ForgeSolar

East Stour Solar Farm

East Stour Solar Farm Aviation Receptors

Created Feb. 18, 2022
Updated Feb. 18, 2022
Time-step 1 minute
Timezone offset UTC0
Site ID 65122.11471

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**

Analysis Methodologies:

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

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
East Array	20.0	180.0	0	0	-
North Array	20.0	180.0	397	0	-
South Array	20.0	180.0	0	0	-

Component Data

PV Array(s)

Total PV footprint area: 641,411 m^2

Name: East Array
Footprint area: 128,892 m^2
Axis tracking: Fixed (no rotation)
Tilt: 20.0 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	51.099830	0.973250	55.58	3.00	58.58
2	51.099810	0.972427	55.74	3.00	58.74
3	51.098060	0.970130	65.93	3.00	68.93
4	51.096650	0.973570	59.44	3.00	62.44
5	51.098200	0.976640	59.09	3.00	62.09
6	51.097120	0.978630	69.31	3.00	72.31
7	51.098840	0.980410	59.51	3.00	62.51
8	51.099680	0.978090	59.46	3.00	62.46
9	51.099660	0.977750	58.81	3.00	61.81
10	51.098980	0.977040	57.64	3.00	60.64
11	51.099570	0.976310	56.98	3.00	59.98
12	51.098240	0.974790	59.01	3.00	62.01

Name: North Array
Footprint area: 166,791 m^2
Axis tracking: Fixed (no rotation)
Tilt: 20.0 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	51.112610	0.961030	65.41	3.00	68.41
2	51.111440	0.961520	62.39	3.00	65.39
3	51.110830	0.962170	62.47	3.00	65.47
4	51.110430	0.962040	61.36	3.00	64.36
5	51.109800	0.961220	53.45	3.00	56.45
6	51.108930	0.961269	50.73	3.00	53.73
7	51.108580	0.962900	50.54	3.00	53.54
8	51.108250	0.963330	50.62	3.00	53.62
9	51.107780	0.962940	51.12	3.00	54.12
10	51.107440	0.962530	50.74	3.00	53.74
11	51.107250	0.962510	50.18	3.00	53.18
12	51.107250	0.963220	50.99	3.00	53.99
13	51.108090	0.966440	50.72	3.00	53.72
14	51.109220	0.967210	52.69	3.00	55.69
15	51.109650	0.969780	50.80	3.00	53.80
16	51.111120	0.966160	59.75	3.00	62.75
17	51.110500	0.964140	61.64	3.00	64.64
18	51.111330	0.965170	60.88	3.00	63.88

Name: South Array
Footprint area: 345,728 m^2
Axis tracking: Fixed (no rotation)
Tilt: 20.0 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	51.105160	0.961160	50.98	3.00	53.98
2	51.102160	0.961200	64.02	3.00	67.02
3	51.101690	0.961520	65.71	3.00	68.71
4	51.101550	0.961160	63.97	3.00	66.97
5	51.100770	0.961160	64.17	3.00	67.17
6	51.098650	0.963180	60.40	3.00	63.40
7	51.098290	0.966420	67.36	3.00	70.36
8	51.099340	0.968430	67.83	3.00	70.83
9	51.102930	0.967720	57.50	3.00	60.50
10	51.103410	0.967250	54.53	3.00	57.53
11	51.103650	0.967620	51.96	3.00	54.96
12	51.103210	0.968970	54.01	3.00	57.01
13	51.103100	0.972270	52.86	3.00	55.86
14	51.103750	0.972620	51.80	3.00	54.80
15	51.104020	0.972040	50.90	3.00	53.90
16	51.104080	0.970080	51.65	3.00	54.65
17	51.103830	0.969980	51.92	3.00	54.92
18	51.103830	0.969360	51.96	3.00	54.96
19	51.104210	0.969270	51.21	3.00	54.21
20	51.104410	0.969420	50.39	3.00	53.39
21	51.104520	0.969250	49.90	3.00	52.90
22	51.104080	0.967550	50.48	3.00	53.48
23	51.105350	0.963520	51.03	3.00	54.03

