	6.40	18.34
3	50.947447	-1.362240	12.17	6.40	18.57
4	50.947590	-1.362157	12.29	6.40	18.69

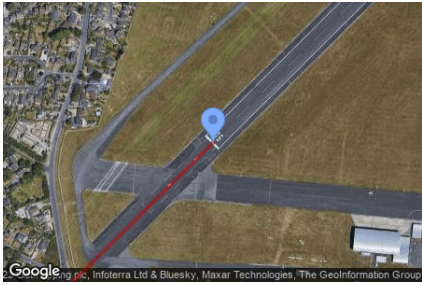
Name: Small Roof West
Footprint area: 131 m^2
Axis tracking: Fixed (no rotation)
Tilt: 10.0 deg
Orientation: 289.0 deg
Rated power: -
Panel material: Light textured glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 9.16 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	m	m	m
1	50.947661	-1.362481	11.51	6.40	17.91
2	50.947514	-1.362565	11.76	6.40	18.16
3	50.947496	-1.362465	11.86	6.40	18.26
4	50.947641	-1.362374	11.83	6.40	18.23

Name: Lee on Solent RWY 05
Description:
Threshold height : 15 m
Direction: 45.2 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	m	m	m
Threshold	50.812875	-1.211076	8.04	15.24	23.28
2-mile point	50.792502	-1.243583	-2.04	194.00	191.96



An aerial photograph showing a road junction. A blue location pin is placed on the road, and a red line extends from the top right towards the pin. The surrounding area includes fields, some buildings, and a parking lot. The Google logo is visible in the bottom left corner.

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	m	m	m
Threshold	50.819387	-1.200726	8.30	15.24	23.54
2-mile point	50.839759	-1.168215	0.00	192.22	192.22

An aerial photograph showing a road intersection. A blue location pin is placed on the road, and a red line extends from it to a building in the lower-left quadrant of the image. The surrounding area includes green fields, a highway on the left, and some industrial or commercial buildings. The Google logo is visible in the bottom-left corner.

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	m	m	m
Threshold	50.943588	-1.360526	7.87	15.24	23.11
2-mile point	50.916317	-1.375786	5.82	185.97	191.79

Name: Southampton RWY 20
Description:
Threshold height : 15 m
Direction: 199.4 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	m	m	m
Threshold	50.957180	-1.352953	13.98	15.24	29.22
2-mile point	50.984451	-1.337689	14.99	182.91	197.90



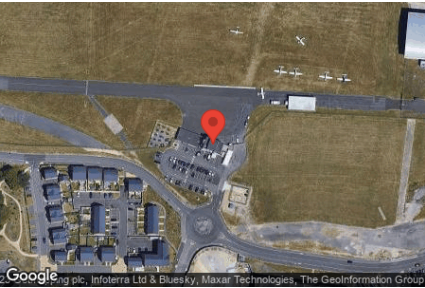
Discrete Observation Receptors

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	m	m	m
1-ATCT	50.952300	-1.359484	13.17	10.00	23.17
2-ATCT	50.810682	-1.210019	8.32	10.00	18.32

1-ATCT map image



2-ATCT map image



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	
Large Roof North 1	6.0	19.0	3,813	0	-	-
Large Roof North 2	6.0	99.0	0	0	-	-
Large Roof South 1	6.0	199.0	0	0	-	-
Large Roof South 2	6.0	199.0	0	0	-	-
Small Roof East	10.0	111.0	0	0	-	-
Small Roof West	10.0	289.0	0	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
large-roof-n (green)	1522	17	0	0	0	0	0	0	0	0	1178	1096
large-roof-n (yellow)	0	0	0	0	0	0	0	0	0	0	0	0

PV & Receptor Analysis Results

Results for each PV array and receptor

Large Roof North 1 low potential for temporary after-image

Component	Green glare (min)	Yellow glare (min)
FP: Lee on Solent RWY 05	0	0
FP: Lee on Solent RWY 23	0	0
FP: Southampton RWY 02	0	0
FP: Southampton RWY 20	3488	0
OP: 1-ATCT	325	0
OP: 2-ATCT	0	0

