

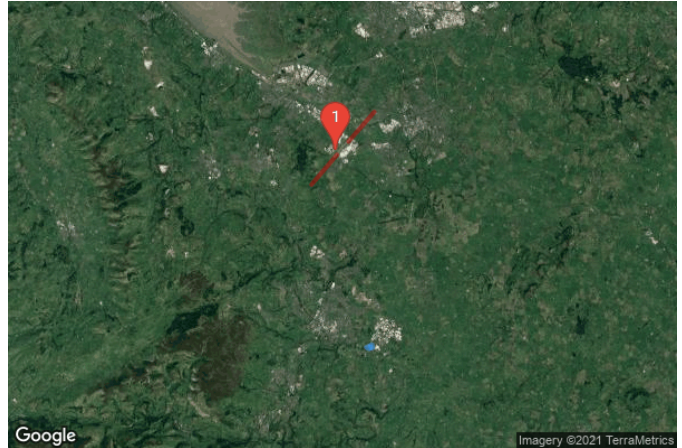


Cefn Park Solar Farm

Cefn Park Solar Farm Aviation Receptors 20deg

Created Sept. 30, 2021
Updated Sept. 30, 2021
Time-step 1 minute
Timezone offset UTC0
Site ID 59386.10147

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



Misc. Analysis Settings

DNI: varies (1,000.0 W/m² peak)
 Ocular transmission coefficient: 0.5
 Pupil diameter: 0.002 m
 Eye focal length: 0.017 m
 Sun subtended angle: 9.3 mrad

Analysis Methodologies:

- Observation point: **Version 2**
- 2-Mile Flight Path: **Version 2**
- Route: **Version 2**

Summary of Results No glare predicted!

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
Eastern Array	20.0	180.0	0	0	-
Western Array	20.0	180.0	0	0	-

Component Data

PV Array(s)

Total PV footprint area: 81,273 m²

Name: Eastern Array
Axis tracking: Fixed (no rotation)
Tilt: 20.0 deg
Orientation: 180.0 deg
Footprint area: 38,050 m²
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 deg	Longitude deg	Ground elevation m	Height above ground m	Total elevation m
1	53.033283	-2.941465	36.31	3.10	39.41
2	53.033219	-2.943170	36.74	3.10	39.84
3	53.033116	-2.943600	36.31	3.10	39.41
4	53.032948	-2.943696	35.74	3.10	38.84
5	53.032800	-2.943621	35.23	3.10	38.33
6	53.032709	-2.943868	35.29	3.10	38.39
7	53.032496	-2.943814	34.59	3.10	37.69
8	53.032354	-2.943943	34.41	3.10	37.51
9	53.032012	-2.943771	34.08	3.10	37.18
10	53.031903	-2.943460	34.00	3.10	37.10
11	53.031735	-2.943364	34.00	3.10	37.10
12	53.031587	-2.943063	34.00	3.10	37.10
13	53.031232	-2.942945	34.00	3.10	37.10
14	53.031109	-2.942623	34.00	3.10	37.10
15	53.030935	-2.942570	34.00	3.10	37.10
16	53.030857	-2.942666	34.00	3.10	37.10
17	53.030612	-2.942666	34.00	3.10	37.10
18	53.030651	-2.942108	34.12	3.10	37.22
19	53.030916	-2.941507	34.77	3.10	37.87
20	53.031090	-2.941540	34.81	3.10	37.91
21	53.031167	-2.941851	34.47	3.10	37.57
22	53.031380	-2.941926	34.23	3.10	37.33
23	53.031548	-2.941786	34.15	3.10	37.25
24	53.031580	-2.940874	33.99	3.10	37.09
25	53.032516	-2.941175	35.51	3.10	38.61
26	53.032664	-2.941389	35.83	3.10	38.93
27	53.032767	-2.941400	35.88	3.10	38.98
28	53.032948	-2.941325	35.94	3.10	39.04

Name: Western Array
Axis tracking: Fixed (no rotation)
Tilt: 20.0 deg
Orientation: 180.0 deg
Footprint area: 43,223 m²
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

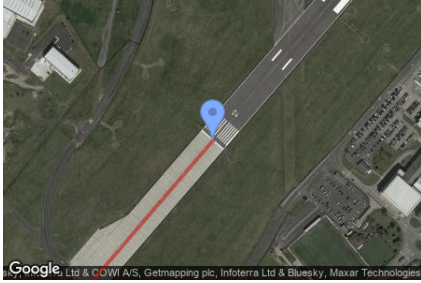


Vertex	Latitude deg	Longitude deg	Ground elevation m	Height above ground m	Total elevation m
1	53.032147	-2.944742	34.67	3.10	37.77
2	53.032134	-2.945440	35.85	3.10	38.95
3	53.031992	-2.945987	37.02	3.10	40.12
4	53.031895	-2.946942	38.64	3.10	41.74
5	53.031631	-2.947231	38.32	3.10	41.42
6	53.031624	-2.947843	39.98	3.10	43.08
7	53.031495	-2.948583	41.57	3.10	44.67
8	53.031173	-2.948551	40.10	3.10	43.20
9	53.030424	-2.945654	34.91	3.10	38.01
10	53.030411	-2.944678	34.00	3.10	37.10
11	53.030637	-2.943648	34.00	3.10	37.10
12	53.030947	-2.943444	34.00	3.10	37.10
13	53.031541	-2.943895	34.00	3.10	37.10

2-Mile Flight Path Receptor(s)

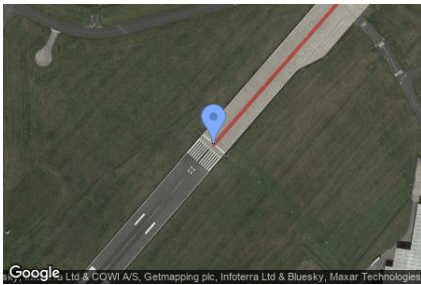
Name: RWY 04
Description:
Threshold height : 15 m
Direction: 40.7 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg

Point	Latitude deg	Longitude deg	Ground elevation m	Height above ground m	Total elevation m
Threshold	53.173241	-2.984707	9.24	15.24	24.48
2-mile point	53.151318	-3.016192	65.23	127.93	193.16



Name: RWY 22
Description:
Threshold height : 15 m
Direction: 221.2 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg

Point	Latitude deg	Longitude deg	Ground elevation m	Height above ground m	Total elevation m
Threshold	53.183023	-2.970571	4.18	15.24	19.42
2-mile point	53.204767	-2.938735	17.45	170.66	188.11



Discrete Observation Receptors

Number	Latitude deg	Longitude deg	Ground elevation m	Height above ground m	Total Elevation m
1-ATCT	53.176194	-2.986247	8.67	8.00	16.67

1-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	
Eastern Array	20.0	180.0	0	0	-	
Western Array	20.0	180.0	0	0	-	

PV & Receptor Analysis Results

Results for each PV array and receptor

Eastern Array no glare found

Component	Green glare (min)	Yellow glare (min)
FP: RWY 04	0	0
FP: RWY 22	0	0
OP: 1-ATCT	0	0

No glare found

Western Array no glare found

Component	Green glare (min)	Yellow glare (min)
FP: RWY 04	0	0
FP: RWY 22	0	0
OP: 1-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 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.
- Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
- Refer to the **Help page** for detailed assumptions and limitations not listed here.