2-Mile Flight Path Receptor(s)

Name: Haringe Farm RWY 02
Description:
Threshold height : 15 m
Direction: 18.0 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	51.090335	0.988031	88.57	15.24	103.81
2-mile point	51.062837	0.973790	1.89	270.61	272.50

Name: Haringe Farm RWY 20
Description:
Threshold height : 15 m
Direction: 198.0 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	51.093495	0.989710	84.03	15.24	99.27
2-mile point	51.120993	1.003953	79.31	188.65	267.96

Name: Pent Farm RWY 05
Description:
Threshold height : 15 m
Direction: 51.0 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	51.107566	1.049541	80.64	15.24	95.88
2-mile point	51.089370	1.013712	81.80	182.77	264.57

Name: Pent Farm RWY 23
Description:
Threshold height : 15 m
Direction: 231.0 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	51.111648	1.058982	92.79	15.24	108.03
2-mile point	51.129843	1.094814	102.07	174.65	276.71

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	
East Array	20.0	180.0	0	0	-	
North Array	20.0	180.0	397	0	-	-
South Array	20.0	180.0	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
north-array (green)	0	0	190	6	0	0	0	0	201	0	0	0
north-array (yellow)	0	0	0	0	0	0	0	0	0	0	0	0

PV & Receptor Analysis Results

Results for each PV array and receptor

East Array no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Haringe Farm RWY 02	0	0
FP: Haringe Farm RWY 20	0	0
FP: Pent Farm RWY 05	0	0
FP: Pent Farm RWY 23	0	0

No glare found

North Array low potential for temporary after-image

Component	Green glare (min)	Yellow glare (min)
FP: Haringe Farm RWY 02	0	0
FP: Haringe Farm RWY 20	0	0
FP: Pent Farm RWY 05	0	0
FP: Pent Farm RWY 23	397	0

North Array - Receptor (Haringe Farm RWY 02)

No glare found

North Array - Receptor (Haringe Farm RWY 20)

No glare found

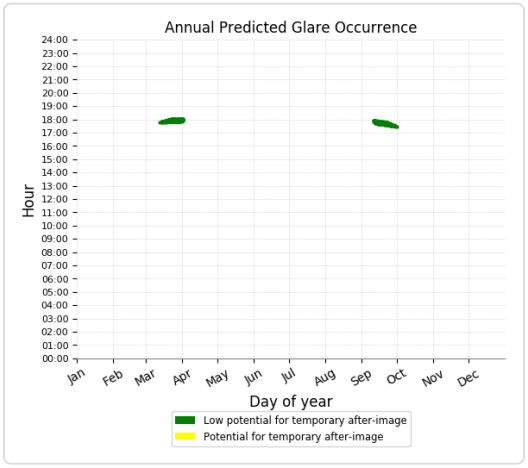
North Array - Receptor (Pent Farm RWY 05)