Large Roof North 1: Lee on Solent RWY 05

No glare found

Large Roof North 1: Lee on Solent RWY 23

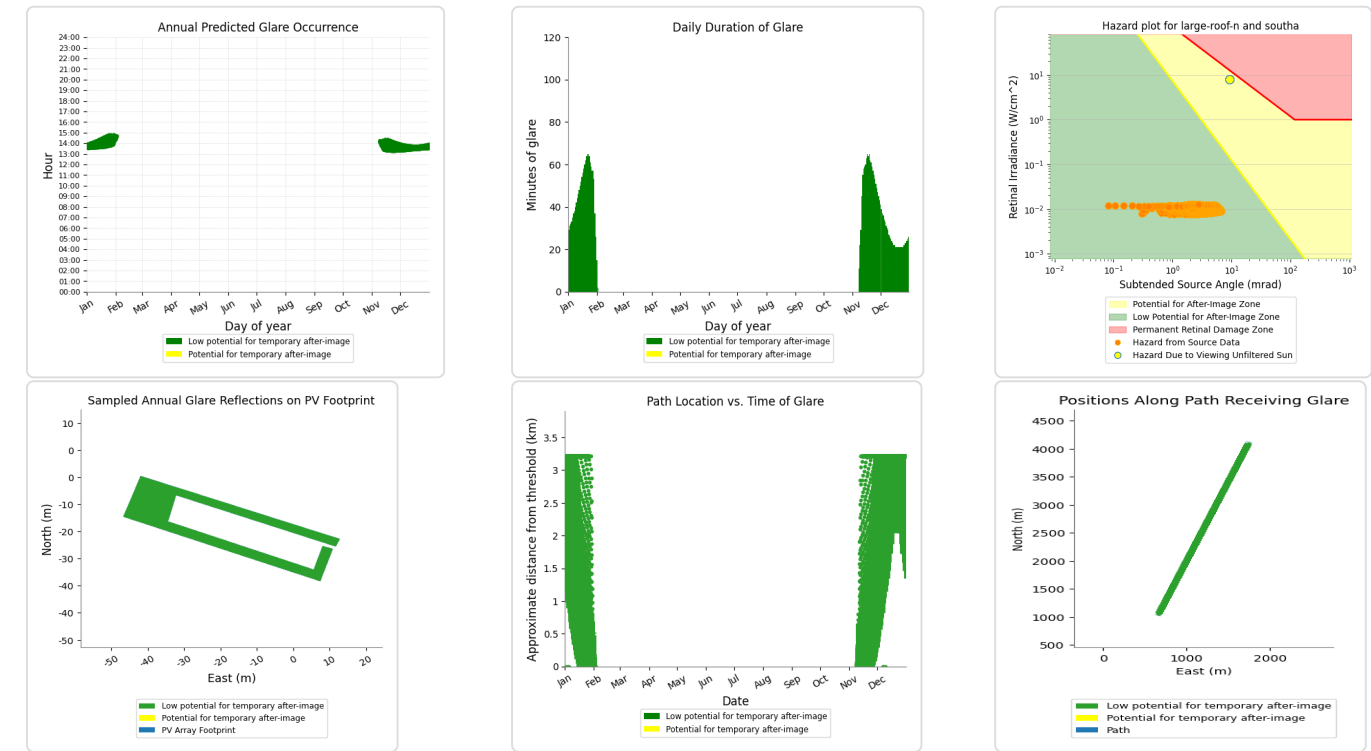
No glare found

Large Roof North 1: Southampton RWY 02

No glare found

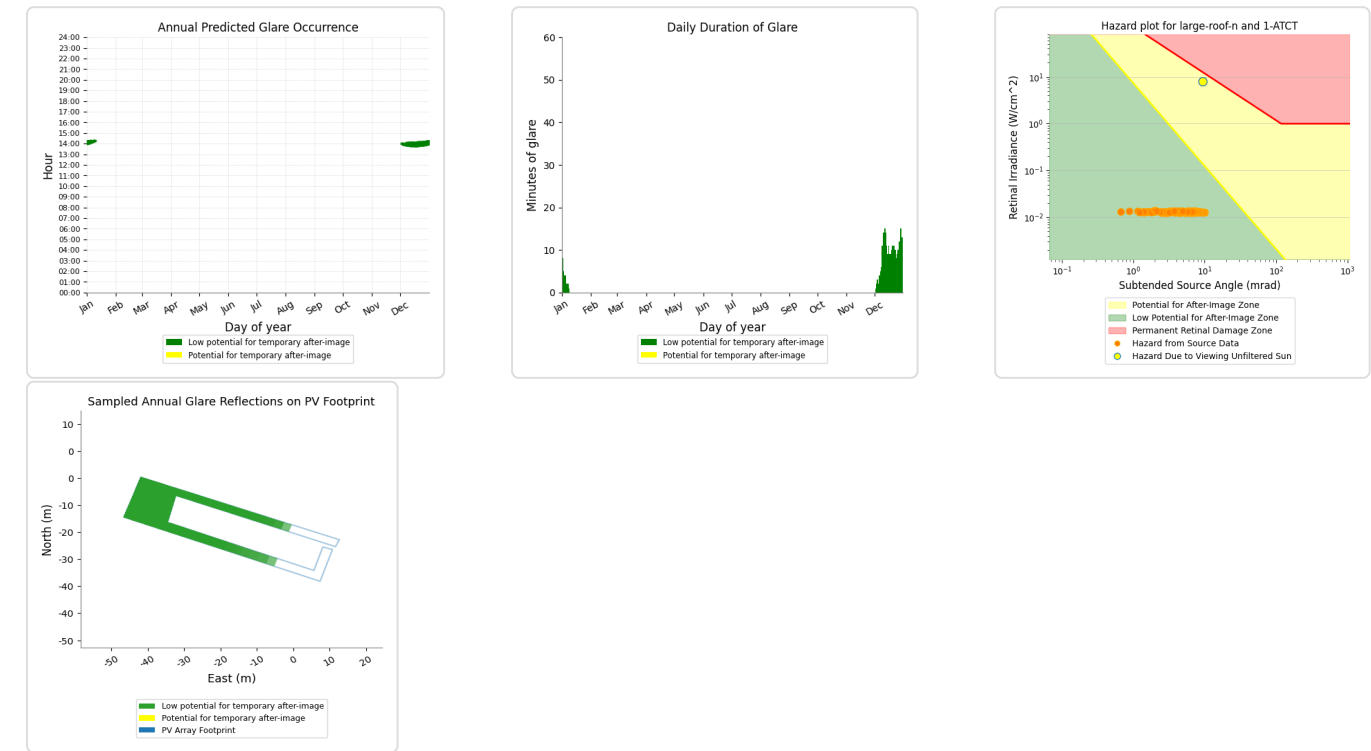
Large Roof North 1: Southampton RWY 20

- PV array is expected to produce the following glare for this receptor:
- 3,488 minutes of "green" glare with low potential to cause temporary after-image.
 - 0 minutes of "yellow" glare with potential to cause temporary after-image.



Large Roof North 1: 1-ATCT

- PV array is expected to produce the following glare for this receptor:
- 325 minutes of "green" glare with low potential to cause temporary after-image.
 - 0 minutes of "yellow" glare with potential to cause temporary after-image.



Large Roof North 1: 2-ATCT

No glare found

Large Roof North 2

no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Lee on Solent RWY 05	0	0
FP: Lee on Solent RWY 23	0	0
FP: Southampton RWY 02	0	0
FP: Southampton RWY 20	0	0
OP: 1-ATCT	0	0
OP: 2-ATCT	0	0

No glare found

Large Roof South 1

no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Lee on Solent RWY 05	0	0
FP: Lee on Solent RWY 23	0	0
FP: Southampton RWY 02	0	0
FP: Southampton RWY 20	0	0
OP: 1-ATCT	0	0
OP: 2-ATCT	0	0

No glare found

Large Roof South 2

no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Lee on Solent RWY 05	0	0
FP: Lee on Solent RWY 23	0	0
FP: Southampton RWY 02	0	0
FP: Southampton RWY 20	0	0
OP: 1-ATCT	0	0
OP: 2-ATCT	0	0

No glare found

Small Roof East

no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Lee on Solent RWY 05	0	0
FP: Lee on Solent RWY 23	0	0
FP: Southampton RWY 02	0	0
FP: Southampton RWY 20	0	0
OP: 1-ATCT	0	0
OP: 2-ATCT	0	0

No glare found



Small Roof West no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Lee on Solent RWY 05	0	0
FP: Lee on Solent RWY 23	0	0
FP: Southampton RWY 02	0	0
FP: Southampton RWY 20	0	0
OP: 1-ATCT	0	0
OP: 2-ATCT	0	0

No glare found



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 for 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.