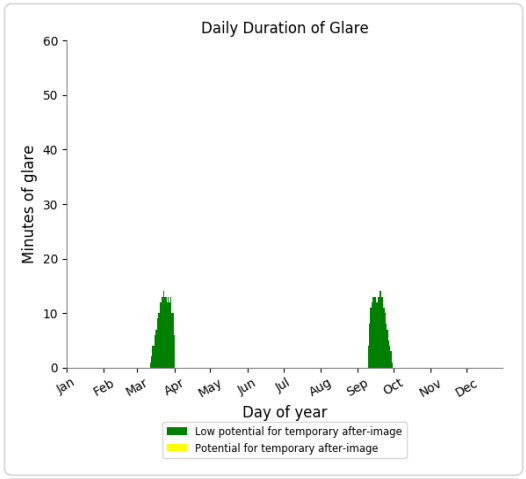
No glare found

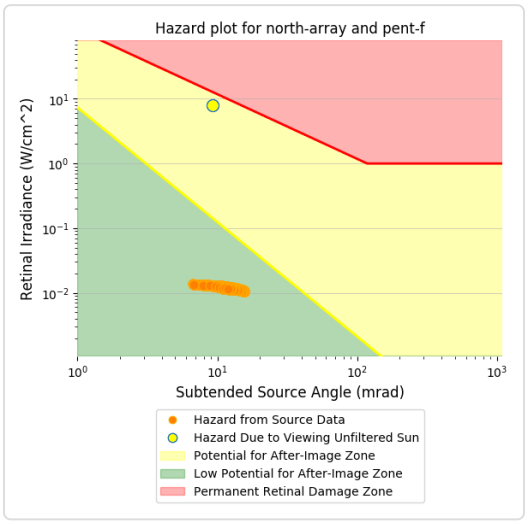
North Array - Receptor (Pent Farm RWY 23)

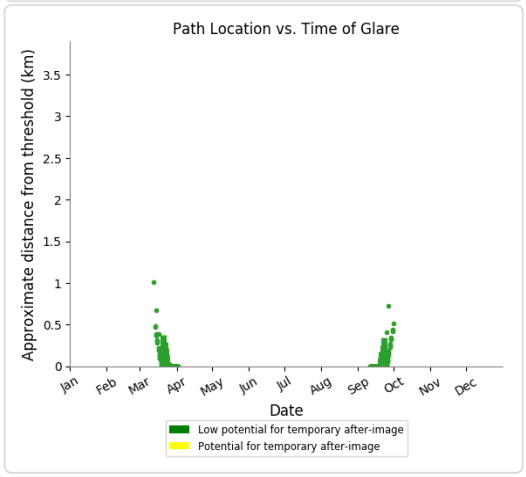
PV array is expected to produce the following glare for observers on this flight path:

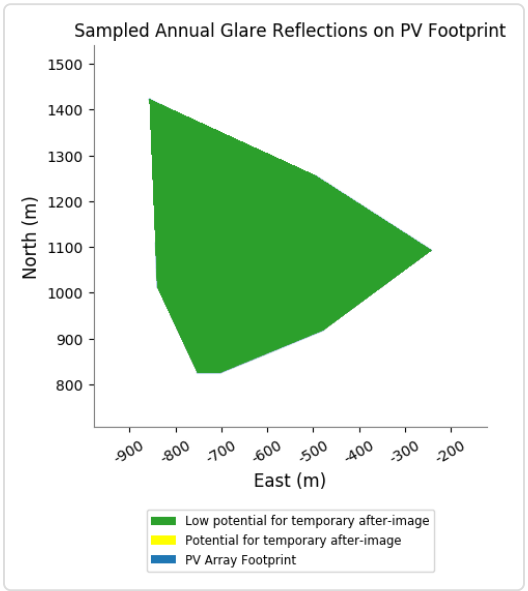
- 397 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.

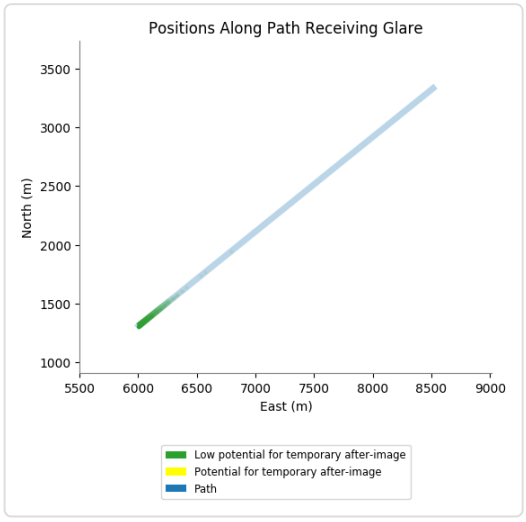












South Array no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Haringe Farm RWY 02	0	0
FP: Haringe Farm RWY 20	0	0
FP: Pent Farm RWY 05	0	0
FP: Pent Farm RWY 23	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 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.
- 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.